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ABSTRACTS

Indian Society of Gastroenterology

Plenary Session

001

Outcome of management protocol to reduce von Willebrand factor (vWF) in acute hepatic dysfunction: Hepatotoxicity due to yellow phosphorus (rat killer) poisoning as a prototype

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Introduction High vWF levels may predispose to platelet microthrombi and multi-organ failure in phosphorus poisoning induced hepatotoxicity. We report outcome of vWF lowering therapies: N–acetyl cysteine (NAC), fresh frozen plasma (FFP) infusions and plasma exchange in these patients.
Method In this retrospective analysis of prospectively collected data, patients were classified to have uncomplicated acute hepatitis/UAH (deranged LFT, INR ≤1.5), acute liver injury/ALI (deranged LFT, INR >1.5) and acute liver failure/ALF (ALI, hepatic encephalopathy). ALF patients were advised liver transplantation, those not opting for transplantation underwent plasma exchange and NAC infusion; ALI patients received NAC±FFP infusions (plasma exchange, if worsening); UAH patients had oral NAC. Normal plasma vWF antigen levels are 50% to 150%.
Results Seventeen patients with hepatotoxicity due to phosphorus poisoning (December 2017 to July 2018), at presentation had UAH (one 19 year old male), ALI (13 patients, age 22 (15-35) years, median (range); 6 males)) or ALF (3 patients, age 25 (7-25) years; 1 male). Baseline MELD scores were 11, 24 (12-38) and 36 (32-37); platelet counts were 1.59, 2 (1.05–3.51), and 1.63 (0.9–2.92), and plasma vWF antigen levels were 153%, 392 (146-513)% and 448 (414- 555)% in UAH, ALI and ALF patients respectively. All 13 ALI patients received NAC, 7 had FFP infusion, 3 had plasma exchange (2 (1-2) sessions). All 3 ALF patients had NAC and plasma exchange (5 (1-6) sessions). 11/13 (85%) ALI patients survived, 2 progressed to ALF and died. Of 3 ALF patients, 2 (67%) survived. No patient underwent liver transplantation. Of 5 patients meeting criteria for emergency liver transplantation, 3 (60%) survived.
Conclusion vWF lowering treatment in phosphorus poisoning induced hepatotoxicity resulted in transplant free survival rates of 100% (UAH), 85% (ALI) and 67% (ALF).

002

Optimizing infliximab therapy using a Dashboard approach – An Indian experience

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Introduction Infliximab (IFX) pharmacokinetics is influenced by several variables. A few patients fail to respond (primary non-responders) while there are others who form antibodies and loose response with time (secondary non-responders). The complex multifactorial relationship between covariates and IFX distribution limits a direct correlation between dose and drug level. Recently, Bayesian systems in dashboard formats have been proposed for use in clinical practice. We aimed to assess the accuracy and efficacy of the iDose dashboard system.
Methods The IFX levels estimated in our laboratory in inflammatory bowel disease (IBD) patients as a part of clinical service (n=20) were compared with that forecasted by the iDose dashboard software. Patient's clinical history, demographic details, laboratory findings such as albumin and CRP were entered in the software and the predicted IFX level was compared with the estimated level. In addition, dashboard guided dosing strategy was prescribed in 3 patients and the clinical outcome was followed.
Results Of the 20 patients, concordance in estimated and predicted IFX level was seen in 16 patients. iDose guided dosing was clinically useful to achieve target therapeutic response in all three patients. The dosing interval was increased from 4 weeks to 7 weeks in two patients and, in the third patient, the dosing was optimized with multiple drug estimations and iDose prediction.
Conclusion The iDose dashboard forecast for IFX level and dosing regimen was in concurrence with the estimated IFX level. This approach optimized the infliximab therapy by individualized IFX dosing and duration. Ithas the potential to substantially reduce the cost

003

Time-dependent associations of acute pancreatitis with gut microbial dysbiosis and altered intestinal permeability: Lessons learnt from experimental model

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Introduction Intestinal barrier dysfunction plays an important role in acute pancreatitis (AP). In this study, we evaluated the dynamic association of AP with intestinal microbial dysbiosis and gut barrier permeability.
Methods AP was induced in C57Bl/6J mice with intra-peritoneal injections of cerulein (50 μg/kg/hour for 10 hrs). V3-V4 region of metagenomic DNA isolated from fecal pellets at baseline, 12, 24, 48 and 72 hrs were sequenced. Pancreas and intestines were harvested for histological examination and expression (mRNA, protein) studies. Circulating and tissue cytokines were quantified by FACS. Alterations

in the intestinal permeability was identified by performing IHC and qRT-PCR studies for ZO-1, ZO-2, occludin. Intestinal epithelial cell apoptosis and proliferation were identified and quantified by performing IHC for caspase-3 and Ki-67.
Results Successful induction of AP was confirmed by elevated trypsin activity and inflammatory changes in pancreatic tissue. Circulating IL-6, TNF-α, and IL-10 were significantly elevated at 12 hrs of AP induction. Principal component analyses and hierarchical clustering analyses of metagenomic data confirmed gut bacterial dysbiosis in mice with AP. Relative abundance of phylum Bacteroidetes and genus Bacteroides were significantly elevated at 48 hrs of AP induction. Pancreatic and ileal tissue homogenates showed increased IL-6, TNF-α concentration at 12 and 24 hrs. qRT-PCR and IHC of intestinal tissue showed progressive time-dependent down-regulation of ZO-1, ZO-2 and occludin expression. Intestinal epithelial cell apoptosis was significantly high at 24hrs and normalized by 72 hrs. Ki-67 expression correlated negatively with caspase-3 expression at 72 hrs after AP induction.
Conclusion Data suggest that AP associated intestinal inflammation could result in time dependent altered microbial dysbiosis and intestinal permeability.

004

Normative values of sarcopenia in the Indian population

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Introduction Sarcopenia is characterized by the loss of skeletal muscle mass, strength and performance. It is of great prognostic importance in patients with liver cirrhosis (LC). The study was design to provide normal values (computerized tomography skeletal muscle index (CTSI), hand-grip strength (HGS), gait velocity, chair stand) for measuring sarcopenia in Indian population.
Methods CTSI (cm2/m2), HGS (Kg), gait velocity (m/min), chair stand, of 3087 non-cirrhotic patients who underwent abdominal computed tomography (CT) for acute abdomen were analyzed in this study. The cross-sectional area of skeletal muscles was measured at the level of the third lumbar vertebra on CT (using Tomovision slice Omatic 5.0 software).
Results Three thousand eighty-seven number of patients, 1003 (32%) females and 2084 (67%) males who underwent abdominal CT were enrolled in this study. Mean CTSI in female was 41.25±4.42 vs. 44.33±6.56 in male (p<0.0001). Mean of HGS in female was 25.19±7.57 vs. 35.14 ±8.56 in male (p<0.0001), mean of gait velocity in female was 1.76±2.38 vs. 1.86±2.22 in male (p=0.2524) and mean of chair stand in female was 10.38±4.42 vs. 13.86±2.56 in male (p<0.0001).
Conclusions This is the largest global data provide normative values of all sarcopenia parameters for adults based on gender. This shall enable future studies on Sarcopenia in cirrhotic patients.

005

Utility of neutrophil CD64 and in distinguishing bacterial infection from disease flare in severe alcoholic hepatitis

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Background Bacterial and opportunistic infections are a major cause of morbidity and mortality in patients with severe alcoholic hepatitis (SAH). Steroids are used in treatment of severe alcoholic hepatitis (MDF >32: MELD>20) and may exacerbate sepsis so it is vital to differentiate infection vs. inflammation. Fc receptor (FcγR1 or CD64) expression on neutrophils and soluble TREM-1 (Triggering Receptor Expressed on Monocytes) are potential biomarkers of bacterial infections.
Aim To Assess the clinical usefulness of quantitative CD64 measurement on neutrophils measurements in differentiating bacterial infection from onflammation in patients of SAH.
Methods Patients with bacterial infection (n=58), active disease (n=70), and healthy controls (n=20) were included. Neutrophil CD64 expression using flow cytometry and procalcitonin C-reactive protein levels were studied.
Result The percentage of neutrophils with CD64 expression and their mean fluorescence intensity in patients with infection 76.2 (56.9-86.5)%, 1431 (229-1828) were significantly (p<0.05) higher as compared to those without infection (16[12.6-23.1])%, 853 (20-968) and controls (7.05[1.4-9.5]%, 99.5 [54.7-140.7]).The sensitivity and specificity of CD64 expression on neutrophils to diagnose bacterial infection (using a cut-off value of 27%) was 94% and 78%, respectively. The sensitivity and specificity of procalcitonin was 83% and 72% respectively at cut-off of 2.91 ng/mL.
Conclusion Quantitative measurement of CD64 on neutrophils can distinguish between systemic infection and Inflammation.

006

Predictive models of the outcome of medical management of acute severe ulcerative colitis using principal component analysis and artificial neural network

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Background About 15% patients with acute severe ulcerative colitis (UC) fail to respond to medical treatment and may require colectomy. An early prediction response may help the treating team and the patients and their family to prepare for alternative treatment options.
Methods Data of 263 patients (mean age 37.0±14.0-y, 176, 77% male) with acute severe UC admitted during a 12-year period were used to study predictors of response using univariate analysis, multivariate linear principal component analysis (PCA), and non-linear artificial neural network (ANN).
Results Of 263 patients, 231 (87.8%) responded to the initial medical treatment that included oral prednisolone (n=14, 5.3%), intravenous (IV) hydrocortisone (n=238, 90.5%), IV cyclosporine (n=9, 3.4%), and infliximab (n=2, 0.7%), and 28 (10.6%) did not respond and the remaining 4 (1.5%) patients died. Non-responding patients had to stay longer in the hospital and died more often. On univariate analysis, the presence of complications, the need for use of cyclosporin, lower Hb, platelets, albumin, serum potassium, and higher C-reactive protein were predictors of non-response. Hb and albumin were strong predictive factors both on PCA and ANN. Though the non-linear modeling using ANN had very predictive accuracy for the response, its accuracy for predicting non-response was lower.
Conclusion It is possible to predict the response to medical treatment in patients with UC using linear and non-linear modeling technique. Serum albumin and Hb are strong predictive factors.

Young Investigator Award Session

007

Quantitative proteomic analysis identifies dysregulated platelets in severe alcoholic hepatitis

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Background and Aims Severe alcoholic hepatitis (SAH) is linked to thrombocytopenia and platelet activation. However, the phenotype of platelets, proteins transported and associated function in SAH patients is not known.
Method To explore this quantitative proteomic profiling of SAH platelets was compared to healthy platelets, which led to the characterization platelet phenotype (GO, KEGG, blood transcription modules-BTMs) and identification of key dysregulated pathways and were validated in a separate cohort of (n=40) SAH patients. Platelets functions such as activation, aggregation, intracellular calcium levels, vesicular and granule secretion were correlated to severity of SAH patients.
Results In this pilot study a total of 1235 platelet proteins were identified; of them 202 were up-regulated and 321 down-regulated (FC >±1.5, p<0.01) in SAH vs. HC. Proteins linked to platelet activation, complement regulation and lipid transportation were up-regulated (log2FC>2, p<0.001), whereas proteins linked to platelet hemostasis, coagulation, alpha and dense-granules and vesicular transport were down-regulated (log2FC<-2, p<0.001) in SAH platelets. On validation, platelets from SAH patients documented higher expression of activation markers (PAC-1, CD62P), intracellular calcium levels and aggregation marker (Gp2b/3a protein) compared to HC (p<0.05). Genes linked to platelet and complement activation were up-regulated and directly correlated (r >0.3, p<0.05) with the severity. Further genes linked to alpha and dense-granules, coagulation and hemostasis were downregulated and inversely correlated (r>-0.3, p<0.05) to the severity of SAH patients. Interestingly the mRNA and proteins expression levels of vesicular and granular secretions (SNAP-23, VAMP-3, Rab-27b, Syntaxin-11 and Munc13-4) were significantly downregulated (p<0.05) and inversely correlated (r>-0.3, p<0.05) with the severity.
Conclusion Platelet in SAH patients are activated, however, they show decreased granular content and impaired vesicular and granular secretion, which may contribute to vascular injury in such patients.

008

Generation of secondary humanized livers through intra-omental transplantation of bioengineered livers for the management of end-stage liver diseases

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Introduction End-stage liver diseases (ESLD) represent a major, neglected global public health crisis which requires urgent actions towards finding proper cure. Orthotopic liver transplantation has been only definitive treatment modality for ESLD. However, shortage of donor organs, timely unavailability, post-surgery related complications and financial burden to the patients limits the number of patients receiving transplants. Hence alternative choices are highly desirable to overcome the limitations of current modalities. In present study we have explored a new concept of generating secondary humanized livers through intra-omental transplantation in rats which can be used for the management of ESLD.
Methods Decellularization of whole rat liver was performed using gradients of detergents within 20 h through hepatic artery perfusion at defined flow rate. Decellularized liver scaffolds (DLS) were characterized extensively for preservation of ECM, vasculature and organ architecture. The humanization of DLS was performed post-sterilization using human hepatic progenitor cells (hHPCs) under controlled ex vivo condition. The structural and functional response of engineered humanized livers was identified to explore its use in drug evaluation and further transplanted in rat omentum. The structural and functional characteristics of transplanted grafts were identified after day 3 and day 30.
Results An efficient decellularization protocol was developed to generate completely DLS within 20h of continuous perfusion through hepatic artery while retaining intact ECM proteins, liver vasculature and architecture. The engraftment efficiency of cells within the DLS was found to be >98%. Functional analysis of repopulated liver cells was identified by quantification of albumin and urea. Retrieved humanized liver grafts didn't show visible fibrotic reactions at the site of transplantation. Grafts were found to be well embedded in the peritoneal cavity with neo-vascularisation without immunological rejection.
Conclusion The present study demonstrates generation of secondary humanized livers with neo-vascularization during intra-omental transplantation of bioengineered livers in rats.

009

Pentazocine, a kappa-opioid agonist, is better than diclofenac for analgesia in acute pancreatitis: A randomized controlled trial

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Introduction The ideal analgesic is not known for patients with acute pancreatitis (AP). Concerns have been raised about serious adverse effects of opioid analgesics increasing the severity of AP. We hypothesized that non-steroidal anti-inflammatory drugs (NSAIDs) might be better analgesics due to their anti-inflammatory effect. Our objective was to compare pentazocine, an opioid, and diclofenac, an NSAID for adequate analgesia in patients with AP.
Methods In a double-blind randomized controlled trial, patients with AP were randomized to either intravenous Diclofenac 75 mg or Pentazocine 30 mg. Fentanyl was given as a rescue analgesic through a patient-controlled analgesia pump. Primary outcome was pain relief measured objectively by the dose of fentanyl required as rescue analgesic, pain-free period, and numbers of good and bad demands of fentanyl. Secondary outcome was adverse events.
Results Fifty patients were randomized: 24 to pentazocine group and 26 to diclofenac group. Baseline characteristics were comparable between the groups. Pentazocine was found to be better than diclofenac in terms of significantly lower dose of rescue analgesic (fentanyl) required [126 μg (range 0-960 μg) vs. 225.5 μg (range 0-810 μg); p=0.028], and longer pain-free period (31.1±8.2 hours vs. 27.9±6.6 hours, p=0.047). The number of good and bad demands was lower in the pentazocine compared with diclofenac group (11.5 [range 0-92] vs. 16 [range 0-85], p=0.098) although not statistically significant. Adverse events were similar between the groups.
Conclusion Pentazocine, a *kappa* opioid receptor agonist, was significantly better than diclofenac for pain relief in AP. ***(Trial registration number: CTRI/2016/09/007326)***.

010

Thromboelastography guided blood product transfusion in patients with chronic liver disease undergoing invasive liver-related procedures: A randomized controlled trial

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Background We aimed to assess the use of thromboelastography (TEG) directed blood product transfusion in cirrhotic patients undergoing invasive liver-related procedures compared to standard of care (SOC) correction of coagulopathy.
Methods In this open label, randomized control trial, cirrhotic patients with coagulopathy, undergoing invasive liver-related procedures, were randomized- to either TEG-guided blood product transfusion or SOC- from November 2017 till April 2018. The primary outcome was difference in the amount of fresh frozen plasma (FFP) and platelet units transfused between the two groups. Secondary outcome measures were procedure related bleeding complications within five days.
Results Of the 30 patients, 15 were randomized to the TEG group and 15 to the SOC. Procedures performed were percutaneous liver biopsy (n=21), sphincterotomy with stone removal (n=1), transjugular intrahepatic portosystemic shunt (TIPS) (n=1), pigtail drainage of empyema (n=1), percutaneous acetic acid injection (PAI) for hepatocellular carcinoma (HCC) (n=2) and transarterial chemoembolization (TACE) (n=2), pigtail drainage of intraperitoneal collections (n=1) and hepatic vein angioplasty (n=1). There were no differences in baseline demographic profile and types of invasive liver-related procedures between the two groups. All 15 subjects in the SOC group received blood product transfusions, vs. 5 in the TEG group (100% vs. 33.3%; p<0.001). In the SOC group, 9 (60%) received platelet transfusions, 6 (40%) received FFP and no patient received both FFP and platelets. In the TEG group, 2 (13.3%) received FFP (p=0.215 vs. SOC), 3 (20%) received platelets (p=0.128 vs. SOC) and no patient received both FFP and platelet. None of the patients in either group developed procedure related bleeding complications immediately post procedure or till 5 days of follow up.
Conclusion TEG-guided blood product transfusion strategy was associated with reduced blood product transfusion without increased risk of bleeding in cirrhotic patients undergoing invasive liver-related procedures.

011

Hepatitis B virus-infected pregnant females with higher circulating HBsAg levels showed impaired immune imprint in their newborns at birth

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Background Vertical transmission of hepatitis B virus (HBV) from infected mother to the new-born often results in viral persistence. To understand mechanisms of materno-fetal HBV-transmission and viral persistence, we studied maternal immunity and peripheral blood mononuclear cell (PBMC) transcriptome in mothers and new-borns.
Methods Fifty HBsAg positive mothers and babies were included; 22 with the transmission (Gr. I, T, n=22) and 28 with no transmission (Gr. II, NT, n=28) to the new-borns, and compared with healthy mother-baby pairs (Gr. III, n=10). PBMCs were analyzed for HBV-specific DCs, T cells, T follicular helper (TFh), B cells and functional immune responses, cytokine levels as well as transcriptome signatures to identify immune gene expression correlates for protective immunity.
Results Group II mothers had lower HBsAg levels (3.82 x103 vs. 1.493x104, p<0.0001) with greater HBV specific responses of DCs, T cells, TFh and B cell than Gr. I mothers. The percentage frequencies of TFh cells had lower (11.06±1.71 vs. 18.05±1.74, p=0.02) in Gr. I mothers was accompanied with reduced IL21 (356.1±50.17 vs. 493.6±56.70, p=0.04) levels. TFh frequencies and IL21 levels inversely correlated with HBV DNA levels. The cut-off level of 9.5% and 8.93% from the receiver operating curve predicted the involvement of TFh and B cells in HBV transmission. Transcriptome signatures revealed that maternal gene imprints were reflected in their new-borns. Further genes related to DCs, TFH and B cells and were increased in Gr. II. HBsAg+ve new-borns showed a boost in cellular and humoral responses after vaccination.
Conclusion In HBV infected mothers, low serum IL-21 levels, decreased TFh and plasma B cell frequencies are associated with vertical transmission of HBV to new-born. These features are indicative of low protective immunity.

012

Gut microbiome diversity in acute severe colitis is distinct from mild to moderate ulcerative colitis

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Introduction Although the gut microbiome of patients with ulcerative colitis (UC) has been characterized, there has been no study of gut microbial diversity in patients with acute severe colitis (ASC). The present study compared the gut microbiome of patients with UC, ASC and healthy controls (HC).
Methods Patients with mild to moderate UC (n=23), ASC (n=21) and healthy controls (n=24) were recruited prospectively. A metagenomics approach was used to explore gut microbial diversity and genetic repertoires. Ulcerative colitis was diagnosed using ECCO guidelines and ASC was diagnosed using Truelove and Witts' criteria.
Results Genus level diversity (Simpson diversity measure) was significantly lower in ASC than in mild-moderately active UC (p<0.05), or HC (p<0.001). The gut microbiome in ASC was highly unstable, as characterized by high intra-cohort variation (analyzed using J-divergence measure) which was significantly greater than in UC or HC. On principal coordinate analysis, the microbiome of HC and UC were similar, with the ASC cohort being distinct from both. On quantitative evaluation of these differences (random forest classifiers), both ASC vs. HC and UC comparisons revealed excellent classification accuracy, with >90% patients being correctly classified. Statistical comparison of the ranked abundances identified four distinct clusters of genera (G1A, G1B, G2A, G2B), with specific trends in their abundance patterns across the three groups: the G1A/G1B clusters had the least, whereas G2A/G2B had the highest abundance in the ASC cohort. Interestingly, several known health-associated bacteria (*Faecalibacterium, Prevotella* and *Roseburia*) exhibited different oligotypes, with distinct oligotypes segregating into health and disease states (ASC).

Conclusions Gut microbial diversity is lower in ASC than in mild-moderate UC or healthy controls. Gut microbiome composition is increasingly unstable in ASC, with a distinct abundance of specific genera varying between healthy controls and ASC. Mild-moderate UC lies within the spectrum.

Presidential Posters

013

Non-surgical management of gastroduodenal tuberculosis: Nine-year experience from a tertiary referral center

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Introduction Gastroduodenal tuberculosis (GDTB) is an uncommon disease. Surgery has been standard of care both for diagnosis and management of GDTB. The aim of study was to evaluate the efficacy of non-surgical management of GDT using a combination of anti-tuberculous therapy (ATT) along with endoscopic dilatation of the tuberculous stricture.
Methods Patients suspected to have gastroduodenal TB were evaluated: clinical, endoscopic, radiological and histopathological data were recorded. Patients in whom a definite diagnosis of tuberculosis could not be confirmed on mucosal biopsies underwent endoscopic mucosal resection (EMR). Patients were treated with ATT, endoscopic dilatation was done if indicated. Patients were followed up to evaluate clinical, radiological and endoscopic response.
Results Over a 9-year period from 2009-2017 at GIPMER, 52 patients (mean age 28.5 yrs) were diagnosed with GDTB. Commonest presenting symptoms were vomiting (n=51, 98%) and weight loss (n=52,100%). The most common anatomical site of involvement was D1- D2 junction (n=22, 42%). Histopathological diagnosis could be made in 43 (82.6%) patients; 36 (69%) on mucosal biopsies and in 7 of the 10 patients (70%) who underwent snare biopsy/EMR. Endoscopic dilatation was done in 37 (71%) patients and median dilatation sessions were 2. Failure of endotherapy occurred in 4 patients (7.6%). All responders had complete amelioration of symptoms after 4-6 weeks of combination therapy. The mean period of follow up was 31 months and none of the patients reported any recurrence of symptoms.
Conclusion Combination of ATT and endoscopic dilatation has a high success rate in management of GDT and should be considered the standard of care.

014

FeGdO3 bimetallic nanoparticles-blood interaction: Implication for the development of magnetic resonance imaging based functional imaging

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Introduction Development of high contrast molecular imaging devices has gained tremendous potential in biomedical applications. Nanotechnology-based strategies have been evolved as one of the most promising field to design more appropriate and effective nanoparticles for such applications. However, biocompatibility of developed nanoparticles with human blood components is of pivotal importance for their clinical applications. In this study, we investigated the biological effects and stability of FeGdO3 nanoparticles during interactions with human blood and serum components.
Methods Human blood and platelet rich plasma samples were treated with 1μg/mL, 2 μg/mL, 4 μg/mL and 8 μg/mL concentration of FeGdO3 nanoparticles for 30 minutes, 60 minutes, 120 minutes, 240 minutes, 24 hours and 72 hours in vitro. Moreover, peripheral blood mononuclear cells were also treated with similar concentrations of nanoparticles to investigate the effect of these nanoparticles in time dependent manner. Following to biocompatibility assessment of FeGdO3 nanoparticles, the dual-MRI contrast property was evaluated using 1.5T Magnetome using different concentrations mixed with human blood.
Results Complete blood picture showed no adverse effect of tested concentrations of nanoparticles on human blood components such as platelet and RBC counts and levels of hemoglobin and HCT. Furthermore, serum stability of nanoparticles showed no significant effect at different concentrations of serum during interaction. Enhanced dual-MRI contrast was observed for FeGdO3 nanoparticles in human blood.
Conclusion The use of FeGdO3 showed high stability and biocompatibility with human blood components with increased T1 and T2 MRI-contrast which could be utilized for the future development of functional imaging in human applications.

015

Admission serum urea is a better predictor of mortality in patients with acute on chronic liver failure and acute kidney injury

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Introduction Occurrence of acute kidney injury (AKI) in acute-on-chronic liver failure (ACLF) patients negatively impacts their survival. Only elevated serum creatinine is used to assess AKI and survival in ACLF. There is scant data on impact of serum urea on outcome. We performed a prospective study to evaluate impact of serum urea on survival in ACLF patients with AKI.
Methods A prospective study was conducted in ACLF patients with AKI, hospitalized in Gastroenterology Department of SCB Medical College in India from October 2016 to March 2018. Demographic, clinical and laboratory parameters were recorded, and outcome compared in patients with respect to admission serum urea level.
Results Consecutive decompensated cirrhosis (DC) patients (n=439) were screened for ACLF, as per Asian Pacific Association for the Study of the Liver (APASL) criteria. One hundred and thirteen (25.7%) of them had ACLF. Out of 113 ACLF cases, 78 (69%) had AKI as per AKIN criteria. Alcohol was both the commonest cause of CLD (74.3%), as well as the commonest precipitant (61%) of ACLF. The discrimination ability between survivors and deceased was similar for serum urea (AUROC 28 days; 0.792 [0.694-0.889], 90 days; 0.838 [0.745-0.931], 95% CI) and serum creatinine (AUROC 28 days; 0.770 [0.666-0.874], 90 days; 0.794 [0.683-0.904]; 95% CI) in patients with ACLF and AKI. However, on multivariate analysis, admission serum urea (not serum creatinine) was an independent predictor of mortality in ACLF with AKI patients at 28 days; p=0.002, AHR 1.014 (1.005-1.023) and 90 days; p=.001, AHR 1.016 (1.007-1.025).
Conclusions About one fourth of decompensated cirrhotic patients had ACLF and more than two thirds of them were associated with AKI. Admission serum urea was found to be a better predictor of mortality than serum creatinine in ACLF patients with AKI. Hence serum creatinine may be replaced by serum urea, as a better predictor of mortality in ACLF patients with AKI.

016

Long-term outcome of patients with Budd-Chiari syndrome treated with anticoagulation alone: A single center experience

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Background Long-term outcome of patients with Budd-Chiari syndrome (BCS) treated with anticoagulants alone is unknown.
Methods Consecutive patients (n=138, mean [SD] age 29.3 [12.9] years; 66 men) with BCS, treated with oral anticoagulation alone, with minimum follow up of 12 months were included. Response was graded as complete response (CR), partial response (PR) and non-response (NR). During follow up, loss of response (LoR) or maintenance of response (MoR) were recorded. The association of baseline, clinical and biochemical parameters with different responses was evaluated.
Results 76/138 patients (55.1%) had CR, 26 (18.8%) had PR and 36 (26.1%) had NR. None of the patients who had PR or NR at one year had CR later. At a median follow up of 40 (12– 174) months, LoR was more common in PR group than in CR group (12 [46.2%] vs. 18 (23.7%), p0.03]. On multivariate analysis, absence of ascites at presentation (p=0.027), low baseline bilirubin (p=0.035), low INR (p=0.045), high AST (p=0.049), low ALP (p=0.001) and low CTP score (p=0.048) were associated with PR or CR. On logistic regression analysis, presence of ascites (OR 0.303, 95% CI-0.098-0.931) at baseline was associated with LoR. Absence of ascites, jaundice or GI bleed and low CTP score (p=0.01[OR -0.67, 95% CI 0.31 – 0.84]) on presentation were associated with MoR. One hundred and thirty-three bleeding episodes (23 major, four deaths) occurred in 55 (39.85%) patients (0.289 episodes per person year). Mortality was higher in NR group (28 [77.8%]) than CR [15 (19.7%], p=0.001) and PR (8 [30.8%] p=0.001) groups.
Conclusion Patients with initial CR have better survival than non-responders. One third patients lose response on follow up. Presence of ascites at baseline is associated with LoR.

017

Alveolar echinococcosis of liver: A series of ten cases

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Introduction Alveolar echinococcosis (AE) is a chronic, serious and sometimes lethal parasitic infection, caused by Echinococcus multilocularis (EM). Epidemiologically most commonly found in the northern hemisphere. AE has been reported to occur in India with an annual incidence of one case per year. Until now there have been no cases of AE reported from this part of world to best of our knowledge. Aims and objectives: To evaluate and study the clinical profile of consecutive patients of AE diagnosed at a tertiary care centre.
Methods All patients referred with space occupying lesions of liver with suspicion of neoplastic lesions (Hepatocellular carcinoma, Intrahepatic Cholangiocarcinoma, Atypical hemangioma etc.) were evaluated over past three years. All consecutive case of AH diagnosed were enrolled in this study. All baseline investigations, hydatid serology, imaging (USG, CT, MRI) and image guided biopsy of lesions were done. ERCP was done where indicated.
Observations A total of ten cases of AE liver were enrolled in the study with mean age of 39±11 years (range of 18-55 years). Males and females were equal. All patients were from rural background. Most of patients presented with pain upper abdomen 7 (70%) and rest presented with combination of jaundice and itching 3 (30%). Hydatid serology was positive in 7(70%) cases while as 3(30%) had either negative or equivocal results. Most of patients 8 (80%) had right lobe involvement while as 2(20%) had left lobe. The size of lesions ranged from 3.5 to 15 cms. Histology (gold standard) was confirmatory in all cases. The lesions were Kodama type-1 (2, 20%), Type-2 (4, 40%), Type-3 (3, 30%) and Type-5 (1, 10%) and PNM stage-I 2 (20%), II 4 (40%), III 3 (30%) and IV 1 (10%). Three patients required endotherapy in addition to benzimidazole therapy because of biliary tract involvement. On follow up of two years 70 % had either complete.

018

Endoscopic management of postcholesystectomy benign biliary stricture: if you can cross it you can cure it! 25 year's experience at a tertiary care center in northern India

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Introduction Endoscopic management of post-cholecystectomy benign biliary stricture with multiple plastic stents is routinely practised in many centers. However, data from India is scarce. Our aim was to assess efficacy and outcome of endoscopic management of these patients.
Methods A retrospective study was done in a referral center from January 2004 till May 2018. Seventy-three patients were included in the study. During each ERCP, increasing number of stents were place, stent exchange was done every 3 monthly for a period of 12 months and all the stents were removed at the end of therapy. Subsequently, patient was followed up with ultrasonography of abdomen and liver function tests every three monthly, ERCP was repeated if symptomatic or abnormal liver function parameter.
Results Of 73 patients, technical success of endoscopic biliary cannulation achieved in 70 (96%). Three patients with failed biliary cannulation underwent hepaticojejunostomy. Due to inadequate biliary drainage and unwilling for repeated endotherapy, six patients, underwent hepaticojejunostomy. Seven patients were lost to follow up after initiation of endotherapy. Two patients died, one due to myocardial infarction and another due to underlying chronic kidney disease. Four patients found to have malignant stricture, underwent palliative biliary stenting. Fifty-one patients completed therapy. Median age of patients was 39 years (range 23-86), mostly females (72%). Median number of procedures, maxium number of stents per session, duration of therapy were 4.2 (2-7), 4 (2-8), 13 months (6-26) respectively. The mean and median duration of follow up after completion of therapy was 41 and 33 months respectively (3-137). One patient had stricture recurrence, underwent hepaticojejunostomy.
Conclusions Endoscopic therapy is feasible in post cholecystectomy BBS with technical success of 96%. Recurrence of stricture is rare and at a median follow up of 3 years, bile duct patency is maintained in 98%.

019

A proteomic approach to identify dysregulated lipid transporter proteins which could predict the severity and outcome of patients with acute-on-chronic liver failure

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Acute-on-chronic liver failure (ACLF) is a serious ailment with high mortality. It is not known whether altered levels of various lipid transport related proteins could predict the severity of ACLF.
Aim To identify candidate biomarkers using proteomics, to assess the severity and prognosis in ACLF patients.
Methods Quantitative proteomics profiling was performed using high resolution mass spectrometry. Validation of protein expression profiling were performed in; Gr. 1. Alcoholic ACLF (n=40), Gr. 2. Alcoholic cirrhosis (n=20) and Gr. 3. Healthy controls (n=20).
Results Three hundred and five differentially regulated proteins were identified of which 120 were more than 2-fold differentially regulated. Proteins involved in transport and metabolismof lipids were significantly reduced in Gr. 1 (Pon1, ApoA1, ApoA2, and ApoC3; >2 folds). PON 1 was significantly reduced in Gr.1 (25 ug/mL), vs. Gr.2 (45 ug/mL), Gr.3 (140 ug/mL) (p<0.0001). Levels of other lipid transporters (Apo A1, Apo A2, Apo C1 Apo C3, Apo B, and Apo E) were significantly reduced in Gr.1 vs. Gr.2, Gr.3 (p<0.05). Levels of PON1 and Apo B were significantly reduced in the non-survivors compared to survivor in Gr.1 (p<0.05). Ratios of PON1/ApoA1, Apo A2, and ApoC1 were severely deranged in non-survivors in Gr.1 (p< 0.05). The level of PON1 and the ratio of PON1/A1, A2, C1 correlated inversely with the MELD, SOFA and CTP scores (p<0.05). Moreover, level of Pon1 and the ratio of PON1/Apo A1, A2 and C1 showed a direct correlation with survival in ACLF patients (p< 0.03, r2>0.3).
Conclusions In the ACLF patients, circulating Pon1 level and the ratio of PON1/Apo A1, A2, and C1 were significantly reduced in the non-survivors compared to survivors. These lipid transporter proteins could serve as biomarkers for assessing the outcome of patients with ACLF.

020

Hyperglycemia in acromegaly–How much is contributed by incretins secreted by intestinal K and L cells

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Incretins are hormones secreted into the gastrointestinal tract upon food ingestion. They promote insulin secretion by acting on pancreatic b cells in a blood-glucose-dependent manner. Two incretins, glucose-dependent insulinotropic polypeptide (GIP) and glucose dependent glucagon-like peptide (GLP)-1, have been identified. GLP-1 receptor agonists (GLP-1RAs) can reduce blood glucose levels and have been reported to have several extrapancreatic effects. All enteroendocrine cells (EECs) sense nutrients present in intestinal lumen. Whereas the molecular mechanisms by which specific nutrients are detected, and their impact on the secretion of different peptides, is still poorly understood. EECs express various types of receptors including for sweet, bitter and other taste. These properties are also true for K and L cells; K cells are predominantly found in duodenum whereas L cells are located in ileum and colon. However, a recently described population of K/L cells secretes both GIP and GLP-1. Their effects have been best demonstrated when glucose is orally ingested, compared to when the same amount of glucose is administered intravenously and GLP-1 being more potent than GIP.

Acromegaly is almost invariably caused by a growth hormone (GH) secreting pituitary adenoma with metabolic complications of disorders of glucose and lipid metabolism. The metabolic actions of GH are mainly diabetogenic as it is a potent antagonist of insulin. Prevalence of glucose intolerance in acromegaly ranges between 19% to 56% and up to 20% may have diabetes mellitus (DM). GH is known to induce glucose intolerance resulting in insulin resistance (IR). Earlier studies have shown that insulin sensitivity (IS) is reduced to a similar extent in acromegalic patients with and without glucose intolerance.
Incretin hormones are known to strongly influence glucose-insulin homeostasis and little is known about their effects on carbohydrate metabolism in acromegaly.

021

To compare the tissue diagnostic yield of solid lesion biopsies based on the histopathological analysis of endoscopic ultrasound guided fine needle aspiration (EUS –FNA) samples produced by the 19G Procore needle, Standard 19G needle and 22G Procore needle

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Introduction Endoscopic ultrasound guided fine needle aspiration (EUS–FNA) is a sensitive method for detecting intestinal and extraintestinal mass lesions. Inflammation causes cellular changes undistinguishable from neoplasia solely based on cytological evaluation, because tissue architecture and cell morphology are essential for accurate pathological assessment. Various EUS-guided techniques are available with variable success and complication rates.
Methods Single centre, prospective, randomized study. All patients above 18 years of age, having intestinal and extraintestinal solid mass lesions, were randomized to EUS-FNA and tissue diagnostic yield were compared based on the histopathological analysis of samples produced by the 19GP, 19GS and 22GP needles. Patients with INR >1.5, platelets <50000 were excluded.
Results Total 215 patients were evaluated and EUS-FNA was technically feasible in 210 (97.67%) cases. Three needle passes were made in every case. There was no significant difference between these three groups with regard to the age (p-0.676), gender (p-0.856), location (p-0.998), echogenicity (p-0.123), size (p-0.735 and 0.374) of the lesions and presence of calcification (p-0.093) or necrosis (p-0.729). Sample suitable for pathological evaluation were obtained in 90.5% cases with a tissue core in 45.7% cases. 28.1% lesions were malignant, 62.4% were benign and 9.5% remained undiagnosed. The histopathological diagnoses were possible in 87.1%, 90.0% and 94.3% cases respectively with 22GP, 19GP and 19GS needles (p-value-0.350). Presence of blood clot in order of 19GP (70.00%) >22GP (50.00%) >19GS (42. 8%), (p-value 0.003). There were no post procedure complications noted in any group.
Conclusion EUS-guided biopsy with these three needles was feasible and safe. The diagnostic yield of these three needles for providing adequate sample for histopathological analysis was clinically significant but not Statistical significant. Procore needles did not offer the extra possibility of obtaining a core sample for histopathological analysis in this study but there is high possibility of presence of blood clots.

022

Prevalence and predictors of irritable bowel syndrome (ROME IV, Rome III, and Asian Criteria) among medical students in a Government Medical College in South India

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Introduction Irritable bowel syndrome (IBS) is the most common functional gastrointestinal disorder. The prevalence rates of IBS in the United States using Rome III vs. Rome IV criteria are 10.8% vs. 6.1%, respectively. The prevalence of IBS in various Asian countries (ROME III) is 5%-10%. There has been the unavailability of study on the epidemiology of irritable bowel syndrome (IBS) based on ROME IV among medical students in India.
Aims 1. To estimate the prevalence and predictors of irritable bowel syndrome by ROME IV, ROME III, and Asian criteria, 2. The measure of agreement between Rome IV, ROME III, and Asian criteria.
Methods It was a cross-sectional questionnaire-based study done on 552 medical students (138 students per batch x 4 batches) who gave their consent for the study were included. Filled up questionnaires were collected, and the Chi-square test was applied.
Results IBS prevalence and severity distribution according to ROME IV, ROME III, and Asian criteria is depicted in Fig. 1. Among IBS subtypes 43.9%, 29.8%, 18.1% and 9.4% were mixed, constipation predominant, diarrhea predominant and unclassified. Prevalence increases with increasing age and higher MBBS batch using Rome III (p=0.012, 0.027) and Asian criteria (p=0.002, 0.017), but not with Rome IV (p=0.23, 0.40). IBS was found to have an association with mode of delivery, physical activity, BMI, coffee, dairy products, carbonated beverages, sleep duration, analgesic and antibiotics intake (Table 1). Cohen's kappa coefficient (κ) were 0.699, 0.367 and 0.213, between Rome III and Asian, Rome IV and Rome III, and Rome IV and Asian criteria.
Conclusions 1. Prevalence of IBS according to ROME IV, ROME III, and Asian criteria were 5.8%, 19%, 30.4% respectively. 2. The measure of agreement was maximum between Rome III and Asian and minimum between ROME IV and Asian criteria.

023

Risk factors predicting nosocomial, health care associated and community-acquired infection in spontaneous bacterial peritonitis and survival outcome

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Background The clinical presentation and outcome of spontaneous bacterial peritonitis (SBP) based on the acquisition site is not clearly known.
Aim To study prevalence, differences and survival outcome following nosocomial (N-SBP), community acquired (C-SBP) and healthcare associated (H-SBP) SBP infection in decompensated cirrhotic patients.
Methods This prospective observational study included confirmed cases of cirrhosis with ascites requiring paracentesis, age >18 years, either gender, any etiology and Child-Turcotte-Pugh (CTP) stage, with or without cirrhosis related complication. Patient data included age, gender, comorbidity, model for end-stage liver disease (MELD) score, CTP score, cirrhosis related complications, details of previous hospitalization, ascitic tapping and antibiotics instituted. SBP was diagnosed as ascitic fluid polymorphonuclear leukocyte count greater than 250/mm3 (0.25 × 109/L) and/or culture positivity for a single organism.
Statistics Chi-square test, Mann-Whitney U test, analysis of variance (ANOVA). Survival plot was plotted for various variables using log rank test. A p value <0.05 was statistically significant.
Results Six hundred and ten cases fulfilled the criteria for inclusion. One hundred and twenty-two (20%) patients had SBP: C-SBP in 37 (30.3%), N-SBP in 19 (16.5%) and H-SBP in 66 (54.5%). Majority were men (106; 86%) with median age of 51.5 (27-78) years. A significantly higher percentage of C-SBP belonged to CTP class B. Thirty-two and 7 patients respectively were blood and ascitic fluid culture positive. There were fewer ascitic fluid cultures positive in N-SBP and H-SBP compared to blood culture. Significant N-SBP were blood culture positive (p<0.02). The most common isolates were *E coli* followed by Klebsiella. Survival plot analysis at 3 months showed the worst survival for N-SBP (p 0.0009).
Conclusions Prevalence of SBP in our study was 20%, majority with H-SBP belonging to CTP C. Patients with N-SBP had significant bacteremia with high mortality.

024

Systemic inflammatory response predict organ failure and mortality in alcoholic hepatitis

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Introduction Severe alcoholic hepatitis (AH) can lead to systemic inflammatory response syndrome (SIRS) due to cytokine overplay which could predispose to multiple organ failure (MOF) and death.
Aims To estimate the predictive accuracy of Day1 SIRS in determining MOF in patients with severe AH. To estimate the predictive accuracy of Day1 SIRS in determining the 30 day mortality in patients with severe AH.
Methods Day 1 SIRS score in all consecutive patients with severe AH (DF ≥32) admitted in the wards of Medical Gastroenterology over a period of 1 year from the date of ethical committee clearance was taken and its relation with complications and mortality was studied and followed up for 1 m to look for morbidity and mortality.
Results A total of 133 patients with severe AH were taken out of which 94 had D1 SIRS 50 patients had 30 d mortality, 47 patients developed renal failure, 54 patients had MOF. Out of 47 patients who had RF 43 had D1 SIRS (91%). Out of 54 patients with MOF 50 (100%) had D1 SIRS. Out of 50 patients with 30d mortality, 50 (100%) had D1 SIRS. Higher D1 scores of SIRS were found to have higher sensitivity and specificity in predicting both the development of RF, MOF and 30d mortality.
Conclusions D1 SIRS can be used to predict the development of renal failure and MOF in patients with severe AH with very high sensitivity. Therefore, D1 SIRS can be used as a screening tool to stratify patients with severe AH and facilitate early referral, ICU admissions, thereby reducing adverse outcomes

025

Demographics and perioperative outcome of colorectal cancer in Kerala - Analysis of ASGK colorectal cancer surgical registry

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Colorectal cancer (CRC)is the third most common cancer in males and second most common in females.
Aim To develop a colorectal cancer surgical registry and to analyse the data of colorectal cancer operated by the Association of Surgical Gastroenterology Kerala (ASGK)members
Methodology A colorectal surgical registry format was developed by the ASGK. Members of ASGK were registered. This data base consists of demographics, symptomatology, investigatory reports, operative, perioperative details, neoadjuvant and adjuvant treatment. Follow up data of 1 year, 3 year and 5 years included in the Registry. The centers were requested to enter the colorectal cancer cases from January 2016.
Results The period of study was from January 2016 to March 2018. Fifteen centers in Kerala participated in the study. The number of cases taken up for our analysis was 1018. Total number of male patients were 621 (61%) and female patients 395 (39%). The median age group in male patients was 63 and female patients was 64. The most common presentation include bleeding per rectum (58.8%) and abdominal pain (23.3%). Rectum was the most common site 408 (40%). Stage II- 258 (25.3%) and stage III- 423 (42.2%) patients were the common stages reported.10.9% had metastatic disease. Low anterior resection was the most common procedure performed in 262 (25.3%) patients. Median duration of surgery was 240 minutes. Complications reported in 149 patients (14.6%). Most common type of differentiation was moderately differentiated adenocarcinoma 78.8%. Median number of lymphnodes harvested was 14.5. Follow up data is awaited.
Conclusion State wide colorectal surgical registry is feasible. Median age group Male-63 and female-64 and rectum is the common location. 10.9% presented with metastatic disease. This registry would identify high volume centers and for future multivariate analysis. Attempts should be made by other state chapter in order get a National level data.

026

Therapeutic plasma-exchange improves systemic inflammation and survival in patients with acute-on-chronic liver failure

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Systemic inflammation (SIRS) and infection form the pathogenetic hallmark of acute-on-chronic liver failure (ACLF). High-volume plasma-exchange (PE) has been shown to improve survival in patients with acute liver failure by combating SIRS, but there is paucity of data in patients with ACLF. We evaluated the role of artificial liver support systems (ALS), plasma-exchange (PE) and liver dialysis (FPSA) as compared to standard medical treatment in improving SIRS, development of multiorgan failure and survival (SMT) in a large multicentric-multinational cohort of ACLF patients.
Methods Prospectively collected data from AARC data base was analysed. Matching by propensity risk score (PRS) was done. Competing risk Cox regression analysis was done to identify event specific i.e. multiorgan failure related death.
Results ACLF patients (n=1866, mean age 44.3±12.3 yrs, 93% males, 65% alcoholics) received either ALS (n=162); (PE [n=131], FPSA (n=31]) or continued with SMT (n=1704). Patients treated with ALS had a significantly lower MELD (p=0.009), CTP (p<0.001) and SOFA scores (p<0.001) which was no more evident in the PRS-matched cohort (p>0.05) (n=208, [ALS-119; PE-94, LD-25)], SMT-89). ALS was associated with significantly higher resolution of SIRS ([OR 3.53, 1.95-6.49 and 9.23,3.42-24.8]) and development of new-onset SIRS ([or 4.38, 1.1-17.5 and 1.2, 1.04-1.29]) and MOF ([HR 6.5, 4.8-8.7 and 7.1,4.5-11.1]) in pre-match and PRS-matched cohorts respectively. At 1-month, 656 (35%) died of which 233 (35.5%) died of multiorgan failure. Treatment with PE ([HR 0.11, 0.04-0.27]), (HR-0.02, 0.002-0.15) significantly resulted in lower liver failure related death. Further, on subgroup analysis PE was associated with a significant survival benefit as compared to FPSA in pre-match (HR 3.4, 1.4-8.1) and PRS-matched (HR 3.9, 1.3-12.3) cohorts.
Conclusion ALS treatment in patients with ACLF improves systemic inflammation, lowers development of multiorgan failure and results in improved survival. Plasma-exchange has a significant survival benefit over FPSA and should be the therapy of choice in these patients.

027

High Cytomegalovirus DNA load in mucosal biopsies predicts steroid failure as well as colectomy in acute severe ulcerative colitis

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Introduction Cytomegalovirus (CMV) reactivation may be responsible for steroid refractory acute severe colitis (ASC), which requires rescue therapy in form of surgery or advanced immunosuppression. The optimum technique for diagnosing CMV colitis in this setting remains unclear. We investigated the role of CMV quantitative PCR for diagnosing CMV colitis and for predicting of steroid-failure in ASC.
Methods Consecutive patients with ASC satisfying Truelove and Witts' criteria, hospitalized at a single centre from May 2016 to November 2017, were included. The primary outcome measure was steroid-failure defined as colectomy and/or rescue therapy with ciclosporin or infliximab during admission. Oxford criteria, ulcerative colitis index of severity (UCEIS) at day 1 and fecal calprotectin (FCP) at day 3 were used to predict steroid response. Immunohistochemistry (IHC) and quantitative PCR for CMV was done on mucosal biopsies and the results were compared between steroid responders and non-responders.
Results Of 37 patients (mean age: 35±12 years, 70% males), 14 (38%) failed IV corticosteroids and 8 (25%) required surgery. Although IHC for CMV was not different between steroid failures and responders (29% vs. 17%, p=0.40), patients with steroid failure had a significantly higher median level of mucosal CMV DNA [7840(0-2700000) vs. 112(0-34459) copies/mg, p=0.03]. Significantly greater number of patients with steroid failure had CMV DNA count >1000 copies/mg (71% vs. 26%, p=0.007). CMV DNA count >1000 copies/mg (Odds ratio 6.5 (95% confidence interval 1.3-33, p=0.03)) and positive oxford criterion on day 3 of iv corticosteroids (OR 6 [95% CI 1.2-30, p=0.03]) were independent predictors of steroid-failure and need for rescue therapy/colectomy.
Conclusions CMV DNA quantification in mucosal biopsy can detect CMV colitis and predict steroid failure in acute severe colitis with reasonable accuracy.

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***Sarcina ventriculi* of gastrointestinal tract: A clinicopathologic characteristics of eleven cases**

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Sarcina ventriculi, a gram-positive coccus, is occasionally found in gastric biopsies. Although *Sarcina* had been described more than 150 years ago, little is known about its pathogenicity in humans. We, report clinicopathologic characteristics of 11 patients with *Sarcina* in gastric or duodenal biopsies. All eleven patients had presence of *Sarcina ventriculi* on the luminal mucosal surface of epithelium with mucosal injury. Of these eleven patients, ten patients had gastric outlet obstruction (GOO). Of these ten patients with GOO, 5 had antral narrowing and 5 had duodenal obstruction. Three patients had malignant GOO (2- carcinoma stomach, 1- carcinoma duodenum), 5 had ulcers with edematous narrowing (1- H pylori, 1- eosinophilic gastritis) and 2 had duodenal stricture. All patients had etiology other than sarcina for GOO. Of the 3 patients that had follow up endoscopy on resolution of symptoms, all patients had gastric residue on endoscopy. One patient had recurrence of symptoms with persistence of sarcina on biopsy at 3 months. Symptoms improved at 6 months and no evidence of sarcina on biopsy at 6 months. Thus, our findings suggest gastric outlet obstruction can be considered as a predisposing factor for *Sarcina* infection. Sarcina infection may not be the etiology for GOO but may complicate recovery and may lead to life-threatening complications. Therefore, the clinician and pathologist must be aware of such microorganisms. Moreover, if pathologist identified it in biopsies, it must be documented in the final report as the findings may have therapeutic consideration and warrant further investigation.

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Foxp3, TGF-ß and PDCD1 promoter hypomethylation impairs effector cells in non-seroconverters after hepatitis B reactivation

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Background and Aim Hepatitis B surface antigen (HBsAg) seroconversion sometimes occurs after reactivation, probably due to immune reconstitution. Termination of tolerance is decided by suppressive and inhibitory markers. We evaluated the methylation status of Foxp3, TGF-β and PD1 inhibitors in immune restoration in HBVr patients.
Methods Patients with HBVr, HBeAg+ve, ALT >5XULN and high HBV DNA (104-8) (HBVr, Gr-A, n=40) were followed till 48 wks. Patients who seroconverted (HBV DNA and HBsAg–ve, anti-HBs >10 IU/mL) (Gr-B) or remained as HBsAg+ve (Gr-C) were studied. HBeAg+ve, HBV DNA+ve CHB patients (Gr-D, n=18) served as control. Promoter methylation of Foxp3, TGF-β, and PDCD1 gene in PBMCs was analysed using bisulfite sequencing at baseline between Gr-B and C. Immune reconstitution of CD4, CD8 T cells, Tregs, and B cells and HBV specific functionality was assessed by flowcytometric analysis.
Results During follow up of 48 wk, 28 (70%) patients lost HBV DNA but remained HBsAg+ve (Gr C), and 8 (20%) lost HBV DNA and seroconverted (Gr B). Healthy subjects showed high methylation frequency of Foxp3 (100%), TGF-β (100%) and PDCD1 (76.47%). Gr-B methylation profile was comparable to heathy subjects. Gr-C had reduced methylation frequency for Foxp3 (91.63%±3.30, p=0.0196), TGF-β (92.73 ±2.46%, p=0.0041) and PDCD1 (14.70±1.76%, p=0.0041) in comparison to Gr B. Immune status of Gr-B revealed higher CD4+(p=0.0240), CD8+ (p=0.0088), B cells (p=0.0002) counts, lower expression of inhibitory PD1(p=0.0007, p=0.0105) and TGF-β (p=0.0012, p=0.0140) and increased expression of activation marker CD38 (p<0.0001, p<0.0107) on CD+/CD8+ Cells at baseline than Gr-C. No difference in CD4 Tregs in two groups, but significant decrease in CD8 Tregs (CD8+CD25+, p=<0.05, CD8+CD25+CD127lo/-Foxp3+, p=<0.05) in Gr-B vs. Gr-C was observed. At 24 wks, we observed similar profile at baseline, except increased expression of PD1 on CD4+/CD8+CD127LOCD25+FoxP3+Tregs (p=0.0003, p=0.0002) in Gr-B compared to Gr-C.
Conclusions Hypermethylation of Foxp3, PDCD1 and TGF-β promoter at baseline determines the seroconversion with increased effector T cells and decreased suppressive Tregs in HBVr patients.

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Relationship between serum vitamin D levels and disease severity in chronic pancreatitis patients

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Background Chronic pancreatitis (CP) may lead to deficiency of fat-soluble vitamins such as vitamin D. CP is more prevalent in India especially in Kerala state; however, there is limited data on vitamin D levels in this population.
Aim The aim of the present study was to assess the vitamin D status and its predictors in CP patients and relation with pancreatic exocrine insufficiency (PEI).
Methods Vitamin D status, serum calcium, protein, albumin, globulin and fecal elastase were measured in twenty-two CP patients and thirty control subjects. Anthropometric measurements and clinical details were recorded.
Results The mean age of the subjects was 43.9±15.58 years (range 19-65 years). Vitamin D level was significantly lower in CP patients as compared to healthy controls. Vitamin D status was significantly lower in Cambridge-grade III *vs.* II (9.89±4.5 vs 22.04±3.13 ng/mL, p=0.001) Cambridge-grade II *vs.* I (22.04±3.13 *vs.* 27.1±1.12 ng/mL, p=0.06), Cambridge-grade I *vs.* III (3.13 vs. 9.89±4.5 ng/mL, p= 0.01). Vitamin D levels positively correlated with serum calcium level (r=0.522, p=0.02). Fecal elastase1 directly correlated with serum calcium (r=0.558, p= 0.02). No significant difference in vitamin D and serum calcium was observed between smokers *vs.* non-smoker, diabetics *vs.* non-diabetics or alcoholic *vs.* non-alcoholic CP patients.
Conclusion Vitamin D deficiency appeared to correlate with severity of CP and PEI. Fecal elastase1 value of 112.5 μg/g appeared to predict vitamin D deficiency in CP.

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Predictors of unplanned hospitalization or death and utility of screening with clinical frailty scale in outpatients with cirrhosis

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Introduction Predictive factors determining which outpatients with cirrhosis are at highest risk for unplanned admissions are lacking. We aimed to study factors and utility of clinical frailty scale (CFS), in outpatients with cirrhosis in predicting hospitalization or/and death at 3 months.
Methods Prospective observational single-centre study. Unplanned hospitalization was defined as any admission to acute care hospital that was not planned. The outcome was defined as unplanned hospitalization or/and death at 1 and 3 months from study entry.
Results One hundred and twenty-four patients were included, 42 % were frail, 84.6% frail patients as compared to 15.3% non-frail patients had unplanned hospitalization at 3 months. Nine frail patients died in comparison to 1 in the non-Frail group at 3 months. Propranolol more than 20 mg with p<0.07, OR 7.16 (CI 1.73-29.6), Frail patients with p<0.01, OR:5.38 (CI: 1.3-21.6), presence of AKI with p<0.006, OR:17.24

(CI:2.2-133.7), CRP >2 mg/dL with $p<0.001$, OR:11.23 (CI:2.6-47) were found to independently predict unplanned hospitalization/death at 3 months. We also observed that CRP with a cut-off of 2 mg/dL with the sensitivity of 77.5% and specificity of 92.42 % with AUC of 0.88 predicted unplanned hospitalization/death at 3 months.
Conclusions Patients on propranolol more than 20 mg, Frailty, acute kidney injury and elevated CRP predicts unplanned hospitalization or/and death at 3 months. Clinical frailty scale as a rapid 1-minute screen can be utilized in outpatients with cirrhosis for stratifying patients at risk of adverse outcomes.

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Role of mitochondrial therapy in repair, rejuvenation in liver injury model and its bioenergetics

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Introduction Intracellular communication has shown lot of importance in various clinical conditions in repair of injured cells. There has been burgeoning interest in intercellular organelle transfer such as mitochondria and bio-energizing the repair and regeneration. Mitochondria are responsible for more than 90% of a cell's energy production via ATP. Mitochondria transfer helps in repair of injured cells by communicating the healthy cells. In the present study *invitro* and *invivo* work was carried out to bio-energies injured liver cells using mitochondrial therapy.
Methods Cryopreserved human hepatic cells (HHCs) were exposed with heat shock at 42o C to create injury in cells. Then heat stressed HHCs were cocultured with umbilical cord bold derived mesenchymal stem cells (MSCs). MTT, LDH, urea productions, expression of albumin, CK18, Miro1 and CX43 genes were analyzed after heat stress and coculture. Mitochondria were isolated from MSCs and transplanted along with MSCs into CCl4 induced liver stressed mice model. Histopathology, biochemical parameters, MDA, ROS, SOD and ATP level were measured after mitotherapy.
Results Viability and proliferation of HHCs in coculture were significantly (p=0.001) increased. The expression of albumin, CK18, Miro1 and CX43 were also significantly increased after the coculture. CCl4 induces mice shown the inflammatory cells after the 4 week which was gradually decrease after the mitotherapy. The level of MDA (p=0.01) and ROS (p=0.03) decreased in mice model after the mitotherapy and the level of SOD (p=0.03) and ATP (p=0.001) were significantly increased after therapy.
Conclusion Study has demonstrated that intracellular mitochondrial transfer increases the ATP production to bio-energizing the injured liver cells and this can be potentially serve as an effective remedy for alleviation of such diseases. This new area of bio-energizing injured cell to repair and regeneration using intracellular mitochondria transfer has paved the new strategy for the treatment of liver injury.

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Bone marrow mesenchymal stem cells (BMSCS) from decompensated cirrhotics are not fit for therapeutic uses

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Autologous Bone marrow mesenchymal stem cells (BMSCS) are often used for hepatic regeneration in patients with advanced cirrhosis. Use of autologous BMMSCs in chronic liver disease (CLD) has shown negligible to mild improvement in Child-Turcotte-Pugh (CTP) scores.
Aim of this study to investigate the effect of chronic liver damage on tissue repair and regenerative function of BMMSCs in decompensated-liver-disease (DLD).
Methods MSC were isolated from BM of DLD patients (n=10) and regenerative function were compared with same age/sex matched healthy BMMSCs (n=8). MSC characteristic were conformed as per the criteria of ISCT. In-vitro functional efficacy of cells was accessed by studying their potential to suppress the proliferation of cytotoxic T-cells, macrophage polarization, induction of angiogenesis and secretome profile. In-vivo therapeutic potential were analyzed in animal model of APAP induced ALF. Global-transcript profiles of cells were done by NGS. Metabolic profiles of BM plasma were done by NMR. Bioenergetics were done by analyzing the oxygen-consumption-rates and extracellular-acidification-rate using the Seahorse technology. Stamens property by CFU-F assay and senescence by SA-βGal assay. Mitochondrial and total ROS measured by mito-SOX and DHR123.
Results dBM-MSCs fulfilled the minimal criteria for MSC; plastic-adherence, surface marker, inducible-osteo/adepogenesis and specific surface expression patterns. In compression to hMSCs, dMSCs showed defect in immunomodulatory functions, angiogenic support and paracrine support. While infusion of hMSC significantly improve the 48 hour survival after APAP induced liver injury dMSCs failed, suggesting the loss of therapeutic potential of dMSCs. NGS analysis showed impeachment of genes associated to insulin-resistance in dMSC. DMSCs were significantly defective in glucose-uptake and are bio energetically quiescent. NMR data showed increased glucose in DLD BM-plasma in comparison to control. This might be responsible for insulin-resistance and loss of function in dMSCs. Further analysis showed the loss of self-renewal capacity replicative senescence in dMSCs.
Conclusion BMMSC in DLD are defective in their regenerative functions due to premature ageing and senescence and are not good cells for MSCs therapy.

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Impact of caffeine, sugar and other ingredients on beverage preference among 2nd graders

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Introduction Childhood obesity is a significant public health concern and beverages and soft drinks have shown to one of the contributors of the same. Sugar and caffeine are known to be addictive and we wanted to examine the beverage preference among 2nd graders depending on ingredients in beverages. The aim of our study was to identify predictors of beverage preference among 2nd graders.
Methods A survey was conducted in one class of 2nd graders. They were told to rank various beverages on a scale of 1 to 5 with 1 being don't like it a lot and 5 being like it very much. Commonly used beverages were used for the study including soft drinks, juices and milk available commonly in the school cafeteria.
Results Caffeine content had a positive correlation with beverage preference. There was no significant differences in calories, fats, sodium or carbohydrates on beverage preference. Milk had the highest sodium levels compared to other drinks. Color did not have much impact among choosing beverages.
Discussion The presence of caffeine may impact beverage preference among second graders and may have an addictive potential. Other constituents like sodium, calories, sugar were not significant in impacting beverage preference. Larger randomized studies will be needed to further determine the effect on beverage preference and childhood obesity.

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A paradigm shift in the management of bile duct strictures complicating living donor liver transplantation

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Aim Validation of new metrics to identify functionally significant obstruction (FSO), in order to better define biliary strictures complicating living donor liver transplantation (LDLT).
Methods All LDLT recipients who presented with biochemical alterations of cholestasis were studied. Novel metrics (MRCP ductal ratio [MDR], ERCP ductal ratio [EDR] and Delayed contrast drainage [DCD]) that can potentially signify a FSO were computed after a multidisciplinary meeting with transplant surgeons, radiologists and the therapeutic endoscopy team. Association between these metrics and endotherapy response was analyzed along with patient demographics, intraoperative variables (cold ischemia time, blood transfusions, biliary anastomosis) and perioperative complications (hepatic artery thrombosis [HAT], bile leak). Favorable response to endotherapy was defined as symptomatic relief with ≥80% reduction in total bilirubin/alkaline phosphatase.
Results A total of 83 LDLT recipients (19.2%), presented with altered liver function tests; of which, 39 patients were diagnosed to have biliary strictures and treated with endotherapy as per institution protocol. Favorable response was seen in 18/39 patients (46.2%). On univariate analysis HAT, multiple biliary anastomoses, graft-to-recipient weight ratio (GRWR), MDR, EDR and DCD had a significant bearing on the endoscopic outcome (p value ≤0.05). On multivariate analysis, only MDR ≥1.15 was an independent predictor of favorable response to endotherapy (OR-48[95% CI: 7.096-324.71]).
Conclusion A paradigm shift in the approach to management of biliary strictures complicating LDLT is proposed whereby a multidimensional definition as FSO can help in reliable patient selection for endotherapy and improve patient outcome as a whole.

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Clinical profile and outcome of infants with neonatal cholestasis including biliary atresia

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Aim To determine clinical profile and outcome of neonatal cholestasis (NC).
Methods One hundred and thirty infants with NC were referred from January 2014-March 2018 were included. Clinical profile of NC and its outcome was analyzed.
Results Mean age at presentation was 2.82+1.8 months. Male:female ratio was 92:38. Mean birth weight was 2.44+0.58 kg. Onset of jaundice was at 0.46+0.77 months of life. Etiology of NC was biliary atresia (BA) in 54 (41.86%), neonatal hepatitis (NH) in 47 (36.43%), sepsis induced cholestasis in 9 (6.97%), progressive familial intrahepatic cholestasis (PFIC) in 8 (6.2%), choledochal cyst in 3 (2.3%), bile duct paucity in 3 (2.3%), inspissated bile in 2 (1.55%), hemangioendothelioma in 2 (1.55%), and BA with choledochal cyst in 1 (0.77%). Fifty-one (39.23%) patients recovered, 37 (28.46%) patients *developed* chronic liver disease (CLD), 32 (24.6%) were lost to follow up, 6 (4.6%) are newly diagnosed and 4 (3.07%) died. On follow up, 60 (46.15%) patients were jaundice free, 45 (34.61%) children developed portal hypertension, 19 (14.6%) had ascites and 51 (39.23%) had growth failure. Mean age of presentation in BA was 3.3 months and that in NH was 2.47 months (p=0.018). Twenty-two (38.88%) females had BA while 10 (17.24%) females had NH. Mean birth weight of BA and NH patients was 2.58 and 2.37 respectively (p=0.036). Forty-six (85.18%) with BA had clay stools as compared to 22 (37.9%) patients with NH (p=0.00001). Mean GGTP levels in BA and NH group were 434.1 IU/L and 225.03 IU/L respectively (p=0.001). Other laboratory parameters were similar in both the groups. On follow up of BA patients, 10 (18.5%) recovered, 27 (50%) developed CLD, 12 (22.22%) were lost to follow up and 3 (5.5%) are following up. Among the NH patients, 29 (50%) recovered, 10 (17.24%) developed CLD, 14 (24.13%) lost to follow up and 3 (5.17%) are follow ing up (p=0.0018).
Conclusions BA and NH are common causes of NC. Patients with BA have normal birth weight, female gender, clay stools and higher GGTP. Patients with BA develop CLD whereas most patients with NH recover.

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Acute kidney injury in cirrhosis: L-KDIGO (liver-kidney disease in global outcomes) criteria-based evaluation of outcome

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Introduction Acute kidney injury (AKI) is associated with increased mortality in cirrhosis. Kidney disease in global outcomes (KDIGO) criteria is used for AKI evaluation in general population. KDIGO criteria's urine output criteria to define and stage AKI is not suitable for cirrhotic patients. The division of Stage 1 of KDIGO to 1A and 1B provides a better stratification in cirrhotics.
Methods We did a prospective study in cirrhotic patients. We modified the KDIGO criteria by deletion of urine output criteria and dividing the Stage 1 to 1A and 1B based on creatinine cut-off of 1.5. We called the modification as L-KDIGO crtiteria and used it for this study. Those patients who had AKI were staged to Stage 1A, 1B, 2 or 3. Patients were followed up until death, liver transplantation, or for 90 days. The primary outcome was 90-day survival. Secondary outcomes were progression and resolution of AKI in relationship with survival.
Results We collected data from 492 consecutive patients with cirrhosis. Data of 162 patients who had AKI was analyzed. Ninety day survival was 85% in Stage 1A, 57.1% in Stage 1B, 51.4% in Stage 2 and 41.2% in Stage 3. Progression of AKI was 12.5 % in Stage 1A, 32.9% in Stage 1B and 37.1% in Stage 2. Resolution of AKI was 92.5% in Stage 1A, 61.4% in 1B, 48.6% in 2 and 17.6% in 3. Delta creatine (difference between peak creatine and baseline creatinine) was significant in all stages: Fig.1.
Conclusion The study showed that the L-KDIGO can be used for evaluation of AKI in cirrhosis. As the Stage of AKI increases, the survival decreases There is a significant difference between Stage 1A and 1B with reference to progression, resolution and survival. The concept of Delta creatinine was found to be significant but needs further studies in that area.

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HMOX 1 gene 19 G>C polymorphism – A prognostic genetic marker for gastric cancer

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Introduction Gastric cancer (GC) is a multifactorial disorder mediated by genetic and environmental risk factors. Single nucleotide polymorphisms are an important category of DNA mutations play role in disease etiology. The present study is aimed to evaluate the role of a novel polymorphism 19 GC polymorphism in exon-1 of Heme oxygenase (*HMOX-1)* gene in the etiology of GC.
Methods Genomic DNA was extracted from a total of 100 endoscopically and histopathologically confirmed GC cases and 100 healthy controls for the present retrospective case-control study. Genotyping of 19 GC polymorphism was carried out by amplification refractory mutation system polymerase chain reaction (ARMS-PCR) method. Statistical analyses were performed by SNPstats online software program for the evaluation of results.
Results Risk factor profile of the GC patients showed that advanced age i.e. ≥50 years, male gender, consumption of non-vegetarian diet, addiction to smoking or alcohol, consanguinity, and *H. pylori* infection were the significant epidemiological risk factors ($p<0.05$). The statistical analyses revealed 3.35 fold risk of GC for subjects with *C/C* genotype and 2.11 fold risk for those carrying C allele indicating possible implication of C/C genotype and C allele in disease phenotype. In cross-classification analysis the *C/C* genotype in association with male gender, alcoholism, smoking, *H. pylori* infection and parental consanguinity disclosed 5.23, 9.15, 12.8, 3.8 and 3.9 folds enhanced risk of GC, respectively.
Conclusion The present study is first of its kind in the world to investigate the role of HMOX1 exon1 polymorphism in the etiology of GC. The C allele and C/C genotype of the 19 GC polymorphism of *HMOX 1* gene is significantly associated with enhanced risk of GC, suggesting it as a candidate genetic/molecular marker. Hence, the current study highlights the role of HMOX1 exon1 polymorphism as a potential prognostic marker for GC.

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Bottom perils and dyssynergic defecation - The chicken–egg situation!

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Background The causative factors for hemorrhoids, anal fissure and solitary rectal ulcer syndrome (SRUS) are poorly understood.
Aim To identify occurrence of fecal evacuation disorders in patients with these conditions using ARM.
Methods Baseline demographic details and symptoms pertaining to bowel movements were noted. Limited colonoscopy details were recorded to rule out mechanical obstruction, hemorrhoids, fissure in ano and SRUS. The patients were divided into two groups–Group I (those with fissure, hemorrhoids or solitary rectal ulcer) and Group II (normal study). ARM parameters of resting anal pressure, squeeze pressure, dyssynergic defecation and abnormal balloon expulsion were compared between the two groups. Sub-analysis was done for ARM metric differences between those with hemorrhoids, chronic fissure and SRUS. Appropriate statistical tests were used. A p value of <0.05 was considered significant.
Results There were more men in Gp I (87%; p value 0.01) with a higher resting anal pressure (80 vs. 69 mmHg, p value 0.03). Functional evacuation disorders ($p<0.0001$), dyssynergic defecation (77.2% vs. 46.8%, $p<0.0001$) and abnormal balloon expulsion (66.7% vs. 20.3%, $p<0.0001$) were significantly higher in Gp I. Functional evacuation disorders, dyssynergic defecation and abnormal balloon expulsion were significantly more common in patients with fissure and SRUS compared to those with hemorrhoids (p value 0.028).
Conclusion Functional evacuation disorders are frequently noted in patients with hemorrhoids, fissure and SRUS.

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von Willebrand factor (vWF)-pheresis: A possible explanation how plasma exchange is beneficial in liver failure

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Introduction How PLEX improves survival in acute liver failure(ALF) and acute-on-chronic liver failure (ACLF) is not known. Plasma vWF levels predict in-hospital survival in ACLF patients. We explored if vWFpheresis could explain how PLEX is beneficial in these patients.
Methods Prospectively collected database of ALF/ACLF patients who had PLEX (October 2017-June 2018) was retrospectively analyzed. Serial plasma vWF antigen levels (normal: 50–150 u/dL) and MELD scores were analyzed in patients with ≥1 month follow up after discharge from hospital. vWF levels in PLEX filtrate were analyzed.
Results Five ALF and 4 ACLF patients, 32 (16-59) years, median (range) old, 7 males, had follow up ≥4 weeks after PLEX. Duration of hospital stay was 20 (7-35) days and later follow up was 70 (30-194) days. MELD scores at admission, at discharge and at last follow up reduced (27 [21-40]; 19 [17-30]; 10 [6-21] respectively), while the low platetet counts tended to normalize. Markedly raised plasma vWF levels reduced from 705 (300–1048) u/dL at admission to 418 (151–681) u/dL at discharge (after PLEX) and 262 (96-710) u/dL at last follow up. PLEX treatment reduced plasma vWF levels (median estimated daily decrease in plasma vWF level was 13% during PLEX treatment compared to 1% after discharge from hospital, no further PLEX given). In PLEX filtrate tested in 7 patients, vWF levels were 249.7 (24 – 496.5) u/dL.
Conclusion Reduction in MELD scores and in plasma vWF levels were seen in ALF and ACLF patients with PLEX. Plasma vWF reduction was higher while patients were on PLEX compared to later follow up. vWF was demonstrated in PLEX filtrate. This, data suggests vWF pheresis as a possible mechanism to explain why PLEX is beneficial in ALF and ACLF patients.

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Senescent hepatocytes in decompensated liver show reduced mitochondrial unfolded protein response (UPRMT) and its key player, CLPP, attenuates senescence in vitro

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Introduction Non-dividing hepatocytes in end-stage liver disease indicates permanent growth arrest similar to senescence. Dysfunctional mitochondria are hallmark features of both cirrhotic liver and senescent cells. In lower organisms, mitochondrial unfolded protein response (UPRMT) helps in revival of mitochondrial function which is unexplored in liver disease.

Aim of this study was to understand the role of UPRMT and its key player, CLPP, in hepatocyte senescence and cirrhosis progression.

Methods Doxorubicin was used to induce senescence in hepatoma cells. Mitochondrial dysfunction was monitored by transmission electron microscopy, polarization status, biogenesis, ROS level and respiration rate. Explants/biopsies from normal, fibrosis (stage 1-2), compensated cirrhosis (stage 5-6) and decompensated cirrhosis (stage 5-6) without any known etiology were examined for presence of senescent cells (n=15/group). Changes in expression of UPRMT genes were evaluated *in vitro* and in tissue samples. CLPP was cloned, overexpressed and its effect on mitochondrial functions and senescence were examined.
Results Premature senescence was confirmed by SA-β-galactosidase staining, loss of Lamin B1 and Ki67 with increase in p21, p53 and γH2AX in both *in vitro* and cirrhotic liver. Senescent cells accumulated during progression from compensated (no varices/ascites) to decompensated (varices+ascites) state. Senescent hepatocytes in culture and in cirrhotic liver showed defective mitochondria with loss of cristae and mtDNA. Senescent hepatocytes showed decline in protein levels of key UPRMT players viz., Hsp60, Hsp10 and CLPP. Compensated cirrhotic liver exhibited strong UPRMT response, which was downregulated >2 fold in decompensated state. Of all the UPRMT genes, CLPP showed maximal increase (15 fold) in compensated cirrhosis (p<0.05), and when overexpressed it mitigated doxorubicin induced senescent phenotype by inhibiting mitochondrial ROS and altering oxygen consumption rate.
Conclusion Our results show a compromised UPRMT during hepatocyte senescence in decompensated cirrhosis. Restoring CLPP levels appears to be a promising strategy for preventing hepatocyte senescence and possibly end-stage liver disease.

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Elastography of pancreas in patients with idiopathic early onset recurrent acute pancreatitis

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Background and Aims Diagnosis of chronic pancreatitis (CP) depends on identification of morphological features by imaging. However, Imaging techniques are suboptimal in detecting early CP. Proportion of patients of idiopathic recurrent acute pancreatitis (IRAP) are known to progress to CP. Acoustic radiation force impulse imaging (ARFI) technique by measuring velocity of shear waves through the target organ/ROI quantifies the degree of fibrosis. The aim of this study was to use ARFI to assess pancreatic fibrosis and hence diagnose early chronic pancreatitis, in patients with IRAP and compare it with a group of controls.
Methods A prospective study was done between June 2016 – March 2018. Patients with IRAP who did not fulfil EUS criteria for chronic pancreatitis were included. Controls included patients with no history of pancreatic disorder in whom EUS was done for an alternate indication. History, physical examination and relevant laboratory investigations were recorded. Elastography using ARFI was done by single radiologist who was blinded to cases and controls.
Results A total of 31 patients and 31 controls were included. Mean age of patients in IRAP was 24.8 (SD) years, disease duration was 3.45 (SD) years, mean number of episodes 4.9 (SD). Using ARFI there was a significant difference in the shear wave velocity between patients (1.27±0.50 m/s) and controls (1.00±0.17 m/s) (p-0.001). ARFI scores also showed statistically significant positive correlation with number of pain episodes and negatively correlation with BMI.
Conclusion The present study shows that despite EUS not showing evidence of chronic pancreatitis, patients with IRAP have evidence of fibrosis of the pancreas. Further long-term follow up studies are necessary to assess the outcome of these patients with fibrosis.

043

A unique prognostic panel of miRNAs in combination with viral load for the assessment of disease progression, therapeutic response and relapse in HCV patients

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Introduction Micro RNAs (miRNAs) are one of the most promising emerging diagnostic and therapeutic targets in determining the hepatitis C Virus (HCV) pathogenesis and treatment response. Identification of HCV infected subjects at early stages, represents an urgent need due to continuous increasing prevalence and mortality and further to improve long-term prognosis of these individuals. Hence, the present study was undertaken to identify the role of miRNAs panel containing miR-21, miR-122 and miR-181a to identify their viral kinetics during HCV infection and treatment response in patients infected with HCV genotype 1 and genotype 3.
Methods A total of 25 healthy controls and 184 HCV patients (treatment with PEG-IFNα2a, RBV, sofosbuvir, daclatasvir and ledipasvir) were enrolled in the present study. Viral RNA was extracted from serum followed by quantification of HCV viral load at different time points before and after treatment. Expression of selected miRNA's (miR-21, miR-122 and miR-181a) were assessed by RT-qPCR and correlated with viral load and liver function test (LFT).
Results The expression level of miRNA-21 was significantly high in HCC patients compare to control subjects. The miRNA-21 expression level was significant decrease with increasing the treatment duration and was almost negligible at the end of treatment for chronic HCV. miRNA-122 showed significantly high expression level of (>2.0-fold, p<0.001) in chronic patients as compared to the healthy subjects. After treatment with all the regimens the expression level of miRNA-122 was gradually decreased in HCV infected subjects. Whereas the expression levels of miRNA-181a got significantly enhanced with increasing the treatment duration (p<0.001).
Conclusion The panel of miRNAs can be used to identify the HCV related disease conditions such as acute, chronic, cirrhosis and HCC. miRNA-181a could be a good disease progressive marker in combination with miRNA-122 and miRNA-21 further to segregate different category of HCV.

044

Efficacy of oral psyllium versus placebo in pediatric irritable bowel syndrome: A double blind randomized control trial

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Introduction Irritable bowel syndrome (IBS) defined as per the ROME 4 criteria is being increasingly recognised in children. In contrast to adults, there is a paucity of IBS therapeutic trials in pediatric age group.
Methods This study was conducted at the Division of Pediatric Gastroenterology in a tertiary care center in North India from June 2016 to May 2017. Eighty-one subjects aged 4 to 18 years, diagnosed with IBS as per the ROME IV criteria were randomized and double blinded across two groups, receiving Psyllium and placebo (maltodextrin). They were further classified into three subgroups, D (diarrhea predominant), C (constipation predominant) or M (mixed pattern) IBS. Efficacy in each drug

limb was analyzed after 4 weeks by comparing the IBS severity scoring scale (IBS SSS) before and after therapy. Remission was defined with IBS SSS <75. Categorical data was compared with Chi-square test and paired categorical variable was compared with Mc Nemer's test.
Results Among the 81 subjects the mean age was 9.8 years. The baseline demography and IBS SSS was comparable in the psyllium group (n=43) and placebo group (n=38), IBS SSS being 275 and 260 respectively. Subtypes of IBS had a comparable distribution in the 2 groups. Forty-one in psyllium limb and 31 in placebo limb completed the trial. After 4 weeks of therapy, the median IQR IBS SSS was much lower in psyllium limb i.e. 75 (42.5-140) compared to placebo limb which was 225 (185-270) (p=<0.001). Forty-four percent in psyllium limb had remission compared with 9.7% in placebo (p<0.001). This improvement was irrespective of the subtype.
Conclusion Psyllium husk is highly effective for the therapy of Pediatric IBS irrespective of the subtypes, when compared with placebo.

045

Chronic liver disease induces senescence in mesenchymal stem cells

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Introduction Adipose tissue is rich in mesenchymal stem cells compared to bone marrow. Adipose tissue derived mesenchymal stem cell (ADMSC) are characterized by immunosuppressive and regenerative properties, hence considered for autologous transplantation in liver disease. Chronic liver disease (CLD) causes derangement of the bone marrow MSC and loss of hematopoietic stem cells contributing to immunological dysfunctions and reduced regenerative potential. It is possible that CLD induces oxidative stress and senescence in various cell types in human body-the same may be true for MSC from various compartments. The goal of the study is to compare the proliferative and differentiation potential of ADMSC of CLD compared to healthy individuals.
Methods Adipose tissues from cirrhotic patients and their healthy donors undergoing living donor liver transplantation was collected. ADMSC were isolated, characterized and differentiated to osteoblasts, adipocytes, and chondrocytes following the established protocol. Proliferative potential was assessed by serial passages. We performed H&E staining of adipose tissue, immunofluorescence/IHC for the relevant CD markers and β-galactosidase staining for senescence in ADMSC. Mitochondrial oxidative stress was assessed by live imaging of cells with a free radical sensor dye.
Results Fifteen consenting donor and recipient ADMSC's were analyzed. Increased inflammatory infiltrate was noted in recipient adipose tissue compared to the healthy donor. ADMSC from both showed characteristic plastic adherence and there was no difference in CD markers. Donor ADMSC showed subjectively better differentiation capacity to osteoblasts, adipocytes and chondrocytes compared to the recipients. Recipient ADMSC proliferated faster initially in culture and then slows down and undergoes senescence faster compared to the donors and had higher mitochondrial ROS levels.
Conclusion Adipose tissue is affected in CLD and ADMSC from CLD patients attain senescence faster. Further studies are required before concluding on the regenerative potential and the suitability of autologous ADMSC transplantation in CLD patients.

046

Rigid sigmoidoscopy examination, an investigation down but not out-A five year single centre experience of 9418 patients

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Introduction Rigid sigmoidoscopy (RS) in the present era of flexible scopes is falling out of favor. We aim to determine the utility of RS for diagnosis of rectosigmoidal pathologies in the outpatient setting with emphasis on neoplastic lesions, and to determine yearly trends in various pathologies involving the rectum.
Methods Retrospective study using the RS records and histopathology reports of five years (July 2013 to June 2018) done in the Department of Gastroenterology at Medical College, Calicut.
Results During the study period 9418 RS examinations were done and a total of 6921 abnormalities were picked up, giving a diagnostic yield of 73.5%. Most common indication was bleeding per rectum (51%), followed by constipation (29%) and to assess endoscopic activity in inflammatory bowel disease ulcerative colitis (IBD UC) (9%). The most common lesion found was hemorrhoids 39.8% followed by proctitis 13.7%, neoplasms 9.7%, polyps 6.7%, and solitary rectal ulcers 2.4% and others 1.2% while 26.5% studies were normal. Histopathology reports showed 7.7% were biopsy proven for malignancy, 5.8% were adenoma, 12.2% were IBD UC, 2.2% were SRUS, 2.7% were normal and 1.4% were inconclusive. Of the 4812 patients with complaints of bleeding per rectum 4739 (98.5%) had a diagnosis after RS, of which hemorrhoids (72.7%) was the most common cause followed by proctitis (14.2%), neoplasm (9%) and others (4.1%). The sensitivity, specificity, positive predictive value, negative predictive value of RS in detecting neoplasia is 98.2%, 96.8%, 66.1%, 99.9% respectively. RS was found to be effective for assessing activity in IBD UC. Five yearly trends in RS findings show a significant (p<0.05) increase in the incidence of IBD UC, neoplasia and hemorrhoids.
Conclusion RS is a simple and effective tool for diagnosing various rectosigmoid pathologies. The incidence of IBD UC, neoplasia rectum and hemorrhoids is increasing. RS can be used as an effective screening test for rectosigmoid pathologies especially neoplasia and IBD UC. [081]

047

Prevalence of cerebral edema and other structural changes in acute-on-chronic liver failure

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Introduction Acute-on-chronic liver failure (ACLF) is associated with high short-term mortality. There is paucity of data on prevalence of cerebral edema and other structural changes of brain in ACLF patients. Present prospective study was aimed to study the prevalence of cerebral edema and other changes on MR imaging of brain in patients with ACLF.
Methods In this prospective study from July 2016 to December 2017, we included 41 ACLF, 21 acute decompensation (AD) and 13 compensated cirrhosis patients. Study patients underwent magnetic resonance imaging (MRI) brain and findings were evaluated.
Results In ACLF patients T2W diffuse white matter hyperintensities (WMHs) were seen in 17 (41.4%), T2W focal WMHs in 7 (17%), T1W basal ganglia hyperintensities in 20 (48.7%), cerebral microbleeds

(CMBs) in 6 (14.6%) and 2 (4.8%) patients had cerebral edema. In AD patients T2W diffuse WMHs seen in 3 (23%), T2W focal WMHs in 3 (23 %), T1W basal ganglia hyperintensities in 9 (69.2%). while no patients had cerebral edema or CMBs. In compensated cirrhosis T2W diffuse WMHs seen in 7 (33.3%), T2W focal WMHs in 5 (23.8 %), T1W basal ganglia hyperintensities in 15 (71.4%), 2 (11.8%) patients had CMBs. MR spectroscopy was done in total 32 patients, but changes were not significant among ACLF, AD and CLD patients. Thirty and 90 days survival for patients with diffuse T2W WMHs was significantly lesser than patients without T2W WMHs (p=0.007).
Conclusion Cerebral edema is uncommon in ACLF patients. T2 weighted diffuse white matter hyperintensities may have prognostic value in ACLF patients.

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Biofeedback therapy for patients with dyssynergic defecation: Preliminary experience from a tertiary centre in North India

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Background Dyssynergic defecation (DD) is the most common cause of functional constipation. Biofeedback therapy (BFT) is an established modality of treatment for patients having DD. Despite its documented success, it has been scarcely reported in Indian studies. We report our experience of BFT in patients with DD.
Methods Consecutive patients who underwent BFT for DD in past 6 months in our gastrointestinal motility laboratory were included in study. All patients underwent baseline anorectal manometry (ARM) with a 16-channel water perfused high resolution manometry system. For those with DD, BFT was done using manometry-based technique on weekly/twice weekly schedule, each session lasting 20-30 minutes. Maximum 4 sessions done before result analysis. Baseline and post BFT symptom diary and manometry parameters were evaluated.
Results Thirty patients (median age 30 years [16-74]) were included in study. Median symptom duration was 2 years (range 1-20); with 43% patients on >=2 laxatives. Type I DD was most common (83%). A median of 3 BFT sessions was done; 53% completed all 4 sessions. There was a significant improvement in all stool related symptoms post BFT. Significant fall in anal sphincter pressures was seen (pre vs. post BFT, 101[29-142] vs. 65[28-162] mmHg); although rise in rectal pressures was not achieved post BFT (pre vs. post BFT, 52[20-158] mmHg vs. 51[30-130]) mmHg. Defecation index (DI) was significantly better post BFT (0.89 vs. 0.58, p= 0.006). Younger patients showed more likelihood to improve DI by >50% (28 vs. 42, p=0.03).
Conclusion BFT yields excellent results in patients with DD. Younger patients especially have better outcomes. Availability and expertise of BFT needs to increase in India to cater for the large population of patients with DD.

049

Tacrolimus as rescue therapy for steroid dependent/steroid refractory ulcerative colitis: Experience from tertiary referral centre

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Introduction Approximately 20% to 40% patients of severe UC are either steroid resistant (SRUC) or steroid dependent (SDUC). Tacrolimus is an oral and relatively cheap drug with minimal adverse events.
Methods Fifty-two UC patients diagnosed as SDUC/SRUC were started on Tacrolimus 0.05-0.1 mg/kg. Clinical Mayo score (CMS) and UCEIS were recorded prior to starting Tacrolimus and after 8 weeks. 5-ASA and immunomodulators were continued if the patients were already on these drugs. Clinical response at 8 weeks was defined as CMS decrease by at least 3 points. Clinical remission was defined as CMS ≤2 and combined remission as CMS≤2 with UCEIS <3.
Results The mean age of 52 patients (29 males) was 35.1±12.8 years. Extent of disease was E3 in 37 (71%) patients. Thirty-one were SDUC and 21 were SRUC. Seven failed treatment within 8 weeks and 4 were subjected to surgery and 3 patients were switched to Infliximab. Three patients either discontinued Tacrolimus or were lost on follow up. Forty-two patients continued Tacrolimus for 8 weeks. Mean CMS and UCEIS prior to starting Tacrolimus were 6±1.1 and 4.8±1.1 respectively. At 8 weeks median CMS and UCEIS were 2.6±1.7 and 2.7±1.3 respectively. Twenty-nine (56%) patients responded while 25 (48%) had CMS ≤2 and 18 out of 35 (35%) had CMS ≤2 and UCEIS <3 suggesting that they had achieved clinical and endoscopic remission. Ten patients showed partial/no response at 8 weeks. There was a significant fall in both CMS and UCEIS at 8 weeks of Tacrolimus therapy (paired t-test p<0.001) in both SDUC and SRUC subgroups.
Conclusion Tacrolimus was effective in inducing a clinical response in 56% of patients with SDUC and SRUC. In view of its low cost and safety profile it may be considered as first line therapy for SDUC/SRUC.

050

AASLD or EASL dose recommendation of diuretics is not applicable for Indians with decompensated cirrhosis

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Aim To determine common diuretics used alone or in combination for management of decompensated cirrhosis; the adverse effects with the administered regimens and factors that predict the need for paracentesis while on diuretics.
Methods A prospective cross sectional study done at outpatient clinic of Gleneagles Global Health City, Chennai. Indian patients with known liver cirrhosis, irrespective of etiology, belonging to Child-Turcotte-Pugh (CTP) B or C, with mild to moderate ascites and no dyselectrolemia and on diuretics at the time of study were included in the study. The primary outcome of the study was the need for paracentesis. The type and dose of diuretic at this instance was noted. Chi square test, Mann Whitney U test, Fischer's exact test and odds ratio were calculated. A p value <0.05 was considered statistically significant.
Results A total of 200 patients, predominantly from southern Indian states and 84% males formed the study group. The median model for end-stage liver disease (MELD) was 18 and 70% of cases required paracentesis within 3 months. Single diuretic agent was used in 18% of cases while combination of two diuretics was used in 82%. Spironolactone was the commonest single agent used (26, 72.2%). Combination of furosemide and spironolactone was the commonest diuretic combination used (89.6%, 147 cases). One hundred and thirty patients (65%) reported adverse effects to diuretics. Renal dysfunction and electrolyte disturbances were the commonest adverse effects. Adverse effects to diuretic use and frequency of large volume paracentesis was significantly commoner in patients taking furosemide 40 mg and spironolactone 100 mg per day.
Conclusions Indian patients seldom tolerate high doses of diuretics and 65% of them develop diuretic related adverse effects. There is an urgent need formulate guidelines for optimal management of ascites in decompensated cirrhosis in Indian setting.

051

Role of endoscopic ultrasound guided coiling and cynoacrylate injection in cirrhotic patients with large gastric varices

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Background Cynoacrylate injection of large fundal varices is associated with limited efficacy and embolic complications.
Objective To report the outcome of single session obliteration with endoscopic ultrasound (EUS) guided coiling followed by cynoacrylate injection in large fundal varices.
Setting Tertiary care center, at New Delhi, India.
Design Prospective cohort study
Patient population Cirrhotic patients with large fundal varices (> 2cms).
Intervention EUS guided coil deployment in fundal varices followed by Cynoacrylate injection. Maximum 6 coils were deployed with EUS-FNA needle, which was followed by N Butyl Cynoacrylate injection at multiple sites to achieve complete obliteration, which was confirmed with probing and absence of flow on the doppler study
Outcome Hemostasis, rebleed rate, embolic complication, and all cause mortality during follow up.
Results Thirty-eight patients underwent intervention during the study period, 36 had recent bleed. Mean varix size was 2.6±0.36 cms, mean number of coils required were 2.08±2, (1-6), mean amount of glue required was 1.97±2 mL (1-6). Thirty-six patients had complete obliteration of varices, one patient had persistent bleed. Mean follow up time was 189 ±129 days (1-508 days). Four more patients had rebleed after discharge, 2 patients died because of bleed, 2 more deaths occurred due to liver failure. No embolic complication was suspected.
Conclusion EUS guided coiling followed by Cynoacrylate injection is safe and effective modality for large fundal varices.

052

Paracentesis induced circulatory dysfunction with modest paracentasis is reduced by albumin in acute-on-chronic liver failure: A randomized controlled trial (NCT02467348)

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Background and Aims Paracentesis induced circulatory dysfunction (PICD) is diagnosed by increase in plasma renin activity (PRA) (50% from baseline or 4 ng/ml/hour) on day 6 post large volume paracentesis (5 L). Patients with acute-on-chronic liver failure (ACLF) have greater hemodynamic derangements than decompensated cirrhosis. There is lack of data on the incidence, diagnosis and management of PICD in ACLF. We hypothesized that there is an increased predisposition to circulatory dysfunction even with modest volume paracentesis.
Methods Eighty consecutive patients of ACLF, undergoing paracentesis of 5 L were randomized to receive albumin (8 g/L of ascitic fluid, Gr A, n=40) or no albumin (Gr. B, n=40). Heart rate (HR), systolic BP (SBP), diastolic BP (DBP) were monitored for 6 days. PRA were analysed at baseline, day 3 and 6. Hyponatremia was defined as Na; 130 Meq/l or 5 mEq decrease, AKI as ICA-AKI criteria; HE; grade 2 as per West Haven criteria.
Results Baseline characteristics were comparable in the two groups, including mean volume of ascitic tap (4.14; 0.26; 4.16; 0.22L, p=0.80), baseline PRA, 23.2; 8.24; 20.7; 7.03 ng/ml/hour, p=0.11), baseline HVPG(20.52; 3.63; 18.68; 3.06 mmHg, p=0.14); systemic vascular resistance (SVR, 1375 (870, 2240); 1195 (719, 3116) dynes; sec; cm-5, p=0.77). PICD was more frequent in Gr B than A (70% vs. 30%; p=0.001); along with high incidence of HE (50% vs. 27.5%, p= .04), hyponatremia (67.5% vs. 22.5%, p;0.001), acute kidney injury (62.5% vs. 30%, p=0.001). On multivariate analysis, albumin infusion (OR 0.068, 95% CI .011-0.43, p=0.005), Baseline DBP (OR 0.73, 95% CI=057-.093, p=.012), MELD (OR 1.13, 95% CI=1.06-.12, p=.01) were predictor for PICD. PICD (HR 2.6, 95% CI 1.17-7.47, p=0.02) was predictor for mortality. PICD was associated with a higher mortality rate (26/40 [72.2%] vs. 10/40 [27.8%];0.001).
Conclusions Albumin infusion decreases the incidence of PICD and mortality; is recommended as a plasma expander for modest volume tap in ACLF patients.

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Role of serial follow up to assess treatment response in suspected ileocolonic tuberculosis (ICTB) and early identification of Crohn's disease

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Introduction There is a close resemblance in clinical, radiological, endoscopic and histological features of Crohn's disease (CD) and ileocolonic TB (ICTB); thus differential diagnosis of these two conditions remains a major challenge to clinicians. The aim of the present study was to evaluate the colonoscopic features of suspected ICTB and prospectively evaluate the clinical and colonoscopic response after 2 and 6 months of ATT so as to identify predictors that would help to differentiate these 2 conditions at the time of diagnosis.
Methodology This is a prospective study conducted in department of Gastroenterology, Calicut over a period of 2 years from August 2016 to July 2018. All patients with clinical symptoms and colonoscopic feature of ICTB were included in the study. Patients were followed up with ESR, CRP, protein, albumin and colonoscopy at 2 and 6 months for objective evidence of improvement.
Results There were a total of 75 cases of ICTB patients over a period of 2 years. Out of 75 cases, 59 were successfully treated at end of 6 months with ATT. Sixteen cases did not show improvement and was reconsidered as Crohn's disease. Mean duration of symptoms was higher in Crohn's disease group (132 vs. 80.4 days). Between these two groups, CRP reduction by 50% and increase in protein at 2 months were significantly seen in ICTB group. Colonoscopic findings of cecal pseudopolyps and ileal ulcer were seen commonly in CD group. Albumin at 2 months was lower in CD group (3.05 vs. 3.4 g/dL). At end of 2 months of ATT, 40 patients in ICTB group showed colonoscopic healing whereas only 2 patients showed healing in CD group.
Conclusion Sixteen (21.3%) Crohn's disease patients were initially treated as ICTB due to diagnostic dilemma. Colonoscopic healing, serum protein and CRP help in early diagnosis and differentiation with Crohn's disease.

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Impact of oral dysbiosis and periodontal disease in patients with chronic liver disease: A pilot study

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Introduction Periodontal disease is considered as a source of subclinical and persistent cause of infections in cirrhosis. This may act as an independent risk factor for adverse outcomes and infections in them. This

study was conducted to determine the outcome of liver disease, especially infections and encephalopathy in patients with periodontal disease.
Methodology This study was conducted in department of Gastroenterology in coordination with periodontology, Medical College, Calicut over a period of 5 months (ongoing study). All decompensated cirrhotic patients admitted were evaluated for oral hygiene and periodontal status. These patients were followed up for 12 months and etiology for frequent admissions including infections was compared with oral hygiene status by objective indices. Study patients were blinded between gastroenterologist and periodontist and data were collected separately.
Results A total of 52 cirrhosis patients were enrolled during this period. Oral hygiene index (OHI) of and amp; 3 (poor OHI) was seen in 36 (69.2%) and OHI of and and ample; 3 (good OHI) was seen in 30.7%. Moderate to severe periodontits (clinical attachment loss and amp; 4) was seen in 33 (63.4%) patients. Poor OHI was significantly associated with frequent admissions (2.0 and amp; plusmn; 1.3 vs. 1.25 and mp; plusmn;1.2) and duration of CLD (2.7 and amp; plusmn; 2.6 vs. 1.1 and amp; plusmn; 1.3 years). Encephalopathy (17, 47.2%), bleed (15, 41.7%), UTI (12, 33.3%) and SBP (19.4%) were common causes for admissions in these patients. Admissions secondary to hepatic encephalopathy and GI bleed were significantly more in poor OHI group. Although cellulitis and SBP were more commonly seen in poor OHI group, they were statistically not significant. There was no difference in MELD score, ESR or ascitic fluid protein/albumin among these two groups.
Conclusion Prevalence of periodontitis and poor oral hygiene was significantly higher in cirrhotic patients. Frequent admissions due to encephalopathy and infections (SBP, cellulitis) were more in patients with poor oral hygiene. Thus, frequent oral assessment and treatment may reduce incidence of infections, encephalopathy and consequently, admissions in cirrhotic patients.

055

Endoscopic management of gastric varices: Endoscopic treatment compared to endoscopic ultrasound guided coil and glue placement in severe liver disease

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Introduction Gastric varices (GV) are present in 15-25% of cirrhotics with GOV1 and the primary gastric varices being the most common. GV can also be associated with isolated splenic vein thrombosis, seen commonly in local inflammatory conditions such as pancreatitis, pancreatic malignancy or in systemic conditions such as myeloproliferateive disorders. The incidence of gastric variceal bleeding is low (10% to 20%) but the rebleeding rate is higher up to 30% with high mortality. Endo ultrasound guided GV treatment is upcoming and associated with minimal complications and rebleeding. We did a retrospective comparison of endoscopic glue injection with EUS guided coil and glue injection of GV.
Methods Retrospective collection of data from June 2016 till December 2017 at ILBS and DNSH. New Delhi. Equal number of patients (20 in each arm) were recruited in both arms with follow up of at least 6 months post treatment. The inclusion criteria were GOV 2 and IGV 1, recent bleed (within 6 weeks), size of GV >10 mm (large GV) and high MELD (MELD >18). The exclusion criteria were age <18 years, failure of a valid consent, advanced hepatocellular cancer and portal vein thrombosis.
Results A total of forty patients were studied. The age, sex, CTP, MELD Na score and other clinical parameters were comparable in both the arms. There were a few complications in each arm with two patients had respiratory discomfort post procedure, but no embolization was found on chest imaging and were managed conservatively. The median number of procedures and overall cost was significantly less in EUS group with near obturation of the GV.
Conclusion EUS guided placement of coil and glue is equivalent in efficacy but is cheaper and requires less number of treatment sessions as compared to endoscopic treatment in patients with gastric varices and advanced liver disease.

056

Increased 28-day survival with continuous slow infusion of furosemide, albumin with Terlipressin (SAFI [T]) in patients with ACLF and acute kidney injury - Hepatorenal syndrome (AKI -HRS)

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Background and Aims Pathophysiology of acute-on-chronic liver failure (ACLF) involves dysbalanced systemic inflammation, worsened hyperdynamic circulation leading to renal dysfunctions. A combination of continuous, slow infusion of furosemide, albumin, with terlipressin administered according to a response-guided protocol in patients with ACLF and acute kidney injury (AKI), causing pathophysiological changes may impact survival.
Methods Ninety-seven patients with ACLF and acute kidney injury-hepatorenal syndrome (AKI -HRS) were included. Eighty-one patients in Arm 1 with serum creatinine > 2, were managed with SAFI(T) and another group of 16 patient's serum creatinine >2 in arm 2, were managed with standard medical treatment. Both the arms were comparable in baseline CTP, MELD, CLIF-C-ACLF scores and serum creatinine values. Patients were diagnosed with HRS according to standard guidelines. Arm 1 were given furosemide infusion at 2 mg/hr, albumin infusion at 2 gm/hr (20-40gm/d) and terlipressin infusion at 4 mg/24 hrs. If 24-hr urine Na persisted below 80 meq/day, response-guided increase in terlipressin (1 mg/12 hrly) was done (ma x 6 mg/24 hours) after correcting anemia (≥8g/dL) and excluding cardiac conduction anomalies. Graded increase of furosemide infusion was done at a rate of 1 mg/12 hrs, if Una <80 mEq/day, with aggressive potassium supplementation as needed.
Results Both the arms were comparable in terms of CTP, MELD, CLIF-SOFA and CLIF-C-ACLF score as well as in terms of serum creatinine, TLC, bilirubin and INR. In arm 1, serum creatinine decreased from 2.8± 0.76 to 1.8± 1.6 with the corresponding increase in urine output and 24 hr urine Na from 28.9± 21 mmol/day to 127±101. In arm 2, serum creatinine decreased from 3.3±1.3 to 2.4±1.8. Overall survival in arm 1 was much higher than in arm 2 (74.4% vs. 50%) (p=0.01).
Conclusion Slow continuous infusion of furosemide, albumin and terlipressin (SAFI(T) lead to better survival of patients with ACLF and HRS, probably due to better reversal of underlying pathophysiology.

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Endoscopy on a human cadaver- A feasibility study as training tool

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Background Simulation device and porcine modelsare increasingly being used for training in gastrointestinal endoscopy. However reports on the use of human cadaver for training in diagnostic or therapeutic endoscopy is limited.
Method Human cadavers were preserved at our center in a customized non formalin based solution which retains organoleptic properties (preserves the colour, feel, inflation of gut). We studied the feasibility of using these cadavers for training in endoscopy. Endoscopy was performed using Pentax/EP 2940 with a light source processor Pentax/EPM 3500. Participants

performed endoscopy and submucosal injection on cadaever as well as simulator. Before and after simulator and cadaver training, attendees completed a questionnaire onintubation, manoeuvring esophagus, stomach and duodenum for diagnostic endoscopy and scope positioning, needle out, submucosal injection and elevation of mucosa and needle in. The steps of ESD-marking, pre-cut and submucosal dissection were attempted on the stomach of human cadaver.
Results Ten participants with very little prior experience of endoscopy felt the cadaver based training more beneficial in obtaining the sub mucosal plane and positioning the needle for four quadrant injection as compared to the endoscopic simulator (ES).The attendees felt that while ES has the advantage of providing feedback for the procedure, training on cadaver gave more realistic tactile experience and feel of the elasticity of the gut wall. Overall, diagnostic endoscopy was comparable in both cadaver and simulator except for difficulty in intubation in the former due to supine cadaver position. The steps of ESD were done only in the cadaver with limited success.
Conclusion This study shows the feasibility of using human cadaver for simulation-based training programs in gastrointestinal endoscopy.

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Steroids for abdominal tuberculosis: Systematic review and meta-analysis

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Background Steroids are used for tubercular pericarditis and meningitis but their role in abdominal tuberculosis is unclear.
Aim To evaluate effect of steroids as an adjunctive therapy for abdominal tuberculosis in reducing comprehensive clinical outcomes (symptomatic strictures, intestinal obstruction and surgery.
Methods We searched the Pubmed, EMBASE, Scopus, CINAHL, Web of science and CENTRAL from inception to 25th June 2018 using the search terms "abdominal tuberculosis" OR "intestinal tuberculosis" OR "peritoneal tuberculosis" OR "tuberculous peritonitis" AND steroids OR methylprednisolone OR prednisolone. Bibliography of potential articles was also searched. We excluded articles in languages other than English, case reports, reviews and unrelated papers. Two authors independently extracted data from all eligible studies. The primary outcome was a comprehensive clinical outcome as described above.
Results Of total 673 records found in search, three studies on peritoneal tuberculosis were included in meta-analysis. These papers were deemed to be of poor quality (one quasi-randomized study and two retrospective cohort studies). The outcomes were analyzed using random-effects models. Meta-analyses showed adjunctive steroids with ATT is more effective than ATT alone in tuberculous peritonitis patients for the prevention of composite end-point (RR 0.15 [0.04, 0.62], p=0.008). The use of steroids also appeared to have a benefit in prevention of symptomatic stricture and need for surgery.
Conclusion The data on use of steroids for abdominal tuberculosis is limited to peritoneal tuberculosis. Although steroids seem to have some benefit in patients of tubercular peritonitis, the poor quality of studies limits the generalisation of the findings.

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Left ventricular diastolic dysfunction is associated with renal dysfunction, poor survival and low health-related quality of life

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Background The presence of left ventricular diastolic dysfunction (LVDD) in patients with cirrhosis leads to a restriction of activities and a poor health-related quality of life (HRQoL), which should be taken into consideration when treating them for liver and cardiac complications.
Aims The prevalence, complications and predictors of HRQoL and survival in cirrhotic patients with LVDD were studied.
Methods We report a prospective cohort study of 145 consecutive cirrhotic patients with LVDD who were evaluated for cardiac functional status at enrolment and followed up for hepatic complications, cardiac events, outcome and HRQoL using the Minnesota Living With Heart Failure Questionnaire (MLHFQ) over a period of 2 years.
Results In total, 145 patients were included (mean age 61 years, 59% male). Nineteen patients died (median duration of follow up 20 months). The mean Child-Pugh (CTP) and MELDNa scores were 8.9 and 16.3. The parameters that were significant for predicting mortality were CTP, MELD, and MELDNa, HVPG, and LV diastolic function (e' and E/e' ratio). The E/e' ratio (8.7±3.3 in survivors vs. 9.1±2.3 in non-survivors) predicted outcome. The predictors of poor HRQOL were the CTPscore ≥9.8 (OR 4.6; 95% CI 2.3-9.1, p=0.041), MELD score ≥15.7 (OR 6.6; 95% CI 3.3-12.1, p=0.033), refractory ascites (OR 2.6; 95% CI 1.3-6.1, p=0.050), and E/e' ratio ≥7.6 (OR 3.6; 95% CI 1.8-7.1, p=0.036). The E/e' ratio ≥7.6 predicted poor HRQoL independently of the presence of ascites and albumin level. The presence of Class II/ III (p=0.046) symptoms of heart failure and MLHFQ ≥45 (p=0.042) were predictors of mortality at 24 months.
Conclusions The grade of LVDD correlates with liver function, clinical events, risk of renal dysfunction and HRQoL. Evaluation of novel therapies which target symptomatic improvement in LVDD, should be done with suitable outcome measures, including HRQoL assessment.

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Mucosa associated candida in ulcerative colitis: Prevalence and relationship to disease severity

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Introduction Role of fungal dysbiosis in pathogenesis and severity of ulcerative colitis (UC) is not known. We planned to determine the relationship of presence, nature and quantify mucosa associated *Candida* (MAC) with the disease severity in patients with UC.
Methods In a prospective study of UC (n=96) and non-UC controls (n=20), clinical, endoscopic, histological and serological assessment was performed for disease severity. MAC was considered to be present if mucosal biopsy culture grew *Candida.* Mucosal brush cytology and brush culture was also performed. *Candida* species identification was done by MALDI. Serum β-D-Glucan was measured by Fungitell assay. Seven UC patients with evidence of *Candida* were treated with oral Fluconazole and re-evaluated after 14 days. Data is analyzed using SPSS and p<0.05 was considered to be significant.
Results Cases and controls were similar in age and gender. Cases more often had MAC:biopsy culture [33% vs. 5%; p=0.011], brush cytology [30% vs. 5%; p=0.019]; brush culture [36.5% vs. 10%; p=0.021]. Cases had higher colony counts (≥103 CFU/mL) compared to controls: [36% vs. 5%;

p=0.007]. Cases had higher non-*C. albicans* species compared to controls (25%. vs. 0%; p=0.029). Median β-D-Glucan values were higher in cases compared to controls (103.2 pg/mL vs. 66.5 pg/mL; p=0.011). Cases with MAC had higher median UCDAI, CRP, fecal calprotectin and histological activity compared to those without MAC. Patients with severe disease more often had confluent growth of *Candida* as compared to patients with moderate or mild disease (50% vs. 7.4% vs. 3%; p=0.009). Post-therapy all patients (n=7) showed significant reduction in UCDAI score (p=0.017), histological score and fecal calprotectin values.
Conclusion Patients with UC more often have evidence of MAC, higher *Candida* colony count, higher non-*C. albicans* species and increased β-D-Glucan levels as compared to controls. Disease severity is associated with presence of MAC and higher β-D-Glucan levels.

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Anorectal manometry in functional constipation and IBS-constipation

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Background Chronic constipation is classified clinically into FC and IBS-C based on Rome IV criteria. It is not known if there are differences in anorectal manometry in these two clinical entities.
Aim of the study To determine differences in anorectal manometry parameters in patients with FC and IBS-C based on clinical presentation and gender.
Methods This is a multicentre retrospective study. Baseline demographic details and symptoms pertaining to bowel movements were obtained from the records prior to ARM. Baseline investigations included fasting blood sugar with HbA1C, TSH and serum calcium. The Rome IV definitions for FC and IBS-C were used to classify the patients. We excluded patients below 18 years, fecal incontinence, posthemorrhoidectomy or fissurectomy. The data was analyzed using appropriate statistical tests. A p value <0.05 was considered significant.
Results Out of 628 patients evaluated, 430 (322 males, 74.8%) fulfilled the selection criteria. 317 (73%) patients had FC. Amongst men, none of the parameters were significantly different between FC and IBS-C. However, women with FC had significantly higher complaints of an incomplete evacuation (p<0.0002) with significant difference in balloon expulsion in IBS-C (p <0.0008). On comparing men and women with FC, it was noted that digital evacuation was significantly more common amongst women (29.5% versus16.7%, p<0.01). The median basal pressures (p<0.01), squeeze pressures (p<0.0001) and markers of dyssynergia were higher in men. In the IBS-C patients, symptom of incomplete evacuation was significant amongst men (p<0.005), with ARM confirming a significant proportion of dyssynergic defecation (p value 0.049) in these patients.
Conclusion Gender wise differences anorectal manometry and symptoms are present in patients with FC and IBS-C.

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ISG Dyspepsia Task Force: Prevailing clinical practices in management of dyspepsia in India

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Background Dyspepsia is extremely common in clinical practice. Recently international guidelines have been published for management of dyspepsia and *H. pylori* management. However, no standard practice guidelines exist in India. We conducted a nationwide survey to understand the prevailing practices in the management of dyspepsia in India.
Methods We prepared a 19-point questionnaire using Delphi method after involving dyspepsia experts in the country. A nationwide online survey of 834 practicing gastrointestinal (GI) physicians was conducted in this regard.
Results The respondents included GI physicians from both government and private sectors. Over 75% were qualified DM gastroenterologists. Dyspepsia was a common GI disorder and most GI physicians saw minimum 25 patients with dyspepsia per week. The common symptoms were combination of post prandial fullness (76%); epigastric discomfort (73%); bloating (69%); epigastric burning (50%) and epigastric pain (46%). Most opined that about 10% to 50% patients with dyspepsia had overlapped with *irritable bowel syndrome* (*IBS*) like symptoms and 10% to 50% had *gastroesophageal reflux disease* (*GERD*). About 50% patients are subjected to endoscopy by most physicians. 75% opined that up to 10% to 25% have some endoscopic findings such as peptic ulcer disease or gastrointestinal cancers. Testing for *H. pylori* was not performed by most of the respondents if upper gastrointestinal endoscopy (UGIE) was "normal". When performed, it was done using rapid urease test (*RUT*) (85%) on antral biopsies (70%). The triple therapy (OAC) of 14 day duration was implemented by 85% respondents. However, most (88%) did not confirm eradication of *H. pylori* after treatment completion.
Conclusion Dyspepsia is a common in India. The present management practices do not confirm to any practice guidelines. There is an urgent need to formulate practice guidelines in India.

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Normative Chicago classification metrics in sitting posture using 16-channel water perfused high resolution esophageal manometry (HREM) system and postural variations in healthy Indian volunteers

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Background We recently reported normal values in supine posture for Chicago classification (CC) metrics using 16-channel water perfused system in healthy Indian volunteers. Although postural variations in high resolution esophageal manometry (HREM) are recognized, normal values for CC metrics in sitting posture using the above system are not reported.
Aim Evaluate the presence of postural variations in CC metrics (supine versus sitting) in healthy volunteers and determine normal values for sitting posture, if postural differences are significant.
Methods HREM tracings with ten 5 mL water swallows in sitting were analyzed using Trace 1.3.3 software and compared with supine data of same volunteers. Statistics: median, range, 5, 10, 75 and 95 percentiles. Normal value percentiles defined as: 95th (IRP), 10th–100th (DCI) and minimum (DL). Wilcoxon test and Kappa concordance test as appropriate.
Results Swallows in sitting posture had higher median IRP (6.7 vs. 6.1); lower mean DL (6.3 vs. 6.8) and DCI (1224 vs. 1456) compared to supine.

Normal cut-offs for sitting (vs supine): IRP 13.9 (13), DCI 115–4500 (350–4500), DL (4.5s for both), peristaltic break size (5 cm for both). DCI < 30 (< 70) was defined absent contractility; Jackhammer DCI was similar to supine (>4500). Moderate concordance in CC diagnoses on applying respective postural cut-offs (k= 0.47).
Conclusions Sitting posture normative values revealed higher IRP and lower DCI limits for hypoperistaltic states. All other metrics were similar to supine. Moderate diagnostic postural concordance suggests need for evaluation in both postures using respective normative cut-offs, subject to validation in patient cohorts.

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Intra-peritoneal transplantation of bioengineered humanized liver grafts supports failing liver in acute condition

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Introduction Acute liver failure (ALF) is one of the most devastating fatal conditions which has posed potential challenge to the clinicians and researchers for identifying permanent cure. Currently liver transplantation is the only curative option, but is limited due to non-availability of quality donor organs. Repopulation of decellularized xenogeneic organs is one of the emerging technologies for development of humanized organs for regenerative applications.
Methods Male Wister rats were housed at 24°C±2°C temperature, 55%±5% humidity and at 12h dark light cycle. Decellularized rat liver scaffold (DLS) recellularized with 10 X 106 EpCAM+ve enriched human hepatic progenitor cells (hHPCs). MTT cell assay was carried out to estimate the repopulation efficiency of cells within the DLS. ALF model was developed by injecting D-GalN intra-peritoneally. Rats were received recellularized liver and compared with only hepatocyte transplant and control group. Clinical and histopathological parameters were performed before and after transplantation.
Results Complete liver Decellularization through hepatic artery perfusion within 20 h. Cells were infused into the DL during static culture provided better repopulation efficiency (>80%). Abundant secretion of albumin and urea was found in 2D culture system. D-Gal N induced ALF model development was identified using histological analysis of liver tissues. After intraperitoneal transplantation of humanized liver grafts at 16-24 hours post-DGal injection, all the animals recovered immediately and represented >80% survival after 30 days. Retrieved humanized liver grafts at post-transplantation didn't show fibrotic reactions. Prothrombin time showed fastest recovery, blood ammonia level was also reduced and liver function parameter revealed faster improvement in serum bilirubin and albumin levels in group which received recellularized liver.
Conclusion The results of the present study provides a proof of concept in pre-clinical ALF model for the applicability of bioengineered humanized liver grafts in management of failing liver conditions.

ESOPHAGUS

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Prevalence and predisposing factors to recurrence following endoscopic dilation of esophageal webs-A retrospective study

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Introduction The severity of dysphagia and failure of improvement in symptoms with iron therapy necessitates endoscopic dilation of esophageal webs in Plummer-Vinson syndrome (PVS). There is little information on recurrence of web after endoscopic dilation. The objective of present study was to analyze the prevalence and predisposing factors for recurrence of web after endoscopic dilation.
Methods All case records of patients who underwent endoscopic dilation and follow up for esophageal webs between the years 2011 and 2016 were included. Demographic details and information regarding duration of symptoms, associated diseases, presence of PVS, type of dilator used, diameter of dilation, compliance to iron therapy and findings on oral cavity examination were collected.
Results During the study period, 72 patients were diagnosed with esophageal web. Mean age was 40.57±10.68 years with a majority (76.4%) having dysphagia for more than one year. There was a female preponderance (83.3%) with a female to male ratio of 5:1. Most (80.6%) of them had PVS. A significantly higher proportion of men (54.5%) had associated oral lichen planus than women (15.2%) (p=0.011). The recurrence of esophageal web after dilation was 23.6%. On univariate analysis of risk factors, diameter of initial dilation <13 mm (OR 5.75, p=0.004), poor compliance with iron therapy (OR 6.95, p=0.009) and marked oropharyngeal pigmentation (p<0.0001) were found to be significantly associated with recurrence. However, on multivariate analysis, none of the risk factors could predict recurrence. Conversely, factors not found to be significantly associated with recurrence were age, gender, duration of dysphagia, type of dilator and associated oral lichen planus.
Conclusion In conclusion, nearly one in four patients had recurrence of web following endoscopic dilation. The present study also showed that compliance with iron therapy and appropriate initial diameter of dilation could probably prevent recurrence.

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Transnasal Savary-Gilliard dilation of the esophagus: Experience from our Centre

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Introduction Traditionally, non-surgical treatment of esophageal strictures has been performed with transorally introduced dilators under endoscopic or fluoroscopic guidance. Benign pharyngoesophageal strictures (PES) may affect 3% to 7% of patients submitted to head and neck as well as esophageal cancer therapy making such dilatation technically challenging. The objective was to describe the safety, efficacy and our experience with fluoroscopically guided Savary-Gilliard (SG) dilations of esophageal strictures.
Methods This study was carried out at Madras Medical College on consecutive patients with dysphagia from September 2017 to March 2018. Dilation was performed according to standard clinical practice with or without local anesthesia. Dilation was performed with Savary-Gilliard polyvinyl dilators (Wilson-Cook Medical) over a spring-tip stainless steel guidewire that was advanced transnasal under fluoroscopy to the stomach. Depending on the tightness of the stricture, dilator was passed during each session, usually according to the rule of three.
Results Fifty-one transnasal esophageal SG dilatations were performed in 35 patients. The mean age of the cohort was 56 years (17-68 years). Twenty patients were male (57%). Pharyngeal and cervical esophageal

region was the most frequent dilation site (83%), followed by mid and lower esophagus (17%). Indications included post-radiotherapy (post-RT) strictures (37%), cricopharyngeal web (22%), stenosis of surgical anastomosis (20%), corrosive (11%) and peptic stricture (3%). One procedure (2.8%) was aborted due to laryngospasm or gagging. There were no clinically significant complications.
Conclusion Transnasal esophageal SG dilation can be performed in unsedated patients with a very low complication rate and in technically challenging cases of transoral route. It was well tolerated by 97% of patients. This technique, formerly done only through endoscopy guidance, allows for office-based esophageal dilation in our practice.

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Efficacy of intralesional Triamcinolone injections for benign refractory esophageal strictures post acid ingestion

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Introduction Refractory benign strictures of the esophagus after acid ingestion can present a significant clinical challenge and may require repeated attempts at dilatation. Intralesional triamcinolone injections have been used in a limited number of studies to aid in the dilatation of benign, refractory esophageal strictures. The purpose of this study was to assess if steroid injection reduces the need for serial endoscopic dilatations and aids in maintaining oesophageal patency.
Methodology We included all patients who presented with history of acid ingestion and were refractory to endoscopic bougie dilation with Savary-Gilliard dilator. Triamcinolone (40 mg/mL, 1 mL diluted 1:1 with saline solution) was injected via sclerotherapy needle in a four quadrantic manner in aliquots of 0.5 mL each into the proximal end of the stricture and also into the stricture itself after dilatation every 2 weeks for 2 months. The patients were followed up for 1 year. Number of dilations needed before and after steroid injection and dysphagia score was noted for each patient.
Results Twenty-eight patients were enrolled for the study. Mean age of the patients were 22.74 years and 16 were females. Mean number of dilations needed before steroid injection were significantly more than after steroid injection (p<.0001). Mean maximum esophageal dilation achieved before injection was 10.6+0.8 mm, which increased significantly to 14.6+ 0.9 mm (p < 0.01). Mean dysphagia score also improved significantly from 2.64±0.52 to 0.81±0.35 before and after steroid injection respectively (p<0.001). The periodic dilatation index defined as number of dilatations per month also decreased significantly from 1.84±0.8 before injection to 0.6±0.2 after injection (p<0.001).
Conclusion This study demonstrates the efficacy of triamcinolone intralesional steroids in reducing the requirement for repeated dilatations in refractory esophageal strictures after acid ingestion.

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Esophageal cancer: Tertiary center experience

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Introduction Esophageal cancer is one of the leading cause of gastrointestinal cancer related deaths worldwide. It has rapid development and fatal progression in most cases. This study was conducted to describe clinical, endoscopic, pathological appearance and outcomes following surgical and endoscopic management of esophageal cancer in tertiary care hospital at south India.
Methods Total one hundred patients with esophageal cancer treated at a tertiary referral center at Madras Medical College has been analyzed retrospectively for various presentations. Treatment modalities and outcomes.
Results Among one hundred patients, only twenty cases have been managed surgically by transhiatal or transthoracic esophagectomy for curative indent. Remaining cases because of its late presentation managed by non-operative measures, which includes palliative chemoradiotherapy, esophageal self-expanding metal stents for tracheoesophageal fistula and progressive dysphagia. Few cases managed with parenteral nutrition, nasogastric or feeding jejunostomy. Most of patients were younger than fifty years of age.
Conclusion Even though esophageal cancer one of leading cause of gastrointestinal cancer related deaths in India. Many patients present late to hospitals, only for palliative care because of its rapid progression and aggressive nature. In this present study lot of younger patients presented with esophageal cancer at third and fourth decades of life, we may have to seriously study the etiopathogenic reason behinds the younger age of onset of esophageal cancer. Like colonic cancer screening in western countries, Here we may have to implements prophylactic screening for esophageal cancer after forty years.

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Profile of esophageal strictures and response to dilatation- A tertiary care experience

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Introduction Benign esophageal strictures can be caused by variety of injuries such as esophageal reflux disease, corrosive ingestion, radiation for cancer of head, neck and chest, eosinophilic esophagitis, surgery for cancer esophagus and post sclerotherapy. This study is to identify the prevalence of different types of esophageal strictures, their response to dilatation, and management of refractory esophageal strictures.
Methods Patients who underwent dilatation in Department of Gastroenterology, from January 2015 to December 2017 for esophageal strictures were included in the study.
Results Out of 156 patients, 87 (55.76%) were males and 69 (44.23%) were females. Seventeen years was the youngest age and oldest was 75 years old. Average age was 43.26±4.2 yrs. Corrosive stricture was observed in 71 patients (45.51%), peptic stricture in 33 patients (21.15%), post-radiation stricture in 29 patients (18.58%), anastomotic stricture in 21 patients (13.46%) and post EST stricture in 2 (1.2%) patients. In corrosive injury, mid and upper esophagus (68.2%) was the common site of stricture formation. Radiation stricture was more observed in mid esophagus (58.64%), peptic stricture and post EST stricture were common in lower 1/3rd of esophagus. Multiple esophageal strictures were observed in 4 (5.63%) patients in corrosive group. Refractory strictures were also highest in corrosive injury (9 patients), followed by radiation stricture (4 patients) and peptic stricture (2 patients). Average number of dilatations needed was 3.24 in corrosive stricture, 1.68 in peptic stricture, and 2.49 in radiation stricture. Four patients with refractory strictures received steroid injection with dilatation, and one patient underwent SEMS placement.
Conclusion Corrosive strictures are the most common cause of esophageal strictures in our study than peptic strictures, and they are more refractory to dilatations. Dilatations combined with steroid injections, and self-expanding metal stents (SEMS) can be considered as effective treatment in refractory esophageal strictures.

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Prevalence of esophageal candidiasis in patients of chronic liver disease with portal hypertension

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Introduction Esophageal candidiasis (EC) is a common opportunistic infection in immunocompromised patients especially HIV. Chronic liver disease (CLD) is associated with immune dysfunction which is caused by acquired alteration of both innate and acquired immunity. Thus, CLD being an immunocompromised state leads to higher predisposition to develop EC. The data from the Western countries elucidate CLD as an independent risk factor for EC. In this study, we have retrospectively analyzed the prevalence of EC in patients of CLD with portal hypertension (PHTN).
Methods We retrospectively reviewed the medical records of 650 consecutive patients of CLD with PHTN who underwent upper GI endoscopy at GMCH, Chandigarh during period of September 2017 to June 2018. All patients who were positive for HIV were excluded from the study. The diagnosis of EC was primarily based on endoscopic findings and KOH preparations. Prevalence of EC in patients of CLD with PHTN was determined. We also did risk analysis for variables like age, sex, alcohol consumption, presence of co-morbidities and drugs: herbal medication or corticosteroids use. Factors which were independently associated with EC were determined.
Results The prevalence of EC in patients of CLD with PHTN was found to be 4.0% (26/650). The mean age was higher in those diagnosed with esophageal candidiasis (54.52±11.09 years, total mean age=48.13±13.3 years). We also observed use of herbal medication in the patient under study, but its association was found insignificant (p-value=.0048; $p<.01$). But no significant association was found with gender, alcohol consumption, DM, CAD, CKD or PPIs use.
Conclusion This study identified prevalence of OC in CLD with PHTN in Indian scenario as 4%. It was consistent with prevalence range of 0.3% to 7.3% in non-HIV-infected patients observed in previous studies.

071

A method to measure the pH of different parts of the upper gastrointestinal tract using a pH catheter via the biopsy channel of the endoscope

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Introduction The pH of the gastric acid is measured by passing a pH catheter through the nose. This is a discomforting and prolonged process. Many of these patients usually undergo an upper gastrointestinal (GI) endoscopy also. This current study aims to demonstrate a way of measuring static pH of the upper gastrointestinal tract by passing a catheter through the biopsy channel of upper GI endoscope during the procedure of upper GI endoscopy.
Method We measured the pH of the patients who came for routine diagnostic upper GI endoscopy for upper abdominal symptoms at the International Gastro Institute, Vadodara, Gujarat. We excluded those patients who had taken any acid release inhibiting medications in last one week and those having comorbid illnesses like cirrhosis of liver or malignancy. Routine diagnostic upper GI endoscopy was done using a Fujinon 600 series endoscope. The pH catheter was calibrated and then passed through biopsy channel of the upper GI endoscope. The pH of 3 parts of the upper GI was measured during the endoscopy. These include-lower esophagus, stomach and first part of duodenum. After measuring the pH the catheter tip was tested in vitro by putting it into acidic and basic solutions to reconfirm the correctness of pH reading.
Results The pH measurements were done using the above described process in 355 patients over a period starting October 2017 till date. We analyzed the data in first consecutive 30 patients.
Conclusion We present an accurate and simple method of measuring pH of upper GI tract. The pH measurements are easily reproducible and will have many therapeutic and research applications.

072

Biopsy negative malignant esophageal stricture-Exploring the unexplored

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Introduction Endoscopic biopsy is gold standard for diagnosis of ulceroproliferative lesion in esophagus. Few cases present with concentric stricture without apparent mucosal involvement resulting in negative biopsy. Endoscopic ultrasound (EUS) as diagnostic modality in biopsy negative malignant stricture has been rarely used. We aimed to use EUS in diagnosis of biopsy negative malignant stricture.
Methods We analyzed data from January 2017 to July 2018 of biopsy negative highly suspicious malignant stricture. All adult patients with at least two negative biopsies and having smooth overlying mucosa on endoscopy were included in study. Clinical, epidemiological, endoscopic, imaging and EUS findings were noted and analyzed.
Results Seventeen patients were underwent EUS for suspicion of malignant esophageal stricture. Seven cases excluded as they were sub mucosal tumor causing luminal compromise in which EUS is standard procedure. Ten patients had linitus type esophageal involvement causing tight stricture. Male:Female ratio was 7:3. Computed tomography scan showed esophageal wall thickening in 6 (median:24 mm, range:16-38 mm), while esophageal mass in 4. EUS showed loss of normal five layered wall structure of esophagus in all patients and additionaly mass was seen in 4 patients. FNAC revealed squamous cell carcinoma (n=4), adenocarcinoma (n=3), poorly differentiated carcinoma (n=2) and neuroendocrine carcinoma (n=1). There were no complications related to EUS.
Conclusion EUS is effective and safe modality for diagnosis of biopsy negative suspected malignant esophageal stricture.

073

An unusual presentation of dysphagia-A case report of esophageal duplication cyst. Need for high index of suspicion and discretion against use of EUS-FNA

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Introduction Gastrointestinal (GI) duplication cysts are rare. Esophageal duplication cyst accounts for 10% to 15% of all congenital duplication cysts involving the GI tract. Children (80%) are more commonly affected and rare in adults but symptomatic. 50% to 70% of foregut duplication cysts are enterogenous while 7% to 15% of them are bronchogenic. Diagnostic modalities are CT, MRI and EUS.

Case A middle aged gentleman presented with history of dysphagia both to solid and liquids significant weight loss was evaluated elsewhere. CECT abdomen chest showed well defined extraluminal mass (4.7 x 5.6 x 6.5 cm) abutting right lateral wall of the thoracic esophagus in retrocardiac segment abutting posterior wall of right atrium with differentials of lymphomaleiomyoma offered. EUS showed 7x 6 cms variegated heteroechoic right paracardiac mass, abutting left atrium suggestive of pleuropericardial cyst/leiomyoma. FNA was suggestive of cystic lesion. Patient was offered surgery.
In our centre EUS was repeated and showed a cystic mass seen in the posterior-lateral surface measuring 5 x 4.5 x 3.7 cm. Both hypoechoic and isoechoic content with air in the mass causing artifacts, wrapped by esophageal muscularis.
EGD showed ulcerated surface with thick margins and pus/white discharge extruding from the ulcerated base. Few openings leading from ulcer surface seen. Pus/discharge was aspirated and sent for cytology, TC, DC and culture which confirmed infection. The diagnoses was esophageal duplication cyst- infected post FNA. He needed a morbid surgery but was managed with antibiotics and recovered.
Conclusion Even expert endosonographers can mistake a duplication cyst for a more ominous lesion. EUS-guided FNA of duplication cysts should be avoided if the endosonographer have a high index of suspicion that the lesion in question really is a duplication cyst. If FNAC is performed may lead to severe infection of the cyst requiring a morbid surgery. If symptomatic, generally treated with surgical enucleation performed laproscopically.

074

Symptom and manometric profile of patients with motility disorders from a tertiary care centre in North Kerala

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Introduction Data regarding motility disorders in South India is scarce and this study aimed to analyse the symptom and manometric profile of patients with suspected esophageal manometric disorders based on Chicago Classification v 3.0.
Methods This was a retrospective analysis of patients who underwent high resolution manometry (HRM) for predominant complaints of dysphagia, non-cardiac chest pain, regurgitation and retrosternal burning sensation, at our centre from January 2016 to April 2018. HRM was performed after an overnight fast with 16 channel water perfusion system and patients were classified using Chicago Classificationv3.0. Continuous variables were analyzed using X2 tests. $P<0.05$ was considered statistically significant.
Results Ninety-five patients were studied which included 61 females (64.2%) and 34 males (35.8%). Mean age was 46.25 (range 12 to 74). Manometric findings included achalasia in 43 patients (45.26%), normal findings in 30 (31.57%), ineffective esophageal motility (IEM) in 13 (13.6%), absent contractility in 3 (3.15%) distal esophageal spasm (DES) in 4 patients (4.21%) and EGJ outflow obstruction and fragmented peristalsis in 1 person each. Achalasia subtypes were type I in 4 (9.3%) Type II in 36 (83.7%) and type III in 3 (6.9%) patients. Duration of dysphagia at presentation was longer in those with achalasia (39.72 months) than in either those with normal manometry (15.2 m) or ineffective esophageal motility (14.02 m) ($p<0.05$). LES pressures were elevated in 34/43 achalasia patients (79.06%) and there was no significant difference with regard to subtype of achalasia. This study included 5 patients with scleroderma and findings were absent contractility in 3, ineffective motility in 1, and fragmented peristalsis in 1.
Conclusions Dysphagia was the most common presenting symptom seen followed by regurgitation. Using Chicago Classification v3, achalasia was the most common disorder diagnosed. In spite of significant symptoms, manometry findings were normal in 30 patients.

075

An interesting case of mediastinal abscess managed endosocpically

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Introduction An interesting case of mediastinal abscess managed endoscopically.
Discussion Twenty-two-years-old lady had history of corrosive injury at age 4. Thereafter she was having complaints of cough on and off and was managed conservatively. She developed complaints of dysphagia and cough with swelling of neck and hence underwent UGI scopy with suspicion of foreign body. UGI revealed stricture in esophagus at multiple levels and foreign body impaction in cricopharyx region which could not be removed endoscopically and hence removed with help of rigid endoscope. She had fistulous opening and pus discharge from from it. CECT chest revealed large mediastinal abscess. She underwent fully covered SEMS placement in esophagus and thereafter showed significant improvement in her symptoms with resolution of abscess. After 3 weeks on follow up stent removal was done and she is asymptomatic thereafter.
Conclusion We present a rare case of mediastinal abscess following corrosive injury which otherwise would have needed surgical management being managed with minimal invasion with endoscopic stent placement.

076

Clinical outcome of pneumatic dilatation in patients with achalasia cardia: A tertiary centre experience

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Introduction Pneumatic balloon dilation is one of the effective methods for treating patients with achalasia cardia. This study was conducted to assess immediate and long-term outcome of pneumatic dilatation (PD) in these patients.
Methods Eight-teen achalasia cardia patients, who underwent PD in our center from august 2017 to July 2018, were studied. Data from these 18 patients who underwent dilatation procedure were analyzed for clinical improvement in symptoms over this period as per Eckardt score.
Results A total of 18 patients underwent PD, among which three lost to follow up. Of the 15 patients, 5 were male (30%) and 10 were females (70%). Mean age was 36.54 (19-54) years. Median symptom duration before first dilatation was 18 months. Major symptoms at presentation were dysphagia (n=15, 100%), regurgitation (n=13, 86.6%), chest tightness (n 11, 73.3%), and weight loss (n=7, 46.6%). 14 (93.3%) patients had immediate clinical improvement after 1 dilatation, of which 13 (86.6%) patients did not require any further treatment. Mean Eckardt score was 6.82 (4–11) at the time of first dilatation which improved to 0.66 during follow up. One patient required second dilatation (5 months after the first procedure).
Conclusion PD is a relatively safe and effective long-term therapy for achalasia cardia patients and has a good long-term clinical outcome.

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Yield of endoscopy in evaluation of dysphagia

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Introduction Endoscopy is widely used for workup of dysphagia. In this study, endoscopic findings of dyspahagia and it's utility as initial diagnostic test was analyzed.
Methods Patients with complaint of dysphagia were evaluated with by endoscopy from November 2017 to June 2018. Patients who had undergone prior esophageal evaluation, or who had a history of prior upper GI pathology were excluded.
Results A total of 320 patients were analyzed (172 male, 148 female, mean age 46.5 years). Normal finding was present in 45% (144) patients. Abnormal findings were present in 55% (176) patients. Amongst abnormal findings, ulceroproliferative growth was seen in 16.25% (52) patients while in others stricture (malignant or benign) or 13.75% (44), esophagitis 6.25% (20), esophageal dilatation 1.5% (5), other findings (55) were seen. Male gender, older age (>45 years), significant weight loss and odynophagia were associated more with abnormal endoscopic findings.
Conclusion Esophagogastroduodenoscopy (EGD) is an effective and rationale tool for initial evaluation of patients presenting with dysphagia. Early EGD should be considered , mostly, in male patients aged more than 45 years with associated complaints of significant weight loss and odynophagia.

078

A rare case of dysphagia- Multiple lymphomatous polyposis

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Introduction Dysphagia is an alarming symptom that requires systematic and prompt evaluation. Various benign and malignant diseases may cause dysphagia. Esophageal lymphoma is a very rare cause of dysphagia. Stomach and small intestine are more common sites for gastrointestinal lymphoma. Mantel cell lymphoma can involve any region of the gastrointestinal tract, but esophageal involvement is extremely rare. Three case reports have been published till date on esophageal involvement of mantel cell lymphoma. We present a case of 60-year-old male with esophageal mantel cell lymphoma.
Case report A sixty-year-old male patient presented with difficulty in swallowing for two months associated significant unintentional weight loss. He had no history of any significant past medical ailments. General and systemic physical examination was unremarkable except for enlarged sub-mental, sub-mandibular and bilateral inguinal lymph nodes.
Lab investigations showed normal blood picture with few reactive lymphocytes. Abdominal ultrasound showed stomach wall thickening with multiple enlarged lymph nodes. Upper gastrointestinal endoscopy showed multiple sub mucosal polypoidal lesions involving esophagus, stomach, and duodenum with thicken gastric folds noted in fundus and body. Biopsies from stomach and esophagus on histopathology and IHC revealed Mantel cell lymphoma. Contrast CT scan of the abdomen showed stomach wall thickening and short segment thickening of cecum and ascending colon with multiple lymphadenopathy.
Colonoscopy revealed multiple sub mucosal polypoidal lesions involving all segment of the colon. Biopsies from the colon were reported as mantel cell lymphoma. Bone marrow aspiration biopsy showed Mantel cell lymphoma. After 6 cycles of RCHOP regimen, review endoscopy showed disappearances of all the lesions. He is planned for autologous bone marrow transplantation. Esophageal involvement of mantel cell lymphoma is rare cause of dysphagia. We present a case of Mantle cell lymphoma with esophageal involvement and multiple lymphomatous polyposis secondary to systemic involvement.

079

Profile of benign esophageal stricture dilatation-Our experience from a tertiary care centre in South India

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Introduction Benign esophageal stricture of various etiologies constitute a major portion of patients presenting with dysphagia. Dilatation of stricture using bougie dilators is an effective endoscopic modality in providing relief to the patients. In this study, we aim to analyse the etiological and endoscopic profile of benign esophageal stricture dilatations done in our department.
Methods We retrospectively analyzed data of patients who had undergone esophageal stricture dilatation using Savary-Gillard bougie dilator at our centre over a period of 1 year from August 2017 to July2018.
Results A total of 108 patients of benign esophageal stricture had undergone dilatation, out of which 32 were male and 76 were female. The mean age of patients was 49.2 years. Most common etiology was post cricoid web (51.9%), followed by postradiotherapy stricture (23.1%), corrosive stricture (17.6%), peptic stricture (5.6%) and anastomotic stricture (1.8%). The most common etiology was post cricoid web in both the genders, even though the M:F ratio in post cricoid web was 1:3.3. Seventeen patients had complex strictures, which included both long segment and multiple stricture. Complex strictures were most commonly seen with corrosive injury (11 out of 17). The average diameter of dilatation achieved in post cricoid web (13.3 mm) was higher compared to that of post radiotherapy stricture (12.1mm) and corrosive stricture (12.4 mm). The average number of dilatations undergone over 1 year period were also more in postradiotherapy and corrosive strictures.
Conclusion Post cricoid web is the major cause of benign esophageal stricture and has better response to dilatation. Complex strictures are more commonly found in corrosive injury and are more refractory to dilatation. The incidence of peptic strictures have come down probably with the increasing use of proton pump inhibitors.

080

A study of clinical profile and endoscopic findings in patients with dysphagia in our centre

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Introduction Dysphagia (defined as difficulty in swallowing), is the most common symptom of esophageal disorders. It is an alarming symptom which needs detailed evaluation and prompt treatment. Endoscopy is the most valuable tool in evaluation of dysphagia.
Aim Aim was to study the clinical profile and endoscopic findings in patients presenting with dysphagia as a primary complaint in our centre from June 2017 to July 2018.
Method It was a retrospective study of the patients who presented with dysphagia as primary complaint in our centre from July 2017 to June 2018. Inclusion Criteria: All patients with new onset dysphagia were included in study. Exclusion Criteria: Patients with neurological dysphagia were excluded from study.
Results Total number of 284 patients (163 male and 121 females) were included and index endoscopy was performed. Common findings at endoscopy were Ca cricopharynx and Ca esophagus (39.4%), PC web and Schatzki ring (27.5%), post radiation stricture (11.2%). Other less common causes

were, corrosive stricture (8.1%), peptic stricture (6.3%), achalasia (2.4%) and Eosinophilic Esophagitis(1.7%). In 9 (3.1%) patient endoscopy were normal. Ca cricopharynx, Ca esophagus and post radiation strictures were more common in patients > 40 years of age whereas PC web, corrosive strictures and achalasia were more common in patients with < 40 years of age. Smoking and Alcohol consumption were strongly associated with Ca cricopharynx and Ca esophagus, whereas anemia was more common in patient with PC web. Achalasia and corrosive stricture were more common in females and carcinoma and peptic stricture were more common males.
Conclusion Ca cricopharyx and Ca esophagus remain most common causes, followed by PC Web and Schatzki ring and post radiation strictures. Endoscopy was useful in arriving at diagnosis in 97% of cases. Most patients (73.6%) present with Grade III or Grade IV dysphagia.

STOMACH

081

Case report a rare case of gastric tuberculosis presented as left lobe liver abscess

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Introduction Tuberculosis (TB) is a life-threatening disease which can affect virtually any organ system. India has the world's highest tuberculosis case burden (around 25% of the world TB cases). Primary involvement of the stomach is rare (0.4%-2%).
Case presentation A 30-year-old male, presented with epigastric pain, high grade fever and significant weight loss. On examination epigastric lump (8 X 7 cm) felt, investigation revealed anemia, polymorphonuclear leukocytosis. Patient was treated with intravenous antibiotics based on ultrasound finding of Left lobe liver abscess, fever persisted in spite of course of antibiotics. CT Scan showed asymmetrical thickening in body and fundus of stomach, hepatic SOL. Endoscopy showed diffuse nodular lesions in gastric body, pus extruded from nodule. Gastric biopsy showed chronic gastritis. Xpert MTB/RIF Assay for tuberculosis was negative twice. PET-CT showed metabolically active tumor of stomach with liver infiltration. Liver SOL biopsy inconclusive. Repeat gastric biopsy was done and sent for Xpert MTB/RIF Assay which turned out to positive/sensitive to rifampicin. The patient was prescribed four drug ATT (HRZE), after 6 months of ATT now patient is afebrile, follow up CT show satisfactory improvement in lesion.
Discussion Endoscopic biopsy is occasionally successful in diagnosis. Due to inaccurate clinical diagnoses, most patients end up requiring surgical intervention, only after which is gastric tuberculosis diagnosed. Regarding the present case, we were able to demonstrate neither AFB bacilli, nor granulomas, but we did obtain a positive PCR test from the endoscopic biopsy. In the case of extrapulmonary specimens, the sensitivities of smear (51%) and culture (53%), though comparable, were found to be low in comparison with that of the Xpert test (81%).
Conclusion This case highlights varied presentation of gastric tuberculosis and importance of Xpert MTB/RIF assay in diagnosis of TB which was not picked up by biopsy/culture, which particularly obviating the necessity of operation.

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A rare case of collagenous gastritis due to a rarer cause was detected and treated at our institute

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Collagenous gastritis is a rare disease. The disease was first reported in 1989, only 60 cases have been documented in the English literature [1].
Case report A 54-year-old female presented with recurrent post prandial vomiting and 6 kg weight loss in last 6 months. She had a recent onset diarrhea for 2 days. She has diabetes melitus since 2003 and hypertension since 2007. She was treated with tab. Olmesartan 40 mg once daily since 2016. Her physical examination and investigations were unremarkable. Her symptoms were not relieved with conservative treatment. Her UGI scopy revealed atrophic mucosa with nodularity in body region. NBI showed tubular micromucosal pattern. Her colonoscopy was normal. HPE report was suggestive of thick collagen deposition (>10 micron) entrapping the subepithelial vessels, inflamed mucosa and epithelial injury.
Discussion Endoscopic findings in CG have been characterized by fine nodularity surrounded by depressed, atrophic mucosa [1]. Pathologically, dense collagen depositions are found in the intervening atrophied mucosa [1, 2]. Kawamura et al. [3] reported that a tubular gastric micromucosal pattern under M-NBI is representative of infiltration of inflammatory cells, while an obscure surface structure with irregular, narrowed, and coiled subepithelial capillaries is compatible with mucosal atrophy and intestinal metaplasia.
Conclusion Our case suggests that the co-existence of these two distinctive NBI finding with history of olmesartan use may be diagnostic of CG.

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Improvement of photodynamic diagnosis of gastric pre-cancer in laboratorial animals using polymer photosensitizers' carriers

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The stomach cancer is a leading cause of cancer-related deaths in the world. The photodynamic effects leading in fluorescent gastroscopy is promising optical technique for non-invasive tumor diagnosis. However, this method is less effective for diagnosis of pre-cancer in gastrointestinal tract that requests improvement of photodiagnostic technique.
In our study, we presented an effective improvement of fluorescent gastroscopy by application of new conjugate between photosensitizer such as zinc phthalocyanine (ZnPc) with newly synthesized polymer brushes (copolyimide with regularly grafted side chains of polymethacrylic acid) (PB) as drug carriers in comparison with the standard photodynamic diagnosis by using of phthalocyanine solely.
For formation of adenocarcinoma in rats n=200, we used our original model using combined effects of stress overpopulation for 9 months +nitrosamine diet (toluidine 2 g/kg in food and water with nitrites 2 g/l). For photodynamic diagnosis of gastric tumor, we used physiological solutions of ZnPc, ZnPc-PB conjugates (1 mg/kg, I.V.) and 5-ALA/PpIX (20 mg/kg, per os) histological method was performed to analyze the changes in the gastric tissues.
The comparative analysis of two photosensitizers combined with histological analysis of gastric tissues showed that fluorescent signal (FS) from 5-ALA/PpIX was higher than from ZnPc in rats with tumor. However, using of ZnPc solely was ineffective for observation of pre-cancer

changes in stomach. Only 5-ALA/PpIX expressed enough strong FS from precancerous gastric lesions. To improve diagnostic effectiveness of ZnPc, we applied PB conjugates that increased the photosensitizer penetration in the cells. The FS from conjugate from precancerous gastric area was similar by value with the 5-ALA / PpIX fluorescence. Thus, using PB as drug carriers, we have achieved a significant improvement in the diagnostic ZnPc potential, demonstrating a significant increase in FS from precancerous mucosal areas. **This work was supported by Grant of Russian Science Foundation # 18-15-00139**

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Spectrum of gastric cancer – Study from a tertiary care hospitals in India

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Background Gastric cancer in India shows marked regional variation both in incidence and presentation. Highest incidence is seen in the north eastern states of India. Its also common in other parts of India. However, data on various clinicopathological characteristics of gastric cancer patients in different region is limited. The aim of this study was to find out the epidemiological, pathological and clinical profile of gastric cancer patients presenting to above mentioned centre during study period.
Methods Three hundred and fifty cases of gastric cancer patients were included in this multicenter study. Patient characteristics were obtained using pretested questionnaire. All relevant investigations like endoscopy, biopsy reports, HPE and operative notes wherever available were recorded.
Results Average age of the patients was 41.36 years. There were 290 (79%) males and 60 (21%) females. Fifty-one percent of the patients came from rural areas while the rest (49%) resided in urban areas. Weight loss was the commonest symptom followed by dyspepsia and abdominal pain. Majority of them were smokers (81%). Antrum was the commonest site of involvement and most common type of lesion was ulceroproliferative type (60%). Most of the gastric cancers were poorly differentiated adenocarcinomas. Indeterminate type was the commonest histological subtype. Eleven percent of patients deemed operable on preoperative workup had advanced unresectable cancers.
Conclusions Majority of the gastric cancer patients appear to be male, smoker and mostly with a rural background. The average age at diagnosis was 41 years. Commonest symptoms were weight loss and dyspepsia. A high percentage of the patients were smokers with a long duration of smoking. About half of the patients had poorly differentiated cancers and indeterminate histology. A significant number of cases presented late with advanced disease. There is a need for urgent screening protocol to identify patients at earlier stages of the disease.

085

Concomitant versus sequential therapy for the treatment of *Helicobacter pylori* infection: A randomized trial

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Introduction Prevalence of *H pylori* varies from 50% to 83% in India [1]. *H pylori* eradication should be offered in symptomatic patient with *H pylori* infection [2]. Dual resistance rates from 26% to 57% in India influence the eradication rates [3].
Aim To compare the eradication rates of the concomitant and sequential *H pylori* therapy in real life situation.
Methods As a part of ongoing study, newly diagnosed *H pylori* infection, using the urea breath test or rapid urease test, were randomized to receive a 10-day concomitant or 10-day sequential therapy. Eradication was assessed by C14-urea breath test 4 weeks after therapy. Intention to treat (ITT) and per protocol (PP) analysis of the eradication rates was performed. Secondary end points included patient compliance and adverse events across the groups.
Results This interim analysis included 54 patients. Eradication rates were higher in concomitant therapy 32/33 (96.97%) than sequential therapy 17/21 (80.96%) but did not reach statistical significance (p=0.06). Compliance rates did not differ (32/33 [96.97%] for concomitant therapy and 20/21 [95.23%] for sequential therapy, p=1.0]). There were no major adverse events that led to the discontinuation of therapy in either group.
Conclusions There was a trend for higher eradication rates with Concomitant therapy as compared to sequential therapy. Compliance and safety profile were comparable.

086

Isolated collagenous gastritis in an adult-Association with *H pylori* infection

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Introduction Collagenous gastritis is a rare disorder characterized by abdominal pain and severe anemia. In adults it is associated with collagenous colitis. Isolated collagenous gastritis is confined to pediatric population. We present a rare case of isolated collagenous gastritis in an adult female associated with *H pylori* gastritis and clinical response to anti *H pylori* treatment.
Methods A 35-years-female complained of post prandial abdominal distension, vomiting and weight loss of 6 kg in 4 months. Evaluation revealed iron deficiency anemia. Vitamin B_{12} was normal. Celiac profile and ANA were negative. Endoscopy revealed antral narrowing with mucosal abnormality. Deep pre-pyloric ulcer was noted and RUT was positive. Mucosal biopsy showed inflammatory markers in lamina propria. *H pylori* was seen. Suggestive of *H pylori* gastritis. Anti-*H pylori* treatment given. As the symptoms persisted, repeat endoscopy after 1 month showed gastric mucosal nodularity with depressed areas. Pyloric channel narrowing. Repeat biopsy revealed attenuated gastric epithelium with active inflammation. Subepithelial collagen plate was thickened. Suggesting, collagenous gastritis. *H pylori* was seen. Colonoscopy and biopsy were normal. Endoscopy after 3 months revealed smooth mucosa with pre-pyloric scarring, reduced thickness of collagen band and no *H pylori*.
Results Patient responded well to 2nd line anti *H pylori* treatment, vomiting decreased, weight and anemia improved.
Conclusion Collagenous gastritis is diagnostically challenging disease and its exact etiology remains unclear. This is a rare case of isolated collagenous gastritis in adults with *H pylori* association. This case responded well to *H pylori* eradication, from which we can assume *H pylori* as a probable cause for collagenous gastritis. Study of a larger number of patients will help to establish diagnostic criteria and therapeutic strategies.

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Proton pump inhibitor prescription in a tertiary hospital- An audit

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Background Proton pump inhibitor (PPI) are commonly prescribed for various clinical conditions including upper gastrointestinal (UGI) bleed from peptic ulcers, as stress prophylaxis, reflux esophagitis, abdominal pain etc. While appropriate in some conditions, it has also resulted in widespread inappropriate PPI use. Recent published data suggest adverse effects of short-term and long-term PPI therapy cautioning indiscriminate prescription.
Aims To audit appropriateness of PPI prescription in adult non-ICU and ICU patients in a tertiary care centre.
Methods A prospective cross-sectional audit was carried out at Mazumdar Shaw Medical Center which does not include the NH cardiac centre, after obtaining consent from empanelled doctors. For a period of one week, all hospitalized patients on PPI, H2RA and antacids, aged 18 and above, were identified and indications considered appropriate for the use of PPI based on current literature and guidelines were noted. Details of the primary treating departments, co-morbidities, use of aspirin and NSAID's were also noted.
Results A total of 280 patients were surveyed, of which 119 (42.5%) patients were on acid suppressant therapy. One hundred and one (84.8%) patients were on PPI, 10 (8.4%) on H2RA, 6 (5.04%) on multiple drugs and rest 2 (1.6%) on antacids. Majority of patients (66.12%) received PPI in intravenous form. Inappropriate use was noted in 83 patients (69.74%) and it was significantly higher in ICU (55.26%) than in non-ICU (41.84%) patients. Appropriate use was noted in patients with GI bleed, on NSAIDS and endoscopic evidence of acid peptic disease. Inappropriate prescribing was more common amongst male patients, surgical admissions and non-upper GI bleeders
Conclusion Indiscriminate and inappropriate PPI use was noted to be common in both ICU and non-ICU patients. With increasing literature on potential harmful side effects of PPI use over short and long-term, it is necessary to educate practising physicians and surgeons to prescribe PPI judiciously.

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Accuracy of serology for the diagnosis of *Helicobacter pylori* infection- A comparison of two kits

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Aims To determine the accuracy of two commercially available kits for the serological diagnosis of *Helicobacter pylori* infection, and hence to reduce endoscopy workload.
Methods We conducted a study on 937 patients with an aim to compare 2 serology *H pylori* kits with the gold standard i.e. biopsy findings. The samples were collected from the patients who attended OPD from January 2011 to April 2017. Serology kits used in the study were *H pylori* Ag ELISA (Standard Diagnostic USA) and on-site *H pylori* Ag rapid test (CTK Biotech, USA). Histological examination of gastroduodenal biopsy specimens was considered as gold standard.
Results While biopsy is the current gold standard for diagnosis of *H pylori* infection of the gastrointestinal tract, other non-invasive methods are rapidly catching up. Biopsy findings of 937 patients in our study revealed 561 as *H pylori* positive and 376 as negative. From the results obtained from our study, the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of SD kit were 15.82%, 95.50%, 73.53% and 58.95% respectively; and of CTK kit were 36.48%, 75.45%, 84.48% and 24.48%. This is in sharp contrast to the 8 kit comparison by Wilcox et al. which reports sensitivity, specificity, PPV and NPV averaging at 96.37%, 91.62%, 91.87% and 99.25% respectively. The wide differences in values indicate the need for a better serology diagnostic kit. If the aim of non-invasive diagnostic techniques is to someday replace the existing invasive gold standard investigations, a better collated result with the biopsy findings is highly desirable. Till that time biopsy is the only irrefutable test in our armamentarium.
Conclusion A substantial disagreement was found between serology and histopathology results Laboratory-based serologic testing using ELISA technology to detect IgG antibodies is inexpensive, non-invasive and convenient method to detect the *H pylori* infection in primary care setting.

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Rare case of gastric amyloidosis

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Introduction Gastrointestinal amyloidosis (GIA), a protein deposition disorder, represents a complex common pathway that encompasses multiple etiologies and presentations. It represents a significant diagnostic and treatment challenge. We report a rare such case with gastric and hepatic involvement presenting with GI bleed.
Case Report A 68-year-old male admitted with complaints of loss of appetite and weight loss of 10 kg in 6 months. He was hypertensive on medications. Basic blood investigations were within normal limits. USG abdomen - hepatosplenomegaly, CECT abdomen - coarse echotexture of liver, splenomegaly, multiple anterior abdominal wall collaterals and periportal lymphadenopathy. Upper GI endoscopy - thickened gastric mucosa, superficial ulcers, and active diffuse oozing of blood wherever the scope touches the mucosa (extreme friability), small duodenal submucosal nodule also noted. Gastric and duodenal nodule biopsy was suggestive of amyloidosis, Congo red staining was positive for classic green birefringence under polarized light. Serum protein electrophoresis and bone marrow aspiration were negative for myeloma. He was treated conservatively.
Discussion The disease results from the deposition of insoluble extracellular protein fragments that have been rendered resistant to digestion. GIA can be acquired or genetic, and most commonly results from chronic inflammatory disorders (AA), hematologic malignancy (AL), and ESRD (Beta-2). Within GI tract, amyloid deposition occurs in the muscularis mucosae, within close proximity to vasculature, nerves, and nerve plexuses. This deposition increases the frailty of blood vessels, hinders intrinsic peristalsis and decreases the compliance of the gut wall. Treatment is based on addressing the underlying etiology for elevated amyloid precursors and most often involves chemotherapy or biologic therapy. Prognosis depends on subtype. AL subtype typically shows worse prognosis than AA subtype, and those with GI involvement typically have worse outcomes.
Conclusion GIA is a rare entity, diagnosis depends on clinical acumen, high index of suspicion and histopathology

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Upper gastrointestinal involvement in inflammatory bowel disease patients of North Kerala

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Introduction The incidence of Crohn's disease (CD) and ulcerative colitis (UC) is increasing in India and particularly in Kerala. The clinical correlation between upper gastrointestinal (GI) manifestations and disease process in IBD is under reported. This cross-sectional study evaluated the prevalence of macroscopic and microscopic upper GI lesions in IBD patients with no upper GI symptoms in a tertiary care hospital of North Kerala.
Methodology Consecutive asymptomatic IBD patients were recruited for the study with upper GI endoscopy and biopsies between January 2018 and July 2018 in Department of Gastroenterology, Medical College, Calicut.
Results One hundred and fifteen IBD patients (44 CD, 71 UC; 58.3% male 41.7% female; mean age 40±15 years) were included. Endoscopic gastroduodenal involvement of CD was 29.5% and in UC 42.2% (p=0.242) but histology was significantly abnormal in CD than UC (63.6% vs. 45.1%, p = 0.05). *H pylori* (Hp) positivity was similar in both (9% vs. 7% p=0.65). Common endoscopic finding in CD patients was gastritis (20.4%), duodenal erosions (9.1%) and aphthae (4.5%) while in UC it was gastric ulcerations and erosions (29.5%), erythema (18.4%) and duodenal erosions (7.1%). In CD 31.8% and 29.6% of UC with normal endoscopic findings had abnormal histopathology. Patients with higher disease activity CDAI >150, Truelove-Witts score moderate or more had abnormal histopathology even in the presence of normal endoscopy. Common histopathology findings in CD included Hp negative chronic active gastritis (34.1%), duodenitis (31.8%), granuloma (6.8%) while in UC, Hp negative chronic active gastritis (43.7%), duodenitis (16.9%) and gastric basal mixed infiltrates (11.3%). Endoscopic findings were less common in Azathioprine (AZA) and aminosalicylic acid users (p=0.05) while histopathology was better in AZA users (p=0.03).
Conclusions Upper GI manifestations are seen commonly in both CD and UC but are lesser in patients on immunomodulators. Histopathololgic changes in upper GI is seen even with normal endoscopy findings and more in patients with severe disease.

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Assessment of gastric mucosal pattern by narrow band imaging endoscopy for the diagnosis of *Helicobacter pylori* infection

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Background Diagnosis of *Helicobacter pylori* infection (HPI) by conventional white light endoscopy requires multiple biopsies. Narrow band imaging (NBI) helps in enhanced visualization of mucosal microscopic structure and capillaries in the superficial mucosal layer. This study was done to find out the correlation of NBI microvascular findings of the stomach with HPI.
Methods Consecutive patients with dyspeptic symptoms who underwent endoscopic examination from October 2017–July 2018 were enrolled. After conventional endoscopy, NBI was used to examine the stomach and the predominant vascular pattern was studied. Visualized mucosa was classified into one of the 3 patterns. Type 1- slightly enlarged, round pits with unclear or irregular subepithelial capillary networks. Type 2: obviously enlarged, oval or prolonged pits with increased density of irregular vessels. Type 3: well-demarcated, oval or tubulovillous pits with clearly visible coiled or wavy vessels of subepithelial capillary networks. Biopsy done from the predominant pattern was evaluated for HPI.
Results Eighty patients were enrolled. 8/35 patients with type 1 pattern, 15/25 patients with type 2 pattern and 16/20 patients with type 3 pattern were positive for HPI. Overall prevalence of HPI was 48%. Sensitivity, specificity, PPV and NPV of type 1 pattern for predicting HPI were 20%, 34%, 22% and 31% respectively. Corresponding results for type 2 pattern were 38%, 75%, 60% and 56% and for type 3 pattern it was 41%, 90%, 80% and 60% respectively.
Conclusion Type 3 NBI pattern has high specificity and PPV than other patterns in detecting HPI. Site specific biopsies targeted from type 3 pattern of gastric mucosa in NBI may increase the diagnostic yield in suspected HPI.

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A case of gastric mucormycosis in an immunocompetent individual

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Introduction Mucor mycosis is an uncommon opportunistic fungal infection usually seen in immunocompromised patients which is associated with significant morbidity and mortality. It is an angioinvasive fungal infection which can present with various forms-rhinocerebral, pulmonary, cutaneous, gastrointestinal, renal or disseminated infection. Primary gastrointestinal infection is an uncommon clinical presentation with a prevalence of only 7% of reported cases. The stomach is the most commonly affected organ followed by the colon and ileum in alimentary zygomycosis.
Methods We hereby describe a case of 49-year-old female with no comorbidities, presented with history of road traffic accident and traumatic brain injury. She required neurosurgical intervention and was having a residual deficit. She was referred for PEG tube placement in view of her poor neurological status. Endoscopy revealed a large gastric ulcer with necrotic base involving the fundus. Biopsy was suggestive of gastric mucormycosis. CECT abdomen revealed partial thickening of gastric wall. Patient was started on liposomal Amphoterecin-B. Follow up endoscopy showed resolution of the ulcer.
Results and Conclusion Gastric mucormycosis is a rare disorder usually affecting the immunocompromised patients with a very high morbidity and mortality. Here we report an immunocompetent individual with incidentally detected gastric mucormyosis which was managed medically with Liposomal Amphoterecin-B.

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How rapid is the rapid urease test?

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Introduction Reagent strip of commercially available rapid urease test (RUT) is widely used for diagnosis of *Helicobacter pylori* in endoscopy suites with reported sensitivity and specificity above 90%. While the recommendation is to look for color change for 24 hours, most centers record the result before patient departs after endoscopy.
Methods Five hundred consecutive patients undergoing upper GI endoscopy were studied prospectively. Two gastric biopsy samples obtained with multibite forceps (Boston Scientific) from mid-antrum and mid-corpus were placed in Pylo Dry TM kit (Halifax Research Laboratory, Kolkata). The kit was observed prospectively for change of color at 0-15 mins (patient in the endoscopy room), 16-60 mins (patient in the recovery room/department), 1-8 hours (end of the day) and 16-24 hours (following morning). Positive test was defined as definite change in color as recorded by at least 2 observers. Earliest time to change of color was noted. Patients undergoing endoscopy on Saturday were excluded as color change could not be observed on Sunday.

Results Median age of patients was 42 (range 15-80) years and 60% were male. RUT was positive in 183/500 (37%) patients. The test was positive in 92 (50%) in first 15 minutes, 29 (16%) in 16-60 minutes, 19 (10%) at 1 to 8 hours and 43 (24%) at 16 to 24 hours. If the kit was observed till departure of patient from the department, only 121 (66%) of patients positive for RUT would have been reported.
Conclusion RUT should be read for 24 hours before the kit is discarded. One-third of positive tests will be missed if results are read with-in one hour of the test.

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Detection of *Helicobacter pylori* in proton pump inhibitor era

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Introduction Proton pump inhibitors (PPI) are among one of the most abused medication. Histology is a reliable diagnostic test for *H pylori* infection, but its performance status is affected by PPI overuse. We have tried to assess its impact on the gastric mucosal biopsy and suggest some measures to improve the outcome of the various diagnostic tests.
Methods Fifty consecutive dyspeptic patients requiring endoscopy who had been on oral PPI therapy for more than 3 months were included in the study prospectively. Endoscopic mucosal biopsies were taken from the antrum and body of the stomach separately and the tissue sections were stained with H&E, Giemsa and immunohistochemistry for *H pylori* antigen. Rapid urease test (RUT) was also performed on tissues obtained from antrum and antrum plus corpus. Readings were taken at 5 minutes, 4 hours and 24 hours.
Results Out of 50 patients, 36 were male and 14 were female. The mean age was 44+16.82 years. RUT was positive from the antral mucosa in (19/50) 38%, (24/50) 47% and (26/50) 52% cases at 5 minutes, 4 hours and 24 hours reading respectively. When the antrum and corpus were combined, the corresponding values were (25/50) 50%, (33/50) 65% and (41/50) 82% respectively. Histopathologically *H pylori* was positive in (26/50) 52% of PPI exposed dyspeptic patients when both antrum and corpus were included, whereas the detection rate was (34/50) 67.6% with the IHC technique. Even though the difference is not statistically significant (p value=0.17) because of small sample size, it shows an upward trend.
Conclusion It is desirable to include both antrum and corpus mucosal tissue for RUT and histopathology in PPI exposed patients. IHC as an ancillary technique improves *H pylori* detection rate and RUT reading at 5 hours is as good as IHC results.

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Prevalence of *Helicobacter pylori* infection in cirrhotic patients

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Introduction H pylori infection is one of the leading cause of peptic lesions in cirrhotic patients. Peptic lesions result in upper GI bleed apart from variceal bleed in cirrhotic patients. Oxygen free radicals have a role in gastric inflammation and are abnormal in chronic liver disease patients.
Aim To evaluate the prevalence of *H pylori* infection in cirrhotic patients.
Method Sixty cirrhotic patients were included in the study and during endoscopy, antral biopsy was done and rapid urease test was performed.
Results Twenty percent was positive for RUT and 80% was negative. Sixty percent had esophageal varices, 10 % had gastric varices, 80 % had portal gastropathy, 20 % had duodenal ulcer (10 % was RUT positive) 12% had antral erosions (6% was RUT positive).
Conclusion Majority of patient tested negative for RUT in cirrhotics, but those with associated peptic ulcer disease, *H pylori* positivity was seen higher in them.

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Real world efficacy and tolerability of acotiamide, in relieving meal-related symptoms of functional dyspepsia in diabetic and non-diabetic patients

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Background Functional dyspepsia (FD) is a prevalent condition imposing health care burden, impaired quality of life, and a therapeutic challenge due to non-specific symptoms. FD symptoms and delayed gastric emptying are often seen in and further worsen the quality of life in diabetic patients. Acotiamide is a first-in-class gastro-kinetic drug, enhancing acetylcholine release and representing an appropriate therapeutic option to fill the need gap in specific, and effective FD drugs. Though evidence of its efficacy and tolerance are available through randomized clinical trials, real world data from its in-clinic use is lacking.
Methodology Three hundred and fourteen patients with meal-related FD symptoms, visiting 63 gastroenterology clinics across India, received Acotiamide 100 mg TID for 4 weeks and were evaluated for patient's perception of improvement in presenting symptoms, and tolerance to treatment.
Results Treatment response rate (complete relief or significant improvement) for the symptoms of post-prandial fullness, upper abdominal bloating and early satiety was achieved by 79.2%, 74.4%, and 77.1% patients respectively. (p<0.001 for all vs. no/slight improvement). A sub-analysis of 71 diabetic patients showed no significant difference in symptomatic relief between diabetic and non-diabetic patients (response rate for symptoms of post-prandial fullness, upper abdominal bloating and early satiety in diabetic vs. non-diabetic patients was 76.3% vs. 82.3%; p=0.81, 82.63% vs. 76%; p=0.25, and 76.2% vs. 83.2%; p=0.36, respectively). Significantly more number of patients achieved complete relief when treated for >28 days or 14-28 days than when treated for less than 2 weeks (p<0.05). Mild, transient adverse events were reported in 6% cases with only 2 patients discontinuing treatment.
Conclusion This real-world study suggests that use of Acotiamide was associated with improvement of meal-related FD symptoms with in both diabetics and non-diabetic Indian patients with good safety profile.

SMALL INTESTINE

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Endoscopic management of early foregut non-ampullary neuroendocrine tumors

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Background and Aim Foregut neuroendocrine tumors (NETs) account for 10% to 30% of all gastrointestinal NET's. Although rare, incidence increasing over last 50 years. Standard treatment is surgery. We report our single center experience of endoscopic resection (ER) for early foregut NET.
Aims and Methods Prospectively maintained endoscopic database of patients undergoing ER for NET's over 5 years (2013-2017). Pre-procedure radial endosonography (EUS), serum chromogranin A levels in all. Exclusion criteria – e/o extraintestinal disease on EUS /CT/PET-CT. ER techniques implemented– EMR (band-EMR), ESD or EFTR. Closure after EFTR–TTS clips, OTS clips or endosuture. Histology–WHO grading G1, G2, G3. Follow up at 4-6 weeks (EGD); 3, 6, 12-months (EGD and/or imaging).
Results N (lesions)=26 in *n* (patients)=24. Location–Stomach–2, duodenal bulb–17, descending duodenum–7. Males=18. Mean age=59 years. Layer of origin (EUS)–M/MM=11 (42.3%), SM=12 (46.2%), MP=3 (11.5%). Elevated chromogranin A=21 (80.7%). Mean CSA = 20.3mm (5–50). Enbloc ER in all. Mean procedure time=98.6min (20–135). EMR=7 (27%); ESD=16 (61.5%); EFTR=3 (11.5%). EFTR defect closure–omental patch+TTS clips=1; OTS clip=2. Histology–G1=22 (84.6%); G2=4 (15.4%); clear margins in all. Adverse events – intraprocedural=nil, delayed–2 (7.7 %) (hemorrhage–1, perforation–1; endotherapy in both). No mortality. Follow up–median 12 months (3-72). New lesion detected at 12 weeks in one patient–enbloc ESD. 17 patients (65.4%) completed 12 months follow up.
Conclusions ER for foregut NET is safe and effective in carefully selected patients.

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Faster small bowel transit time leads to poorer diagnostic yield in patients undergoing capsule endoscopy study

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Background There is scarce data on the effect of small bowel transit time (SBTT) on diagnostic yield during video capsule endoscopy (VCE). Our study aim was to assess the effect of SBTT on the likelihood of detecting intestinal pathology during VCE.
Methods We retrospectively reviewed data on VCE studies performed at Sir Ganga Ram Hospital, New Delhi, India from January 2015 to January 2018. The indications for VCE and its diagnostic yield were recorded. Age, gender, study indication, and SBTT were studied as candidate factors affecting diagnostic yield. All patients received similar bowel preparation with polyethylene glycol, and none of the patients received any prokinetics. Patients who did not achieve completion were considered to have SBTT >9 hours (battery life).
Results Total 438 patients were assessed; 2 patients were excluded as their capsules remained retained in the stomach. The completion rate up to cecum was 83% (364/436). The mean SBTT in patients who had complete examination was 283 (±143) minutes. The indications were: obscure gastrointestinal bleed 52%, pain abdomen 25%, suspected small bowel inflammatory bowel disease 12%, chronic diarrhea 7%, and miscellaneous 4%. Diagnostic yield was 53% (233/436) and depended on indication; being highest for chronic diarrhea group (62%) and lowest for miscellaneous group (20%). Apart from indication only other factor that influenced diagnostic yield was SBTT: patients with SBTT <300 minutes were less likely to have diagnostic yield compared to patients with SBTT ≥300 minutes (47% vs. 60%, p=0.009).
Conclusion Shorter SBTT during VCE (<300 minutes) is associated with a poorer diagnostic yield. This may be due to negative effect on image quality due to faster small bowel transit. Thus, use of prokinetic agents during VCE might adversely impact the diagnostic yield and should be discouraged.

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Non-specific ileitis/colitis remain the commonest cause of ileo-cecal ulcerations

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Aim Clinical presentation, causes and investigative assessment of patient with ileo-cecal ulcerations- A prospective study.
Methods All symptomatic patients who underwent colonoscopy and were found to have ulcerations in ileo-cecal region were enrolled in this study. The biopsy was taken and their clinical feature, laboratory, imaging and outcome were recorded.
Result We had 60 patients with ulcerations in the ileocecal region and were included in the study. Their mean age was 44.6 years and 71.6 % were males. The predominant presentation was pain abdomen (88.33%), vomiting (50%) and diarrhea (33.33%). In CT abdomen, normal study 13 (21.66%), 18 (30%) terminal ileum thickening, 32 (53.33%) short segment, 13 (21.66%) long segment, 22 (36.66%) mesenteric lymph node. In colonoscopy, the distribution of ulcers was as follows: isolated ileum 48.33% (29/60), both ileum plus cecum 35% (21/60) and isolated cecum 16.67% (10/60). The ulcers were multiple in 36 (60%), 33 (55%) ulcer size <5 mm, 27 (45%) ulcer size >5 mm. Out of 60 patient Crohn's disease 7 (11.66%), tuberculosis 4 (6.66%), amebic ulcers 4 (6.66%), typhoid 2 (3.33%), eosinophilic enteritis 2 (3.33%), pseudomembranous colitis 1 (1.66%), malignancy 2 (3.33%), H/O NSAIDS 2 (3.33%), Un specific infection 4 (6.66%) and nonspecific ulcers 32 (53.33%).
Conclusions Nonspecific ileal ulcerations remain as the commonest cause of ileocecal ulcerations. Short segment ileal thickening is the most common finding on CT. Isolated ileal ulceration is the most common colonoscopic finding. Based on clinical presentation and investigations, the etiology of ulcer was divided into infective cause 17 (28.33%) and noninfective cause 43 (71.66%). Infective causes comprised of tuberculosis, amebic ulcers and typhoid ulcers. There is need of further studies to characterize and differentiate between various kinds of ulcers.

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Food induced toxemia causing significant gastrointestinal health issues

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Aim To assess the incidence, morbidity and complications following adulterated food consumption.
Methods During the mean period of 2013-2018, Patients who got admitted at department of gastroenterology, Aster MIMS, Calicut, Kerala, India with gastrointestinal complaints following food consumption from outside home/marriage function/any other function was evaluated and arrived at a diagnosis of probable food induced gastrointestinal symptoms were enrolled. Other diseases which can cause similar issues including chronic pancreatitis, IBD, bowel malignancy, spontaneous bacterial peritonitis and postoperative abdomen were excluded.
Results Total 90 patients got admitted with GI complaints. Most common symptom was abdominal pain, followed by diarrhea, vomiting and constipation. Majority of affected belonged to age group 26—35 (21%) and above 60 yrs (18%). Males were commonly affected than females (73%

vs. 27%). Majority had a duration of symptoms less than 1 week (98%). Thirty-two percent had leukocytosis and 27% had mildly elevated creatinine. Sixty-seven percent had elevated CRP and mean CRP elevation was 55.6%. Small intestinal involvement was more common. Forty-six percent had underlying diseases including DM, malignancy, CLD, CKD, asthma, rheumatologic issues. Four patients (0.04%) were having features of multiorgan failure. There were no deaths. Underlying diseases (like malignancy, CCP, colonic diverticuli, intestinal lymphoma, NET etc.) could be diagnosed after being presented with food toxemia.
Conclusions Food induced toxemia presenting as partial intestinal obstruction is on the rise in North Kerala region. Due to unhealthy eating habits and adulteration, people have to suffer regarding health, Money and loss of work days. CRP is an effective marker for detecting intestinal injury. Acute kidney injury and small intestinal thickening were more often reversible. >90% of the symptoms resolved over a period of 7 days. The only advantage of food toxaemia is early rather accidental detection of underlying illnesses.

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Endoscopic retrograde cholangiopancreatrography complicating visceral artery aneurysm presenting as massive gastrointestinal bleed- A case report

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Introduction VAAs are rare clinical entities, with a reported incidence of 0.01% to 0.2% though an incidence of 10% has been reported among chronic pancreatitis patients. Gastroduodenal artery (GDA) aneurysm is among the rarest VAAs; accounting only for 1.5% of the total, second in its rarity only to inferior mesenteric artery aneurysm. Despite its rarity, it represents an important subcategory of VAAs on account of having up to 75% risk of rupture; with gastrointestinal bleeding being the presenting feature in up to 52% of cases.
Case Summary A 67-years-old male patient known case of systemic hypertension on regular treatment came to emergency with the history of upper abdominal pain and passage of fresh blood per rectum. On admission he was hemodynamically unstable. After stabilization, esophagogastroduodenoscopy was done which did not reveal source of any active bleeding and subsequent colonoscopy was done which showed presence of fresh blood in the colon and terminal ileum suggesting bleeding from the small intestine. Again endoscopy was planned as the patient has history of recent ERCP, a bleeding source was identified on side viewing endoscope, on which fresh blood noted coming out from ampulla. So, computed tomogramangiography of abdomen done which showed well defined pseudoaneurysm (2 x 2 cm diameter) typically seen at the ampullary site and is arising from the branch of gastroduodenal artery proper.
As CT angiography revealed GDA aneurysm, so transcatheter embolization of the gastroduodenal artery was performed and two coils were placed in the minor branches of GDA proper. Post procedure patient hemoglobin started to stabilize and the patient was discharged home.

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Ileal changes in patients with microscopic colitis

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Background and Aims Microscopic colitis (MC) is an overlooked cause of chronic diarrhea. Strict restriction of disease to colon is still unclear and may have bearing on treatment regimes. We therefore evaluated terminal ileum using narrow band imaging (NBI), high definition white light endoscopy (HDWLE) with eventual histopathological findings on biopsy.
Methods Fifty-three adults with suspected MC were recruited and routine tests done. All underwent colonoscopy with ileal intubation if possible. Segmental colonic biopsies were obtained with additional biopsies from terminal ileum using HDWLE and NBI. They were analysed by expert gastrointestinal histopathologist.
Results MC was established in 43 patients. HDWLE findings of ileum did not reveal any abnormality. On NBI, intravillous capillary network was regular unbranched with semi-circular pattern in 41 (95.4%) of patients of MC and in all controls. It was sparse and irregular in 2 (4.7%) cases. Peyer's patch domes were indistinct in 5 (9.4%) or normal in 38 (88.4%) cases and normal in all controls (p=0.570). Peyer's patch vessels were regular and unbranched in 38 (88.4%) cases and in all controls. They were sparse and irregular in 5 cases (11.6%) (p=0.570). Histopathology of terminal ileum revealed normal villi in 39 (90.6%) cases, 4 had partial villous atrophy. The crypt villous ratio was grouped as 1:1.5, 1:3, 1:4 and 1:5 in 2 (4.6), 26 (60.4), 11 (25.5%) and 4 (9.3) respectively. Lymphoplasmacytic infiltrate was grouped as mild, moderate and severe, and observed in 10 (23.2%), 2 (4.6%) and 1 (2.3%) patient respectively.
Conclusion We reported ileal NBI findings in MC for the first time, with up to 12% showing abnormalities. Histologically too, up to 23% showed abnormalities in ileal biopsies. Ileal pathology may contribute to certain symptoms in MC and therefore need to be addressed.

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Primary gastroduodenal tuberculosis in immunocompetent adult presenting as chronic small bowel diarrhea- A rare presentation of rare entity

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Introduction Gastroduodenal tuberculosis is rare type of abdominal tuberculosis even in highly endemic region like India. It classically presents in immunocompromised patients as pain in abdomen, fever and weight loss mimicking malignancy. Here we present a case report of gastroduodenal tuberculosis in an immunocompetent adult presenting as chronic small bowel diarrhea.
Case 26-year-old male, no known comorbidities and belonging to higher socioeconomic strata presented with insidious onset small bowel type non-bloody diarrhea for 10 months duration -and low grade intermittent fever with chills for 4 months. He also complained periumbilical colicky mild intensity pain in abdomen. He had about 15 kg of weight loss in past 6 months.
His clinical examination was unremarkable. His hemogram, electrolytes, thyroid panel, stool analysis was normal. HIV serology was non-reactive. Ultrasound of abdomen was s/o few small non-necrotic surrounding lymph nodes. CT abdomen was s/o multiple sub-centimetric mesenteric lymph nodes. CT chest was normal. Colonoscopy and ileosocopy was normal. Ante grade single balloon enterosocpy was suggestive of multiple apthous ulcers in antrum, mucosal edema, erythema and small superficial ulcerations on pyloric channel, multiple small ulcers in duodenal bulb. Rest of duodenum and jejunum was normal.
Duodenal biopsy showed blunting of villi, presence of cryptitis, crypt abscesses, moderate lympoplasmacytic and eosinophilic infiltrate in lamina propria, mild crypt distortion and few ill formed granuloma and giant cells. Antral biopsy shows epithelioid cell granuloma with langhans gaint cells and moderate lympoplasmacytic and eosinophilic infiltrate in lamina propria. Stain for AFB is negative. His T cell IFN assay for TB was positive, p ANCA, c ANCA and ASCA was negative. Patient received 9 months standard ATT and is asymptomatic on follow up.

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Spectrum of gastric outlet obstruction in north west India

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Introduction Intrinsic or extrinsic obstruction of the pyloric channel or duodenum either by benign or malignant diseases leads to gastric outlet obstruction (GOO). Malignancy became the most common cause of GOO in developed countries. However, literature suggests that the benign etiologies continue to be the major cause of GOO in the developing world.
Methods An observational study of patients with GOO from December 2016 to June 2018, at Department of Gastroenterology, SMS Hospital, Jaipur, Rajasthan.
Results A total of 105 (68 male/ 37 female) patients with GOO diagnosed. Patients with benign and malignant etiologies were 59/105 (56%) and 46/105 (44%), respectively. In male patients benign and malignant etiologies were 47/68 (69%) and 21/68 (31%), respectively. In female patients benign and malignant etiologies were 12/37 (32%) and 25/37 (68%), respectively. In benign cases, NSAID and opioids abuse 24/59 (41%); peptic ulcer disease 14/59 (24%); corrosive injury 10/59 (17%); chronic pancreatitis 7/59 (12%); acute pancratitis 3/59 (5%) and tuberculosis 1/59 (1.6%) were present. In malignant cases gastric carcinoma 16/46 (35%); carcinoma gallbladder 15/46 (33%); periampullary carcinoma 5/46 (11%); duodenal adenocarcinoma 4/46 (9%) were present. Other causes of malignant etiologies include GI lymphoma (2/46); duodenal neuroendocrine tumor (1/46); cholangiocarcinoma (1/46); carcinoma head of pancreas (1/46) and retroperitoneal sarcoma (1/46).
Conclusion Overall benign etiologies are still most common cause of GOO in north west India, with most common causes are NSAID and opioids abuse and peptic ulcer disease. In males and females most common causes are benign and malignant, respectively.

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Eosinophilic enteritis – An under recognized disease

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Introduction Eosinophilic gastrointestinal disorders may involve esophagus, stomach, small and large intestine presenting with pleomorphic manifestations. Eosinophilic enteritis (EE) is characterized by eosinohilic infiltration of small intestine without any secondary cause. Diagnosis is confirmed by histopathological examination and this entity responds dramatically to short course of steroids.
Methods We retrospectively analyzed patients diagnosed with EE in our hospital between February 2014 and February 2017. We included patients with confirmed EE (histopathology showing >30 eosinophils/high power field). We analyzed their symptoms, lab data, endoscopic findings, imaging, biopsy reports, response to therapy and relapse after completion of therapy. Biopsy specimen were obtained mainly from the duodenum by using upper gastrointestinal endoscopy. If duodenal biopsy was unyielding and/or involvement of another site was obvious in CT scan, then targeted biopsy was performed.
Results Over three years, 25 cases were considered but three were excluded (one each of hypereosinophilic syndrome, hookworm and round worm infestation). Remaining 22 patients were included in the study. EE was more common in males (M: F=14:8) with the mean age of 33.8 years. Pain abdomen was the most common symptom (86.4%), intestinal obstruction and ascites were seen in one patient each. History of allergy was present in 27.3% of patients. In contrary to other studies, peripheral eosinophilia was seen in 95.5% of our patients. Eighteen patients responded to steroids without relapse. One non-responder needed Azathioprine and another patient with multiple relapses is on Mycophenolate Mofetil.
Conclusion EE is not uncommon in India. It should be considered in patients presenting with short duration pain abdomen with negative work-up for peptic ulcer, pancreatitis and biliary problems. It has excellent response to oral corticosteroids.

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Diagnostic role of double-balloon enteroscopy for small bowel disease

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Introduction Double-balloon enteroscopy (DBE) provides both diagnostic and therapeutic access to the small bowel mucosa. This study aims to detect the diagnostic yield of this modality in a series of patients evaluated for various small bowel disease indications.
Methods Over a period of one year (2017-2018 June), patients who underwent DBE for various diagnostic indications were included. The clinical details, indications, diagnosis and complications were recorded on a standard proforma. The data obtained was analysed and p value <0.05 was considered significant.
Results Over the study period, diagnostic DBE was done for 53 patients: mean age 42+/- 17 years with 81% males. The various indications have been shown in Table for whom diagnosis was reached using DBE. The most common indications were abdomen pain 17 (32%) followed by small bowel obstruction 16 (30%). About 34 (64%) patients had anal approach with median distance reached being 80 cms (5-150) from IC valve and about 18 (34%) had oral approach with median distance reached being 125 cms (25-200) from pylorus (p value<0.05). The lesions were detected in 66% with most common finding being ulcers 19 (54%) followed by strictures 5 (14%). The overall diagnostic yield of DBE was 53%. The combined yield in patients with abdomen pain and small bowel obstruction was significantly more (63.6%) when compared with remaining patients (35%) (p value=0.04, Chi-square test). The most common etiology diagnosed was Crohn's disease in 22 (42%). There were no complications reported during the study period.
Conclusion Double balloon enteroscopy is a relative safe modality with good diagnostic yield in small bowel diseases in patients with abdomen pain and small bowel obstruction.

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Effectiveness of Biosimilar Adalimumab in patients with small intestinal Crohn's disease diagnosed by double balloon enteroscopy and histology

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Introduction About 33% of Crohn's disease (CD) patients have small bowel involvement beyond the reach of upper GI endoscopy and colonoscopy [1]. CD is known to be more severe when the small bowel is involved [2]. In Indian patients, enteroscopic biopsy and histology for establishing the initial diagnosis of CD is helpful in view of prevalent infections and infestations (eg: TB, Compylobactor etc.). Indian studies of biosimilar Adalimumab in CD, limited to small intestine, diagnosed by DBE are lacking.
Method Total 18 patients (13 male and 5 female) with small intestinal CD, who were non-responders to mesalazine therapy, were enrolled. The mean age was 43.4 years. Diagnosis of small intestinal CD was confirmed by clinical, radiological parameter, double balloon enteroscopy (DBE), and histology. Patients were enrolled to receive subcutaneous injections of biosimilar adalimumab as per the dosing schedule (40 mg x 4-s/c at Day-1, 40 mg x 2-s/c after 2 weeks and thereafter 40 mg s/c fortnightly). Median duration was 6 months. Seven out of 18 patients agreed for repeat DBE after 6 months.
Result Baseline mean CDAI was 369.9 and after 24 weeks 146.4, statistically significant ($p<0.0001$). All 18 patients were in clinical remission and the 7 patients who agreed for repeat DBE after 6 months showed reduction in enteroscopic score 3. Mean enteroscopy score reduction of 45.83% was observed in these 7 patients. No significant side effect was noted during the study.
Conclusion Biosimilar adalimumab is effective and safe in patients with small intestinal Crohn's disease. More studies with long term follow up are required.

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Role of hydrogen breath test in patients with functional dyspepsia

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Introduction Small intestinal bacterial overgrowth (SIBO), defined as excessive bacteria in the small intestine remains a poorly understood disease. Initially thought to occur in only a small number of patients it is now apparent that this disorder is more prevalent than previously thought. Patients with SIBO vary in presentation, from being only mildly symptomatic to suffering from chronic diarrhea, weight loss, and malabsorption. A number of diagnostic tests are currently available, although the optimal treatment regimen remains elusive.
Aim To study incidence of SIBO in patients with functional dyspepsia without alarming signs and symptoms.
Methods We studied 21 patients with history of bloating, abdominal pain, watery stools. These patients were asked to be fasting for 14 hours and asked to avoid milk, bread, potato, fibre, beans, legumes, nuts, soy and large meal 24 hours before the test. With the help of gastroglutolyzer basal hydrogen was recorded. 75 grams of glucose in 250 mL water was given as a test substrate to the patient and 5 breath sample were collected after every 15 minutes. H2 >20 ppm compared to basal sample within 90 minutes of substrate ingestion was considered to be positive.
Results Among 21 patients, 8 (38.1%) patients were male and 13 (61.9%) were female. Ten patients (47.6%) were positive for this test. Maximum (i. e. 28.5%) number of patients were in the age group of 51 to 60 years. Nineteen percent of the patients were diabetics. All positive patients were given a course of rifaximin and ciprofloxacin for 10 days and breath test was repeated and was found to be negative in 70% of patients.
Conclusion Since 70% of the patients responded to the treatment, it is essential to do hydrogen breath test and treat the patients.

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A meta-analysis on small intestinal bacterial overgrowth in patients with different sub-types of irritable bowel syndrome

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Background Enteric microbiota is increasingly being recognized as an important factor in the pathogenesis of irritable bowel syndrome (IBS). The reported prevalence of small intestinal bacterial overgrowth (SIBO) in subjects with IBS is highly variable and there is no consensus on the role of SIBO in different subtypes of IBS, and indications and methods of testing.
Methods A comprehensive literature search was performed for studies applying tests for SIBO in subjects with IBS. After applying prospectively decided exclusion criteria, the eligible papers were examined using a meta-analysis approach for the prevalence of SIBO in subjects with IBS using different tests. The odds ratios (OR) of SIBO among subjects with IBS as compared to healthy controls were calculated.
Results Of 49 studies (23, 18, 5, and 3 using lactulose and glucose hydrogen breath tests (LHBT and GHBT), jejunal aspirate culture, and more than one tests, respectively) meeting the inclusion criteria, 36.7% (95% CI 24.2-44.6) had a positive test for SIBO. Patients with IBS were 2.6 (95% CI 1.3-6.9) and 8.3 (95% CI 3.0-5.9) times more likely to have a positive test for SIBO as compared to healthy controls using GHBT and jejunal aspirate culture, respectively. Patients with diarrhea-predominant IBS were more likely to have positive GHBT as compared to other subtypes.
Conclusions Patients with IBS were more likely to have SIBO as compared to healthy subjects using GHBT and jejunal aspirate and culture but not using LHBT. Patients with diarrhea-predominant IBS more often have SIBO.

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Role of low-grade inflammation in the pathogenesis of diarrhea-predominant irritable bowel syndrome (IBS) and IBS-like symptoms in patients with ulcerative colitis in remission: An evidence for inflamed gut in the pathogenesis of irritable bowel syndrome

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Introduction Recent evidence suggests that low-grade inflammation and altered intestinal permeability may play role in pathogenesis of irritable bowel syndrome (IBS). Patients with ulcerative colitis in remission (UC-R) often report IBS-like symptoms. We studied the role of inflammation in the pathogenesis of diarrhea-predominant IBS (IBS-D) and IBS like symptoms in patients with UC-R.
Methods Thirty patients with IBS-D, 28 with UC-R and 25 age- and gender-matched healthy controls (HC) were included in the study. Fecal calprotectin (FC), gut permeability test (GPT), colonic biopsy and histopathology were done (last two inpatients only).
Results Patients with IBS-D were comparable to UC-R and controls in gender (male 23/30 [76.6%] vs. 17/28 [60.75] vs. 19/25 [76%]; p=ns) though the controls were younger than those with IBS-C and UC-R (34-y, 19-63 vs. 35.5-y, 17-68 vs. 28-y, 23-60; p=0.02). FC values were comparable among patients with IBS-D and UC-R and were higher than in HC (29.1 mg/kg, 2.5-302.5 vs. 26.2 mg/kg, 2.5-231.2 vs. 5 mg/g, 1.2-22.5; $p<0.00001$). Lactulose mannitol ratio was comparably abnormal among patients with IBS-D and UC-R but was normal among HC. Among IBS-D, 66% had minimal to

moderate lamina propria (LP) inflammation and 20% had minimal crypt architecture distortion (CID). Among UC-R, 96% had mild LP inflammation, 75% had CID, 39% had LP edema and 25% had evidence of mildly active colitis. Lymphoid aggregates were seen in 18.3% of patients with IBS-D and 43% with UC-R.
Conclusion Patients with IBS-D have a similar degree of low-grade mucosal inflammation in patients with UC-R as compared to HC.

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Prevalence of ultrashort segment celiac disease among north Indian patients with celiac disease

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Introduction Ultrashort segment celiac disease (USCD) is an emerging concept where first part of duodenum is only site of villous atrophy. In Western countries it comprises of 10% of diagnosed celiac disease (CD). USCD reported in younger with milder than CCD. Prevalence of USCD in India is unknown. This study aimed to define the prevalence of USCD and compare the profile of USCD and CCD.
Methods We performed a single-centered, cross-sectional, observational study where patients of malabsorption or serologic suspicion of CD were enrolled from January 2017 to June 2018. After taking history, examination, we performed hemogram, iron-profile, IgA tTG etc. Esophagogastroduodenoscopy was done in all patients for evaluating first and second part of the duodenum with white-light and narrow band imaging. Biopsies were obtained from first and second part of duodenum in separate containers. An histopathologist reported all the biopsies. Clinical data from patients identified as USCD, based on biopsy analysis, were compared with patients of conventional celiac disease (CCD).
Results Total 143 patients were included in this study and 110 patients were diagnosed to have CD. Among them, 15 cases (13.6%) were diagnosed as USCD. The mean age, height, weight, BMI and gender ratio of USCD patients was not significantly different from CCD. Chronic diarrhea was the presenting symptoms among 64 (67.3%) patients of CCD group and 5 (33.3%) patients of the USCD group. This difference was significant (p=0.013). The family history, dermatitis herpetiformis and autoimmune disease like T1 diabetes mellitus, thyroid disorder were seen in similar frequency in both CCD and USCD group. Patients with CCD were found to have abdominal pain, anemia and weight loss more frequently as compared to patients with USCD, though these did not reach significance level.
Conclusion USCD constituted about 13.6% of total celiac disease cases diagnosed at out center. Patients with USCD were less likely to have classic presentation with diarrhea.

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Prospective validation of $CD4^+$ $CD25^+$ $FOXP3^+$ T-regulatory cells as an immunological marker to differentiate intestinal tuberculosis from Crohn's disease

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Introduction Crohn's disease (CD) and intestinal tuberculosis (ITB) are difficult to differentiate. We have previously documented high diagnostic accuracy of peripheral blood frequency of $CD4^+$ $CD25^+$ $FOXP3^+$ T-regulatory cells (Tregs) in differentiating CD and ITB. Present study was designed to validate the results prospectively.
Methods Seventy treatment naïve patients of CD (n=23) and ITB (n=47) (diagnosed by standard criteria) were recruited prospectively from October 2016 till May 2017. Patients with history of ant-tubercular therapy in the past were excluded. The frequency of Treg cells in peripheral blood as determined by flow cytometry and was compared between CD and ITB.
Results Like the previous study, frequency of Treg cells in peripheral blood was significantly increased in ITB as compared to CD (40.9 [IQR: 33 – 50] vs. 24.9 [IQR: 14.4 – 29.6], p<0.001). There was good diagnostic accuracy of Treg cell frequency in differentiating CD and ITB with an area under the curve (AUC) on ROC curve of 0.77 (0.65 – 0.9). The cut-off obtained on the ROC curve, to differentiate CD and ITB in the present study (32%) was like the previous study (32.5%) with a sensitivity, specificity, positive and negative predictive value of 81%, 83%, 90%, 65% respectively for the diagnosis of ITB.
Conclusions $CD4^+$ $CD25^+$ $FOXP3^+$ T-regulatory cells frequency in peripheral blood has a good diagnostic accuracy and can be used as a simple test in differentiating CD and ITB.

LARGE INTESTINE

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Evolution of ulcerative colitis to microscopic colitis: Is it chance association or spectrum of inflammatory bowel disease?

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Introduction Microscopic colitis is considered as chronic inflammatory bowel disorder of unknown etiology and lymphocytic colitis or collagenous colitis could present as a continuum of ulcerative colitis. The aim was to study ulcerative colitis patients subsequently evolving into microscopic colitis.
Methods This prospective study included 53 eligible adult ulcerative colitis patients. Thirty-five patients had active disease at baseline and were followed up for 8 weeks, where as 18 patients were in remission and only baseline evaluation was done in them including colonoscopy with concurrent biopsy.
Results Most patients had relapsing remitting disease (85.7% in active disease and 83.3% in remission group). Active disease group had longer disease duration than remission group. Progression to microscopic colitis-like histologic change seen in 17/53 (32.1%). Of which 88.2% associated with collagenous colitis and 11.8% with lymphocytic colitis. Five in active disease group had collagenous colitis-like change at baseline biopsy, 3/5 (60%) showed regression of thickness of collagen band on follow up biopsy.
Conclusions Microscopic colitis-like histologic changes in ulcerative colitis are common. Ulcerative colitis subsequently evolving into collagenous colitis or lymphocytic colitis suggesting microscopic colitis could be a part of the spectrum of inflammatory bowel disease. Prognostic implication of this histological transformation to microscopic colitis in chronic ulcerative colitis patients is still unknown and has to be further evaluated in prospective studies. Until then it might be prudent to consider microscopic colitis as a part of the natural history of inflammatory bowel disease, at least in some cases.

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Phantom rectal syndrome after abdominoperineal resection: A unit based retrospective study

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Background Phantom rectal syndrome (PRS) is a rare and a poorly understood area where patients with a background of abdominoperineal resection (APR)/similar dissection develop symptoms arising from the resected bowel. Symptoms are either painful or non-painful. This descriptive study attempts to explore the prevalence and the burden of these symptoms.
Methods This descriptive study was conducted at Colombo North Teaching Hospital amongst patients who underwent APR. Interviewer based questionnaire was administered to a total of 30 surviving patients within past 5 years.
Results Out of the 30 patients, 33% had sensation arising from the resected distal bowel. And out of those with symptoms, 80% of patients had painless symptoms and only 20% of patients had intermittent painful rectal symptoms. All patients who had such symptoms had undergone the surgery at an age less than 55 years Laparoscopic surgery had 35% risk of PRS compared to pure open procedure which is 30%. 80% patients are staged II B. Only 20% of patients with symptoms have seeked emergency medical attention and symptoms objectively halved with regular analgesics. Reassurance at clinic level was received by all patients and the perturbations to activities of daily living was minimal afterwards.
Conclusion Phantom rectal syndrome is a common but poorly addressed complication of perineal surgery in APR. And the likelihood increases with younger age group, perirectal involvement. We feel a thorough explanation of the possibility of phantom rectal symptoms preoperatively and postoperatively is required and will improve symptoms.

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Phantom rectal syndrome after abdominoperineal: A cases from North India

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Background Gastrointestinal histoplasmosis (GIH) is an uncommon disease with myriad of manifestations. We report a series of cases of GIH including two of esophageal involvement from a tertiary center in North India.
Methods Retrospective analysis of patients with primary symptomatic GIH admitted in tertiary care center in last 1 year was done. Data regarding mode of presentation, clinical and imaging findings, endoscopic and histological findings were retrieved. Risk factors for primary GIH were assessed.
Results Six patients with symptomatic GIH were identified. Mean age of patients was 43; plusmn;13.08 years. Half of the patients were male. The clinical features included abdominal pain (83%), weight loss (83%), fever (66%), diarrhea (33%) and dysphagia (33%). None of the patient presented with intestinal obstruction. Colonic was involved in 67% of patients and 33% of patients had esophageal involvement. The diagnosis was established by using histology Periodic Acid Schiff (PAS) staining multiple intracellular as well as extracellular small organism with peripheral halo were identified. Risk factors for GIH were identified and were HIV with low CD4 counts (143 and 125 cells/mm3) in two patients, primary gastrointestinal lymphoma, disseminated tuberculosis with severe malnutrition, isolated low CD4 counts (16 cells/mm3) and diabetes mellitus. All patients were given amphotericin B followed by itraconazole. All patients responded to treatment and in 4 cases mucosal healing was also documented.
Conclusion GIH is not uncommon even in countries endemic with tuberculosis like India. Early diagnosis and differentiation from tuberculosis and Crohn's disease will help in institution of prompt treatment which is associated with good outcome.

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Endoscopic management of colonic intussusception by endoscopic submucosal dissection- Case series

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Background Intussusception is telescoping of one bowel segment into another. Intussusception is rare in adults. Colonic involvement represents up to 50% of cases. Due to the high rates of malignancy and recurrence in adult intussusception, it has traditionally been considered an indication for surgery. We report our single center experience in management of adult colonic intussusception by endoscopic submucosal dissection (ESD).
Aims and Methods Patients with colonic intussusception managed by ESD were identified from prospectively kept ESD database over an 7 year period (2010-2017). All patients underwent pre-ESD colonoscopy with reduction of intussusception by hydrostatic reduction method and relevant imaging (EUS/CT) to assess respectability and layer of origin. ESD was performed using standard colonoscope/gastroscope with distal transparent hood, insulated tip (IT) and dual knives, CO2 insufflation. Submucosal cushion was created using a modified gelatin solution stained with methylene blue injected through a sclerotherapy needle. General anaesthesia was used.
Results Seven patients underwent endoscopic reduction of intussusception followed by ESD. Mean age 63.6 years, males-5. All patients presented with recurrent abdominal colic and abdominal distension over a period of 2 months. Three (42.8%) of the lesions were in the ascending colon, 3 (42.8%) in sigmoid colon, 1 (14.4%) in transverse colon. Enbloc resection was achieved in 6 (85.7%) patients. Mean procedure time was 77.5±30.6 minutes. Median lesion diameter was 3.75 cm. Intraprocedural bleeding was encountered in 1 (14.2%) patient requiring surgery. Mean hospital stay was 3.1±1.4 days. Histopathology showed lipoma (100%) in all cases. Follow up colonoscopy at 8 weeks revealed complete mucosal healing.
Conclusion Endoscopic reduction of colo-colic intussusception followed by resection of lesions by ESD is safe and feasible in carefully selected patients.

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Yield of p53 expression in colon cancer and its relationship with survival

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Introduction Colon cancer is one of the most aggressive types of cancer worldwide. Tumor suppressor gene p53 mutation is implicated in many gastrointestinal malignancies including. The immunohistochemical protein expression of mutant p53 has been proposed as a potential tool to evaluate the biological behavior of colon cancer. Majority of studies

suggest the poor prognostic significance of Mp53 expression in colon cancer, however, several studies show conflicting results. Hence this study was formulated to know the survival of patients with Mp53 expression.
Methods It is a prospective analytical study for duration August 2014 to August 2016, consist of 64 consecutive patients of colon cancer diagnosed by colonoscopy and histopathology. These biopsy specimens were treated immuno-histochemically and expression of Mp53 gene is analyzed by immunoreactive score (IRS score). These findings compared with clinicopathological parameters like age, gender, location, appearance, histological grades TNM and clinical stages. All patients received treatment and kept under follow up for 1 yr to assess the survival.
Results Study included 39 (60.94%) male and 25 (39.06%) female patients (M:F ratio 1.56:1). Mp53 expression analyzed by IRS score showed low expression (score ≤6) in 21 patients (32.81%) and high expression (>6) in 43 patients (67.19%). Level of Mp53 expression increased significantly with distal location, increasing histological grades of colon cancer and TNM stage (p=<0.001). Survival at 1 year in Mp53 high expression group is 63.86% (SE=.0471, CI=0.75-0.97) and in Mp53 low expression group is 90.43% (SE=0.06, CI=0.53-0.78) with statistically significant difference in these groups (p=0.0001).
Conclusion Expression of Mp53 in colon cancer showed positive correlation with distal location, increasing histological grade, and TNM stages. High Mp53 expression group has significantly low survival than low Mp53 expression group, suggesting that immunohistochemical analysis of Mp53 is simple and effective modality to determine the prognosis and survival in colon cancer

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Colonic thickening on CT scan: Our experience on further evaluation

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Background Colonic thickening is a commonly reported finding on diagnostic abdominal pelvic computed tomography (CT) in patients with history of lower gastrointestinal symptoms. The significance of this nonspecific finding is not clear.
Aim To establish clinicopathological diagnosis in colonic thickening on CT, in tertiary care hospital of southern India.
Methods All patients with colonic thickening on CT were prospectively evaluated with colonoscopy, biopsy and other relevant investigations. This is a prospective study done from November 2017 to June 2018. The primary objective was to identify pathological diagnosis in colonic thickening.
Results A total of 90 patients met the inclusion criteria of our study. Of those, 85% had various identifiable pathologies on colonoscopy. Only 15% had normal colonoscopic findings. Inflammatory bowel disease (IBD) and infectious colitis were the most common causes of colonic thickening. A report of "skip lesions" on the CT (5%) was always associated with IBD. "Pancolitis" reported on the CT (11%) was associated with endoscopic findings of IBD in 45% of cases, infection in 35% of cases, and normal findings in 20% of cases. The report of "stranding"(36%) on CT in the presence of colonic thickening was associated with many non-neoplastic endoscopic pathologic processes, including IBD (29%), infectious colitis (26%), and ischemia (15%), but also was associated with normal endoscopic findings in 26% of the cases. "Lymphadenopathy" was reported in 37% of the CTs and was associated with infectious colitis (30%), IBD (38%), or neoplastic processes (15%) but also normal endoscopic findings in 15%.
Conclusion Symptomatic patients who are found to have nonspecific colonic thickening on CT should undergo definitive endoscopic investigation because the majority will have significant gastroenterological disease, and only a minority will have a normal colonoscopy.

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Oro-cecal transit time and lactose intolerance in patients with microscopic colitis

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Background and Aims Microscopic colitis (MC) remains an underreported cause of chronic diarrhea. Histopatholgy is the established gold standard with variable yield. It is imperative to look for oro-cecal transit time (OCTT) and concomitant lactose intolerance in these cases to understand the complex symptoms. Hydrogen (H2) breath tests (H2BT) is frequently used for determining prevalence of small intestinal bacterial overgrowth (SIBO), lactose tolerance, and oro-cecal transit time (OCTT) and was used for this study.
Methods Forty-three patients of MC [mean age - 45.83 (plusmn;15.92] and 10 controls were studied. Among these, 37 (86%) patients with microscopic colitis; 9 (90%) controls underwent breath tests. SIBO was diagnosed with glucose H2BT. For confirmation, rise;12 ppm over fasting value in H2 concentration within 2 hours of glucose ingestion was accepted. Lactulose H2BT was done to calculate OCTT. Time taken for rise in breath hydrogen by;12 ppm over baseline value in two consecutive readings was considered as OCTT. For lactose breath test, 15 minutes samples were taken up to 4 hours. A; 20 ppm rise over fasting value in H2 concentration in two consecutive readings was considered suggestive of intolerance.
Results Four (9.5%) patients of SIBO in Glucose H2BT were enrolled in controls. Mean (+ SD) OCTT in cases of MC vs. controls was 130.38 plusmn; 47.95 mins and 97.14 plusmn; 48.55 mins (p= 0.109) respectively. Thus OCTT was prolonged in 73% cases of MC vs. 43% controls. Also, in the MC group, 9 (28.1%) patients were lactose intolerant while 3 (42.9%) controls were intolerant (p= 0.654). Although controls were more frequently lactose intolerant but a significant 28% MC patients were also intolerant possibly aggravating symptoms.
Conclusion Lactose intolerance has lesser prevalence in cases of microscopic colitis. These patients were also detected to have paradoxically prolonged OCTT, excluding role of small bowel in its diarrheal symptoms.

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Influence of inflammatory bowel disease on quality of life: Results of a questionnaire-based survey from Western India

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Introduction The IMPACT questionnaire developed by the European Federation of Crohn's and ulcerative colitis associations (EFFCA) covers a holistic view of inflammatory bowel disease (IBD). We sought to obtain an Indian perspective of the effect of IBD on patients' lives using the IMPACT questionnaire.
Methods Both hospitalized and outdoor patients consecutively attending three multispecialty hospitals in Mumbai from 2014-2016 were administered the 52-question IMPACT questionnaire.
Results Two hundred and sixteen IBD patients (120 men, 96 women; age 41.78±15.34 years) solved the questionnaire. Out of the 216 IBD patients, 69% had UC; 30% had CD and 1% had indeterminate colitis. 43% of the respondents had to wait for more than six months for a final diagnosis. 90.74% had adequate access to a specialist gastroenterologist. 63.88% of

the respondents were satisfied with the current IBD treatment. Awareness about availability of other health care workers (nurse trained in IBD, counsellor, psychologist) was poor. 61.57% of respondents felt that the attending specialist/gastroenterologist should have raised more fundamental questions during consultations. More than 70% of the respondents were at least sometimes worried about their next aggravation during periods of remission. 40.3% of respondents felt stressed or under pressure due to absence from work as a result of sickness related to IBD. 33.33% of the respondents felt that IBD negatively affected their professional development. One-thirds of the respondents felt that IBD stopped them from achieving intimate relationships, caused an interruption in maintaining intimate relationships and stopped them from entering into a new relationship. 51.4% of the respondents were worried about the availability of toilets. 94% of the respondents were not connected by any way to any of the support organizations for IBD.
Conclusion IBD significantly affects the physical, personal, social and emotional quality of life. Our data highlights unmet needs of Indian patients suffering with IBD.

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Mitochondrial respiratory chain complex III genes expression: As a new molecular biomarker of human ulcerative colitis

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Introduction Ulcerative colitis (UC) represents a group of idiopathic disorders characterized by chronic or recurring inflammation of the gastrointestinal tract. Several factors contribute to a destruction of the intestinal epithelial barrier, increased gut permeability, and an influx of immune cells. Given that most cellular functions as well as maintenance of the epithelial barrier is energy-dependent, it is logical to assume that mitochondrial dysfunction may play a key role in both the onset and recurrence of disease. The aim of this study was to determine whether UQCRB can be used molecular marker for ulcerative colitis.
Methods Blood and tissue samples were obtained from 50 UC patients and 50 healthy volunteers. Total RNA was extracted immediately and followed by cDNA construction from blood and tissue samples. The correlation between the expression of three genes (UQCRB, UQCRFS1 and MT-CYB) in the mitochondrial respiratory chain complex III and clinicopathological features was determined.
Results Compared to non-tumor tissues, UQCRB gene expression was upregulated in UC patients (p=0.01). Expression of these genes in blood samples was also shown significant difference in patient and controls (p=0.001). All the genes were positively correlated with disease severity (p=0.04). UQCRB overexpression was correlated with specific UC clinicopathological features, indicating clinical significance as a prognostic predictor in UC.
Conclusion Our results provide novel insights into the critical role of UQCRB in regulating UC, supporting mitochondria complex III genes as a novel candidate marker for the development of prognostic tool UC patients
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Toxic megacolon: Still a major cause of morbidity and mortality in ulcerative colitis in India

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Introduction Toxic megacolon (TMC) characterized by a transverse colon diameter of 6 cm in the setting of severe disease is one of the most dreaded complications of ulcerative colitis (UC). Earlier reports suggested that it occurred in 1.6% to 6 % of all patients with ulcerative colitis and in 9.5% to 20% of patients with acute severe UC. Most data on TMC has come from Europe and North America. Asian data on frequency and outcome of TMC is sparse. The aim of the current study was to determine the frequency and outcome of TMC in a developing country (India) which has a significant burden of UC.
Methods All patients diagnosed to have TMC over a 4 year period between March 2015 and February 2018 at GB Pant hospital, New Delhi were prospectively enrolled in the study.
Results TMC was documented in 20 (11 females) of the 515 patients (3.8%) with UC during the study period. The mean age of the pts was 36.4 yrs; the mean duration of the UC at the time of admission was 28 months. All patients except one had pancolitis with a mean Clinical Mayo Score of 7.5. The mean values of Hb, TLC and serum albumin were 8.7, 12,830 and 1.92 respectively. Mean colonic diameter of the cohort was 7.3 cm. A fatal outcome occurred in 9 (45%) patients. Sub-total colectomy was performed in 11 patients with a fatal outcome in 6 (54%) patients. Two important predictors of mortality were colonic perforation and serum albumin levels. Age less than 40 yrs and first episode were not associated with a higher risk of death but this could be a Type II error due to the small sample size.
Conclusion Surgery is the mainstay of management of UC. The high postoperative mortality rate in our study is attributed to the presence of colonic perforations.

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Screening for latent tuberculosis infection in patients of inflammatory bowel disease prior to immunosuppressive therapy

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Background To study the prevalence of latent tuberculosis infection (LTBI) in patients of inflammatory bowel disease (IBD), prior to immunosuppressive therapy.
Methods Forty-one IBD (UC=100%) patients with active disease planned for immunosuppressive therapy, were screened for LTBI using Quantiferon TB Gold (QFT- G).
Results Seven (3 male/4 female) out of 41 (20 male/21 female) patients were positive for QFT-G (17.07%). All 7 had normal chest X-rays. 2/4 female and 1/3 male patients had history of treatment for tuberculosis.
Conclusion Immunosuppressive therapy increases the risk of tuberculosis. QFT-G is unaffected by BCG vaccine and non-TB mycobacteria, making it a superior method for LTBI screening. IBD patients should be screened for LTBI, before starting immunosuppressive or Biological therapy to prevent activation of LTBI with poor outcome.

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Profile of lower gastrointestinal bleed in a tertiary care centre in coastal eastern region in India

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Introduction Lower gastrointestinal bleed (LGIB) is usually defined as bleeding from the hind gut. There is limited published report on the profile of LGIB. Therefore, this study was conducted with an aim to analyze the profile of LGIB in this part of Coastal Eastern region.
Methods In this open labelled observational cohort study, 70 consecutive cases with LGIB attending the gastroenterology department of IMS and SUM Hospital, Bhubaneswar from November 2017 to April 2018 were included and prospectively evaluated.
Results Male outnumbered female in our study (Male:Female-3.37:1). Mean age of presentation was 45.37±17.26 years. Most of the cases (70%) were middle classed. All the cases presented with overt LGIB followed by abdominal pain in 67% cases. 51.42% and 41.42% cases had frank hematochezia and maroon colored stool passage respectively. 24.28%, 17.14%, 11.42%, and 8.57% cases had constipation, anorexia, fatigability and melena respectively. NSAID and aspirin usage was documented in 17.14% and 8.57% cases respectively. Abdominal tenderness was found in only 14.28% cases. Most of the cases (35.71%) had internal hemorrhoid. 14.28%, 11.42%, 7.14%, 4.28%, 4.28%, 2.85%, and 2.85%, cases had inflammatory bowel disease (IBD), rectal polyp, fissure in ano, colonic polyp, solitary rectal ulcer syndrome (SRUS), anorectal growth and normal colonoscopic finding respectively. Out of total 10 cases of IBD, only 10% case had Crohn's disease. Only 5.71% cases required blood transfusion for survival during index admission.
Conclusion Most cases of LGIB in our region had internal hemorrhoid and blood transfusion was rarely required for survival.

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The utility of bowel ultrasound in diagnosing disease activity in Crohn's disease

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Objectives This study assessed the utility of bowel ultrasound (USG) in assessing Crohn's disease activity in correlation with the simple-endoscopic score-CD (SES-CD) and Harvey-Bradshaw Index (HBI).
Methods Patients with Crohn's disease who underwent colonoscopy for assessment of disease activity also underwent a USG within a 2-week period without change in treatment. Colonoscopic disease activity was assessed by the SES-CD, SES-CD score of 3 and higher was defined as endoscopically active. Clinical disease activity was assessed by the HBI, and a HBI of 5 or more was defined as active disease. USG parameters assessed include bowel wall thickness (BWT), loss of bowel wall stratification (BWS), Doppler activity. Doppler activity was evaluated semi-quantitatively by the Limberg score.
Results Thirty-five patients were enrolled in the study, 12 patients (34%) were in endoscopic remission, 7 patients (20%) had mild endoscopic activity, 6 patients (17%) had moderate endoscopic activity and 10 patients (29%) had severe endoscopic activity as per the SES-CD score. As per the HBI, eighteen (51%) patients were in remission, 6 (17%) had mild, 8 (23%) had moderate and 3 (9%) had severe disease. Sixteen (46%) patients had only small intestinal involvement, 13 (37%) ileocolonic and 6 (17%) colonic only. Median BWT was greater in patients with active disease when compared to those in endoscopic remission (6 mm vs. 2.45 mm, $p<0.01$). BWT correlated with SES CD (r=0.455, p 0.007) and HBI (r=0.506, p 0.002). BWS correlated with SES-CD (r=0.432, p 0.011) and HBI (r=0.483, p 0.003), Doppler correlated with SES-CD (r=0.494, p0.003) and HBI (r=0.656, p 0.001).
Conclusion USG is a useful modality in assessing disease activity in Crohn's disease. Bowel wall thickness, loss of stratification and Doppler activity in the bowel wall correlate with endoscopic and clinical disease activity.

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Bowel ultrasound is accurate in assessing disease extent and disease activity in ulcerative colitis

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Background Colonoscopy is curr ently the standard of care for the evaluation of disease activity in ulcerative colitis (UC). bowel ultrasound (USG) is an easy, cheap, non-invasive tool and can be used to assess disease activity in UC patients.
Methods Patients who underwent colonoscopy for assessment of disease activity underwent USG within 2 weeks. Endoscopic activity was graded with the Mayo Endoscopic Score (MES); clinical disease activity was assessed using the Total Mayo Score (TMS). Colonic wall thickness (CWT), loss of bowel wall stratification (WS), Doppler activity (DA) were assessed. DA was evaluated semi-quantitatively by the Limberg score.
Results Seventeen patients were included in the study, 10/17 (59%) had left-sided colitis, 41% (7/17) had pancolitis. MES of 0, 1, 2, 3 was seen in 1, 3, 8 and 5 patients respectively. As per TMS, 8 (47%) patients had severe disease, 8 (47%) had mild to moderate disease and one patient (6%) was in remission. USG accurately assessed the disease extent in 16 (94%) patients. Median CWT was lower in patients with MES 0-1 when compared to MES 2-3 (3mm vs. 4.1 mm, p 0.01). CWT correlated with MES (r=0.763, p 0.000) and with TMS (r=0.748, p 0.001). DA correlated with MES (r = 0.806, p 0.001) and TMS (r = 0.789, p0.0001). Loss of bowel wall stratification correlated with MES (r=0.551, p 0.022) and TMS (r=0.505, p 0.039). In patients in whom the bowel wall stratification was preserved, the MES was 1 point lower than in whom it was lost.
Conclusion USG is accurate in assessing disease extent and disease activity in UC and correlates with the Mayo score. CWT and DA and wall doppler activity are accurate in predicting MES of 2 or 3.

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Development of a new ultrasound based score for assessing disease activity in ulcerative colitis: Preliminary results

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Background The aim of this study was to develop a new bowel ultrasound (USG) based score for assessing disease activity in ulcerative colitis and to assess its correlation with Mayo Endoscopic score (MES).
Methods Patients who underwent colonoscopy for assessment of disease activity also underwent USG within 2 weeks. Endoscopic activity was graded with MES; clinical disease activity was assessed using the Total Mayo score (TMS). All assessments were performed for the rectum, sigmoid, descending, transverse, and ascending colon and caecum. A novel score based on colonic wall thickness (CWT), loss of bowel wall stratification, Doppler activity (D) was calculated for each segment and correlated to the MES.
Results A total of 102 colonic segments were analyzed. Median CWT was lower in patients with MES 0-1 when compared to MES 2-3 (3 mm vs. 4.1 mm, p 0.01). The ultrasound score (USS), Table 1, was calculated for each colonic segment and correlated to the MES for that particular segment. USS correlation to MES for each segment was as follows: caecum (r= 0.95, p 0.0001); ascending colon (r =0.9, p 0.001), transverse colon (r = 0.955, p

0.0001), descending colon (r =0.845, p 0.001), sigmoid colon (r=0.816, p= 0.0001), rectum (r=0.761, p 0.001). The USS for sigmoid colon correlated with the overall MES (r= 1, p 0.0001), and Total Mayo score (r = 0.918, p 0.0001).
Conclusion Preliminary results shows that the novel ultrasound score has excellent correlation to MES. The USS for sigmoid colon correlates with overall endoscopic activity and the Total Mayo score.

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Non-alcoholic fatty liver disease in inflammatory bowel disease– A neglected entity

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Background Patients with inflammatory bowel disease (IBD) are at high risk for non-alcoholic fatty liver disease (NAFLD). We employed non-invasive methods to study incidence of NAFLD and assessment of fibrosis.
Methods This was a observational study of IBD patients without known liver disease followed at outpatient department, SMS Hospital, Jaipur. Data about demography, disease extent, duration and treatment were collected. NAFLD was defined as fatty liver on ultrasonography and absence of alcohol intake. 2D Shear Wave (2D-SWE) Elastography was done in patients with fatty liver using Toshiba Aplio 500 Ultrasound Machine. Advanced liver fibrosis was diagnosed by ^{3}F2 Fibrosis (Mean stiffness >7 Kpa) on Elastography. All the patients were screened for diabetes mellitus, hypertension, dyslipidaemia, metabolic syndrome using ATP III criteria.
Results Fifty patients with mean age (35.7±12 years) of IBD (UC=46, CD=4) with mean duration of disease (4.4±9 years) were included in the study. Mean BMI was 18.6 kg/m^2. Only one patient had diabetes mellitus. No patient fulfilled criteria of metabolic syndrome. On ultrasound, 10 cases (25%) had hepatomegaly and 5 cases (12.5%) had fatty liver. On 2D-SWE elastography of these 5 patients, mean elasticity was (18.65±10 Kpa) with all patients showing significant fibrosis (F2=2, F3=2, F4=1, patients respectively).
Conclusion NAFLD is a frequent comorbidity in patients with IBD. These patients can also develop advanced liver fibrosis. Every effort should be made to achieve remission, as higher disease activity and duration is linked to development of NAFLD and advanced fibrosis, despite the absence of conventional risk factors.

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Occult hepatitis B infection in patients of inflammatory bowel disease undergoing immunosuppressive therapy: An overlooked entity

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Background To study the prevalence of occult hepatitis B virus infection (OBI) in patients of inflammatory bowel disease (IBD), screened before immunosuppressive therapy.
Methods Forty IBD (UC=100%) with active disease (Mayo score >7) planned for immunosuppressive therapy patients were screened for OBI using serum hepatitis B surface antigen (HBsAg) and hepatitis B core total antibody (anti-HBcAb) using Elisa methods.
Results Five out of 40 patients were positive for anti-HBc total antibody (12.5%). All the patients were HbsAg negative. HBV DNA was planned for further evaluation.
Conclusion Anti-HBc total positivity may be a good surrogate marker for screening for occult hepatitis B infection in IBD patients, who are HbsAg negative. This may serve as cost effective strategy for screening in resource limited settings. IBD patients should be screened for OBI, before starting immunosuppressive or biological therapy to prevent reactivation of hepatitis B infection with poor outcome.

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Bloody diarrhea in patients with amebic colitis is related to the site of lesion in the colon

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Introduction Entameba histolytica is found globally and most of its morbidity and mortality occurs in the Indian subcontinent, Africa, Central and South America. Primary organ of involvement is large bowel. In a study from Bangladesh of 85 adults and children dysentery was present in 58% of patients. The aim of the present study was to evaluate if the pattern of distribution of colonic lesions in invasive amebiasis was related to the clinical presentation.
Materials The study was conducted at department of Gastroenterology, GIPMER, New Delhi from November 2016 till July 2018. Patients who underwent colonoscopy during the study period for suspected amebiasis were prospectively evaluated regarding the clinical presentation and distribution of lesions. Patients where biopsy showed evidence of trophozoites of E histolytica were included.
Statistics Fischer's exact test was used to analyse the difference between discrete variables in the two groups.
Results A total of 27 cases were included. The median age was 50 years (9-82) and 66.7% were males. Fever, abdominal pain and bloody diarrhea were present in 10 (37%), 19 (70.4%) and 11 (40.4%) respectively. Isolated cecal involvement was seen in 19 (70%) of cases whereas 8 (30%) patients had lesions of left sided colon with or without involvement of the cecum. Only 4 of 19 patients with isolated cecal involvement had bloody diarrhea as compared to 7 of 8 patients with left sided disease. Association of bloody diarrhea with left sided lesions was found to be significant (p=0.002).
Conclusion Bloody diarrhea was seen in only 40% of patients. Cecum was the most common site of involvement, but bleeding was uncommon with cecal lesions. Most patients with bloody diarrhea had lesions in left colon or rectum.

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Clostridium difficile superinfection in patients with ulcerative colitis in India: A poorly recognized pathogen associated with disease flare

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Introduction Clostridium difficile infection (CDI) is a well-recognized cause for disease flare of ulcerative colitis (UC) patients in the West. CDI accounted for 3% of hospitalizations of IBD patients in the West. Indian data in this subset of patients with UC is scant. The aim of the current study was to assess the prevalence of CDI in UC patients admitted to hospital with a disease flare.
Methods All patients of UC who were diagnosed with a severe flare warranting admission from September 2017 to July 2018 were

included in the study. Diagnosis of CDI was based on dual positivity on ELISA based stool test for the presence of GDH and toxin A or B. Patients were analyzed for demographic data, immunosuppressant therapy and colonoscopic evidence of pseudomembranes against a background of UC changes. CDI was classified as severe if there was associated renal dysfunction or TLC >15000.
Results During the study period 43 patients with UC were admitted with disease flare. Eight of the 43 patients (19%) tested positive for both GDH and toxin A or B. Partial CMS and UCEIS (day 1) were 6/9 and 5/8 respectively. Of the 8 patients with CDI, 12.5% each had steroid dependent and steroid refractory disease. Exposure to corticosteroids and azathioprine was documented in 8 patients and 4 patients respectively. Pseudomembranes were not documented in any patient. The putative offending antibiotics were: ATT 2 (25%), Quinolones 2 (25%) and Clindamycin in (1) 12.5%. More than one third of the patients did not have a prior antibiotic exposure. CDI was graded severe in 25%. All patients were treated with Vancomycin and Metronidazole for 2 weeks. Clinical recovery was documented in all 8 patients.
Conclusion CDI was associated with disease flare in nearly one-fifth of the patients admitted for flare of disease.

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Cytomegalovirus colitis in apparently healthy immuno-competent non-inflammatory bowel disease patients – A tertiary center experience

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Introduction Cytomegalovirus (CMV) infection either primary or reactivated seen commonly in immunocompromised persons but is a rare entity in immunocompetent patients. Only few case series have been published till date. This study was planned to evaluate the clinical profile of 5 immunocompetent apparently healthy patients with CMV colitis in a single tertiary referral center.
Methods Retrospective data analysis of 5 immunocompetent patients diagnosed with CMV colitis based on clinical, colonoscopic and histological features between August 2017 to July 2018 in GIPMER, New Delhi.
Results Five patients who are non-IBD and tested negative for HIV are diagnosed to have CMV colitis on the basis of histopathology reports (both IHC and cytopathy on HE stain). Out of 5 cases 4 are female. The median age of presentation was 58 yrs (range: 45-64 yrs). Duration of symptoms range from 3 weeks to 8 weeks with a median of 4 weeks. All 5 patients had pain abdomen, 4 had bloody diarrhea, 1 presented with non-bloody diarrhea, 1 patient had fever at presentation. Only 1 patient was anemic and 1 patient was febrile at presentation. TLC was raised in only one patient. Two patients had underlying diabetes that were well controlled (HbA1C <6.5). CECT abdomen shows involvement of right colon (ascending colon and cecum) in 4 patients and involvement of left colon (anal canal and rectum) in 1 patient. Colonoscopy revealed ulcerations in colon in all patients. Two patients had deep, large, discrete, transverse ulcers in transverse colon, ascending colon and cecum; 2 had superficial ulcers in rectum and sigmoid colon; 1 had pan-colonic ulcerations. Out of 5 patients 3 were in recovery phase, so not treated (self limiting). Two patients were symptomatic at presentation and are treated with IV ganciclovir. Both shows clinical improvement.
Conclusion The most common presentation of CMV colitis in immunocompetent apparently healthy non- inflammatory bowel disease patients is pain abdomen and bloody diarrhea.

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Narrow band imaging (NBI) findings in microscopic colitis and utility of NBI guidance on yield of colonic biopsies for its diagnosis

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Background and Aims Microscopic colitis (MC) is overlooked as cause of chronic diarrhea. Histopathology is gold standard for diagnosis but colonic biopsy has a variable yield in view of normal endoscopy. This study evaluated ileocolonic mucosa in suspected MC cases with narrow band imaging (NBI), described its findings and outcome of targeted biopsy.
Methods Fifty-three adults with suspected MC were recruited after excluding malignancy, celiac disease, small intestinal bacterial overgrowth and inflammatory bowel disease. Routine blood tests, necessary imaging, stool analysis were done. All underwent colonoscopy with ileal intubation if possible. HDWLE (high definition white light examination) and NBI finding were recorded. Routine biopsies on white light and targeted biopsies on NBI were taken and analysed by an expert gastrointestinal histopathologist as per statements of the European Microscopic Colitis Group 2012.
Results Forty-three patients were confirmed to have MC (mean age-45.83 [±15.92], males– 27). The WLE revealed normal mucosa in all patients. NBI showed type 1 pit pattern and regular vascular pattern in all patients with MC. Mucosal pattern was honey comb type in all. Focal areas of abnormal vascularity with focally obscure pit pattern was noted more frequently in cases than controls (81% vs. 12.5% [p=0.052]). Histologically 25 (58.1%) had collagenous colitis (CC), 14 (32.5%) had lymphocytic colitis (LC) and 4 (9.4%) had mixed picture. The yield of WLE and NBI targeted biopsies were not different (p>0.05).
Conclusion Colonoscopic NBI findings in MC revealed a hitherto unreported and distinct focal areas of abnormal vascularity with focally obscure pit pattern. Also, there was no significant difference in yield of NBI vs. WLE biopsies.

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Clinical profile and management of left colonic and anorectal strictures –A single centre study

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Introduction There has been an apparent increase in the incidence of lower gastrointestinal (GI) strictures in the recent years. These lower GI strictures cause significant morbidity in the general population. Endoscopic treatment has emerged as an effective alternative to surgery in the management of lower GI strictures.
Aim Study of etiology, clinical profile and management of left colonic and anorectal strictures.
Methods Thirty patients between the age group of 30 to 70 years were included in the study. A retrospective case note review was carried out from June 2015 to July 2018. All confirmed cases of left colonic and anorectal stricture by barium enema, CECT abdomen and colonoscopy were included in the study. Data collected included patient demographics, clinical symptoms and management.
Results Out of 30 patients,16 (53%) were males and 14 (47%) were females. Majority of the patients were in the age group of 50 to 70 yrs (80%) in both groups. Twenty-four (80%) patients had anorectal stricture and 6 (20%) had left colonic stricture. The most common etiology identified was postsurgical anastomotic strictures (53%) followed by post radiation induced stricture (26%), Crohn's disease (13%) and post hemorrhoid surgery (6%). In patients with anorectal stricture, most common symptom was strenuous painful bowel movements (80%) and with left colonic stricture most commom symptom

was abdominal pain. Out of 30, 24 (80%) patients underwent balloon dilatation. Among 24 patients,12 (50%) patients had 1 dilataion, 8 (33%) patients had 2 dilatations, 3 (12%) patients had 3 dilatation and 1 patient had 4 dilatations. Two patients underwent surgery due to post dilatation complications.
Conclusion Study shows that left colonic and anorectal stricture was more common in the older age group and most common etiology was postsurgical anastomotic stricture. Endoscopic balloon dilatation is an effective management of treating lower GI stricture.

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Prevalence of Vitamin-D deficiency in ulcerative colitis and its correlation with severity of disease activity

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Introduction Ulcerative colitis is a chronic inflammatory disease of the colon of unclear etiology with an increasing incidence in India. Immunomodulatory effects of vitamin-D has been linked to autoimmune disease such as ulcerative colitis and deficiency of vitamin-D has been found to correlate with severity and activity of disease. In our study we evaluated the prevalence of vitamin-D deficiency in mild, moderate, and severe ulcerative colitis.
Aim To study the prevalence of vitamin-D level and deficiency in ulcerative colitis patient at our centre.
Methods Retrospective data of 70 patients with ulcerative colitis diagnosed by clinical, endoscopic and histopathologic evaluation from 2015-2017 at our centre were included in the study and they are classified into mild, moderate, severe by Truelove and Witts criteria. Serum vitamin-D levels were measured in all patients and 70 healthy controls. Patients with mean age of 22-55 years and no comorbid illness such as diabetes mellitus, systemic hypertension, chronic kidney disease were included in the study. Vitamin-D levels were defined as sufficient (>30 ng/mL), insufficient (20-30 ng/mL), deficient (<20 ng/mL1).
Results Seventy patients (male=43, female=27) with mean age of 40 years and average symptom duration of 6 months prior to our hospital visit were reassessed during follow up at our hospital. They were classified into mild UC group n=23 (32.8%), moderate UC group n=31 (44.28%) and severe UC group n=16 (22.85%). Among study group 18 (78.26%) patients in mild UC, 26 (83.87%) patients in moderate UC and 14 (87.5%) patients in severe UC group were vitamin-D deficient. Among 70 healthy controls serum vitamin-D levels were deficient in 18 (25.71%) patients and insufficient in 22 (31.42%) patients.
Conclusions We conclude that immunomodulatory property of serum vitamin-D might be a contributory factor to disease activity of ulcerative colitis, however other factors such as infections, poor compliance to treatment and steroid resistance should also be considered.

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Differentiation of Crohn's disease from intestinal tuberculosis and ulcerative colitis: A single tertiary centre experience in Nepal

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Introduction Differentiating intestinal luminal tuberculosis from Crohn's disease is an important clinical challenge of considerable therapeutic significance. Likewise differentiating ulcerative colitis from Crohn's disease with colonic or ileocolonic involvement is difficult. The aim of this study was to investigate the clinical, endoscopic, radiologic and histological features that will help to differentiate Crohn's disease from intestinal luminal tuberculosis as well as from ulcerative colitis.
Methods A total of 52 patients diagnosed with Crohn's disease, intestinal luminal TB and ulcerative colitis who were admitted under the Gastroenterology Department from July 2017 to July 2018 were included in this retrospective study. Clinical, endoscopic, radiologic, histopathologic and microbiologic features as well as response to treatment of these patients were studied in detail.
Results Among 52 patients, intestinal TB was diagnosed in 44.2% patients, ulcerative colitis in 40.4% patients and Crohn's disease in 15.4% patients. There was a higher incidence of fever, night sweats, lung involvement and ascites in intestinal TB whereas diarrhea, perianal disease, hematochezia and extraintestinal were predictive for Crohn's disease. Similarly, on colonoscopy involvement of IC valve, patulous IC valve and transverse ulcers favored, a diagnosis of intestinal TB in contrast to Crohn's disease where longitudinal ulcers, aphthous ulcers, cobblestone appearance and rectal involvement were seen. Similarly, the diagnosis of ulcerative colitis was favored by rectal involvement and contiguous involvement whereas patients with Crohn's colitis had significantly more deep ulcers, cobblestoning, skip areas and ileal involvement.
Conclusion Crohn's disease must be differentiated from intestinal luminal TB and ulcerative colitis before treatment. According to our study, a combination of clinical, endoscopic, serologic, radiologic, histopathologic and microbiologic features can be utilized in order to reliably predict and distinguish Crohn's disease from intestinal luminal TB and from ulcerative colitis. In complicated cases deep enteroscopy and surgery may be needed before a confident diagnosis is reached.

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Pathogenic role of IL-15 in intestinal inflammation

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Itroduction Crohn's disease and ulcerative colitis, the main forms of inflammatory bowel disease (IBD), are characterized by chronic inflammation of the intestinal mucosa and frequent development of various intestinal and extraintestinal complications. The immune system is a major effector of this tissue damage caused by the action of multiple cell types and soluble mediators. Some of these soluble mediators such as TNFα, IL-17 and IL-22 are immunotherapeutic targets in IBD. Interleukin 15 (IL-15) is a pro-inflammatory cytokine that belongs to the IL-2 family of cytokines. IL-15R is heterotrimeric and is formed of the ligand binding IL-15Rα, the β chain shared with IL-2 and the common γ chain (γc). IL-15 is involved in the maintenance and activation of different subgroups of cytotoxic lymphocytes and macrophages in the intestinal epithelium. Expression of IL-15 is increased in IBD in humans and in murine models of intestinal inflammation. We hypothesize that IL-15 contributes to the pathogenesis of intestinal inflammation.
Objectives 1) Identify the signals that induce the expression of IL-15 in human intestinal epithelial cells. 2) Determine the therapeutic efficacy of the anti-IL-15Rb antibody in DSS induced colitis.
Methods Gene expression for pro-inflammatory cytokine production by human primary epithelial cells in response to TLR-ligands and inflammatory cytokines were analyzed. The effect of neutralizing IL-15 signaling on the development of colitis following administration of DSS was analyzed.
Results and Conclusion IFNg was a potent stimulator of inflammatory cytokines including IL-15 in the cell lines. In mice treated with antibody targeting the IL-15 receptor showed decreased crypt abscesses, crypt erosion and lymphocyte infiltration following DSS treatment. These observations suggest that IL-15 may be a therapeutic target in diseases associated with intestinal inflammation.

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Colonoscopic findings in patients presenting with diarrhea predminant irritable bowel syndrome: Prospective study in a tertiary care hospital

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Introduction Irritable bowel syndrome (IBS) is a very common condition affecting 10% to 20% of the population. The clinical picture of diarrhea-predominant IBS (IBS-D) resembles other chronic diarrheic conditions. The aim of this study was to evaluate colonoscopic finding in IBS-D patients when only using a symptom-based approach for the diagnosis of IBS.
Method Out of 100 diarrheas patients, 54 participants diagnosed with IBS by the Rome IV criteria. All the participants underwent clinical examination, laboratory tests and ileocolonoscopy including mucosa biopsies for histological examination.
Results Majority of patients belong to age group 40-60 yr. Males constitute majority (male to female ratio 1.3:1). Duration of symptoms is 24±6 months. Colonoscopic finding are normal in 28, apthous ulceration in 12, mild colitis in 8 and melanosis coli in 6 patients respectively. Further histological analysis revealed one case of microscopic and one case of collagenous colitis in patient with normal colonoscopy findings. Twenty patients showed non- specific colitis on histology.
Conclusion Patients presenting with chronic diarrhea colonoscopy with biopsy should be performed to rule out other pathologies before diagnosing IBS. Our study also showed melanosis coli in few patients emphasizing the use of over the counter laxative use in patients.

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Etiology of lower gastrointestinal bleed in a tertiary care centre

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Introduction Lower gastrointestinal (GI) bleed is defined as bleeding that occurs from lower GI tract, distal to the ligament of Treitz. The annual incidence of LGI bleeding is approximately 20 cases/100,000 population. It is associated with significant rebleeding and mortality. Hence the study was conducted to determine the frequency of different causes of rectal bleeding in patients at Department of Digestive health and diseases, Chennai.
Methods This is a 1 year cross sectional study, data is collected from colonoscopy registry of MGE Department from August 2017 to July 2018. Total no of cases who admitted with lower GI bleed were 241. Out of which, growth was noted in 71 cases, hemorrhoids in 64 cases, 25 patients had IBD, and 15 patients had polyps. Descriptive statistics were used to calculate mean±SD of numerical data, e.g. age. Nominal data like gender and colonoscopic findings were analyzed by their frequencies and percentages.
Results A total of 241 patients (134 males and 107 females) with mean age 38.6 +/- 9.2 years were part of the study. Colonoscopy showed abnormal findings in 232 (96.2%). The commonest diagnosis was growth, which was found in 71 (29.4%) patients (rectosigmoid 50 (70.4%). It was followed by hemorrhoids in 64 (26.5%) patients, 25 (10.3%) patients had IBD, and 15 (6.2%) patients had polyps. Other less frequent findings were non-specific inflammation, radiation proctitis, SRUS and diverticula.
Conclusion Growth was the leading cause of bleeding per rectum in this study, followed by hemorrhoids and IBD, which is in contrast to western literature while infrequent findings of SRUS and diverticula indicate that these are uncommon in our centre. Hence in any case presenting with bleeding PR, an high index of suspicion for malignancy should be kept and colonoscopy +biopsy should be performed.

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When two systems meet, it gets complicated

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Introduction Colovescical fistula is an abnormal connection between any part of colon with the urinary bladder. Most common cause is carcinoma. The typical symptoms are fecaluria and pneumaturia.
Case A 68-year-old lady with repeated hospital visits and admission for recurrent urinary tract infection came with complaints of fever, dysuria and anorexia. She was investigated extensively for a cause of the recurrent urinary tract infection and a CT-KUB was done which showed a colovesical fistula with features of carcinoma and metastasis.
Results She was taken up for open laprotomy. The sigmoid colon appeared inflammed with no features of carcinoma. Biopsy taken was suggestive of diverticulitis and carcinomatous changes. A final diagnosis of sigmoid diverticulitis with colovescical fistula was made. On retrospectively asking, she gave history of fecal smell of urine and pneumaturia.
Conclusion The most common cause of colovesical fistula in our country is carcinoma. Sigmoid diverticulitis is very rare cause of colovesical fistula although is common in western countries. This is a very rare presentation in our country and only few case reports are available.

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Changes in microbiome after fecal microbiota transplantation affected by irritable bowel syndrome

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The microbiome plays a crucial role in maintaining homeostasis in the human gut. The fecal microbial transplant (FMT) is the process of transferring microbial communities from a healthy donor to a recipient; consequently, it is now widely investigated for its ability to improve various health issues that are associated with gastrointestinal diseases. In this study, we investigated changes in gut microbiota following FMT in a patient with irritable bowel syndrome (IBS). We describe changes in the composition of the fecal microbiome from a patient recipient before and after he underwent fecal microbiota transplantation (FMT) for IBS condition. There was the marked loss of bacterial diversity with reduced bacterial phylum belonging to Firmicutes before FMT; this was corrected after post-FMT, furthermore notably 13 more donor bacterial species were engrafted after the post-FMT which belongs to the phylum, actinobacteria, bacteroidetes and firmicutes. The dynamic changes in the bacterial microbiome after post-FMT in the form of restoration of the microbiome highlights changes in community dynamics reflecting changes in the host gut environment.

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Thromboembolic complications in patients with inflammatory bowel disease predict poor prognosis

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Background Inflammatory bowel disease (IBD) is associated with increased risk of thromboembolic (TE) complications. However, the information on exact burden of TE in IBD and its predictors are lacking, especially from developing countries, where IBD is on the rise. The present study aimed to find out the prevalence and predictors of TE in patients with IBD and their prognosis.
Methods This case control study included 32 patients with IBD (ulcerative colitis [UC, *n*=23]; Crohn's disease [CD] *n*=8, IBD unclassified *n*=1) with history of TE, selected out from a cohort of 3597 patients with IBD (UC *n*=2752, CD *n*=845) under follow up from 2004-2018. Details on demographics, extra intestinal manifestations (EIMs), patient's status at the time of TE, type and outcome of TE including recurrence, treatment details before and after TE, and disease course before and after TE were collected and compared with IBD patients without history of TE in the ratio of 1:4.
Results The prevalence of TE in patients of IBD was 0.9% (UC-0.8%, CD-0.95%). Among patients with TE (mean age, 39.5+14.7 years, 47% males), median duration from disease onset to TE was 19 (IQR-5-45) months, 37% had other EIMs, 75% had severe disease at time of TE, 70% had steroid dependent or steroid refractory disease, and 2 patients (6%) died because of disease related complications. Lower limb was the commonest site for TE (72%), 16% had pulmonary TE, and 19% had involvement of multiple sites. More patients with UC and TE had pancolitis (80% vs. 40%, $p<0.001$), higher prevalence of other EIMs (45% vs. 27%, $p=0.15$), severe disease(75% vs. 10%, $p<0.001$), steroid dependent/refractory disease (68% vs. 15%, $p<0.001$), aggressive disease course (38% vs. 12%, $p=0.004$), H/O surgery (19% vs. 5%, $p=0.027$), and H/O acute severe colitis (43% vs. 9%, $p<0.001$).
Conclusion Approximately 1% patients with IBD develop thromboembolism relatively early during their disease course, and TE is a marker of severe disease and higher disease related complication.

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National survey of physicians on awareness of inflammatory bowel disease in India

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Background Although inflammatory bowel disease (IBD) is common in India and disease burden continues to grow, little is known regarding physician's awareness about IBD.
Methods We identified and electronically surveyed a random sample of 100,000 practicing physicians throughout India over a four month period (March 2018–June 2018). Physicians were questioned (sixteen questions) electronically on various aspects related to their daily encounter of patients with IBD and their responses were analyzed.
Results A total of 332 physicians (median age 47.5 years, 82.2% males) responded. Most physicians (93.7%) had been in practice for 3 or more years in urban area (72.9%) and were into hospital based (41.6%) or individual (37%) practice. About 60% physicians evaluated ≤1 patient/month with IBD, 32% evaluated >1/month, while 7% saw >1/patient per week. Most of their patients were from middle (48.5%) or lower (38.6%) socioeconomic status, and maximum had urban background (48.2%). More than two-thirds felt that IBD is common in India, ~60% felt that UC is the commonest subtype, and 25% believed that disease burden of IBD in India is one of the highest in World. 85% believed that it's difficult to differentiate between CD and ITB. Almost all were aware (98.5%) that IBD needs long-term treatment and that UC can progress to colorectal cancer (92.2%).
Conclusion There exists minimal knowledge gap on the awareness of IBD throughout the spectrum of health care providers in India. This gap can potentially be remedied with a targeted IBD knowledge and appropriate awareness program.

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Correlation of patient reported outcome measure with clinical disease activity and fecal calprotectin in patients with ulcerative colitis

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Background Patient reported outcome measures (PROM) have been developed to evaluate patients' perspective of disease control in inflammatory bowel disease (IBD). Measures of clinical disease activity (simple clinical colitis activity index [SCCAI]) have shown moderate correlation with fecal calprotectin (FCP), a marker of mucosal healing. However, no study has correlated FCP with PROM. Present study aimed to correlate FCP with SCCAI and PROM, and evaluate the role of PROM in predicting clinical remission and mucosal healing.
Methods This prospective study included consecutive patients with ulcerative colitis of any disease extent/severity under follow up at All India Institute of Medical Sciences, New Delhi India from June 2018 – July 2018. A detailed evaluation was done for demographics, disease duration, extent, and activity (SCCAI), FCP and IBD control questionnaire. IBD control-8, IBD control visual analogue scale (IBD-VAS) and SCCAI were correlated with FCP. Clinical remission was defined as SCCAI <3, mucosal healing was defined as FCP <150 mg/kg of stool.
Results Of 57 patients (mean age: 37.5±12.1 years, 58% males, median disease duration 5 [3-9] years, 15.8% proctitis, 45.6% left sided colitis, 38.6% pancolitis), 32 were in clinical remission and 28 had mucosal healing. There was a significant correlation between FCP and IBD control-8 (0.57, $p<0.001$), IBD-VAS (0.46, $p<0.001$), and SCCAI (0.68, $p<0.001$) and between SCCAI and IBD control-8 (0.65, $p<0.001$) and IBD-VAS (0.64, $p<0.001$). IBD control-8 had a moderate diagnostic accuracy to identify patients in clinical remission (area under curve: 0.82 [0.69–0.84]) and mucosal healing (AUC:0.86 [0.77–0.96]), with a score of 13 having a sensitivity and specificity of 69% and 84%; 72% and 82% to identify patients in clinical remission and mucosal-healing respectively.
Conclusion IBD control-8, and IBD-VAS correlates with markers of disease activity and mucosal healing and has a reasonable diagnostic accuracy to identify clinical remission and mucosal-healing.

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Effectiveness and safety of Adalimumab biosimilar in inflammatory bowel disease: A multi-center study

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Background Adalimumab (ADA) has emerged as a useful drug for treating patients with inflammatory bowel disease (IBD), not responding

to conventional therapy. There is limited data on effectiveness and safety of ADA biosimilar (Exemptia) in patients with IBD.
Methods Patients with inflammatory bowel disease (IBD) who received at least 1 dose of ADA biosimilar from October 2015 to February 2018 were retrospectively included in this multicenter data analysis. Its effectiveness in inducing and maintaining clinical remission at 8, 26 and 52 weeks for Crohn's disease (CD) and ulcerative colitis (UC) and safety profile of drug was studied.
Results Seventy patients (49 UC; 21 CD) with a median age of 39 (range 13-73) years, male predominance (64.3%), and median (IQR) disease duration of 72 (33-104) months were included. ADA biosimilar was effective in inducing remission (at 8 weeks) in 46.9% and 52.4% patients with CD and UC, respectively, of which 32.7% and 33.3% patients (3/4th of remitters) maintained remission over 1 year, respectively. Twenty (28.6%) patients experienced adverse events, 8 (11.4%) were serious out of which three had developed tuberculosis.
Conclusions ADA biosimilar in usual clinical practice is safe and effective in inducing and maintaining remission in Indian patients with IBD. Steroid-free clinical remission was observed in one-third of UC and CD cases at one year of therapy.

MOTILITY DISORDERS

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Association of adrenergic receptor beta 2 (ADRB2) gene polymorphism with gastrointestinal motility in type 2 diabetes mellitus patients

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Introduction Common gastrointestinal (GI) symptoms among T2DM patients include constipation and diarrhea. However, pathogenesis of these symptoms in T2DM remains to be poorly understood. Thus, aim of the study was to evaluate association of adrenergic receptor beta 2 (ADRB2) gene polymorphism on GI motility leading to diarrhea and constipation.
Methods Three hundred T2DM patients attending Diabetic Clinic at PGIMER, Chandigarh and 200 age and sex matched healthy controls were enrolled. Non-invasive lactulose hydrogen breath test was used for measurement of gut motility i.e. oro-cecal transit time (OCTT). 5 mL blood was taken from subjects. Buffy coat was used for isolation of DNA. ADRB2 gene polymorphism was performed by PCR followed by restriction enzyme digestion.
Results GI symptoms in T2DM patients were constipation (55.4%) and diarrhea (14.3%). It was observed that significantly ($p<0.01$) more number of T2DM patients with diarrhea had GG genotype (28.7%). OCTT (72.4±2.6 minutes) was significantly rapid in T2DM patients with diarrhea who had GG genotype as compared to AG (82.7±3.5 minutes) or AA (99.3±4.8 minutes) genotype. Although, number of T2DM patients with constipation in AA genotype of ADRB2 were more than AG or GG genotype but data was not significant. Also, OCTT though showed delaying trend in AA genotype (159.8±5.1 minutes) as compared to AG (154.2±4.7 minutes) or GG (147.2±3.3 minutes) genotype but data was not significant.
Conclusion It can be concluded that patients with GG genotype had fast motility and more number of patients with diarrhea had GG genotype. Thus, patients with GG genotype are more prone of developing diarrhea through effect of rapid gut motility.

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Post infectious irritable bowel syndrome risk score: Validation in an Indian population

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Introduction A large population of India is at risk of developing post infectious irritable bowel syndrome (PI-IBS) due to the high incidence of acute gastroenteritis. A risk score developed by Thabane et al. can be useful to predict patients at higher risk of developing PI-IBS. The aim of this study was to validate the PI-IBS risk score in an Indian population.
Method Patients of acute infectious diarrhea admitted to a tertiary care hospital of Odisha from September 2014 to October 2016 were assessed about various risk factors associated with PI-IBS. Follow up surveys with IBS Questionnaire were done after 6 months and PI-IBS was diagnosed according to ROME III criteria. Comparison of the baseline characteristics and PI-IBS score was done between patients who developed PI-IBS after 6 months and who didn't develop. Area under the receiver operating curve was used to determine the discriminatory ability of the PI-IBS risk score.
Results Out of 136 patients of acute gastroenteritis included in the study, 35 patients (25.7%) developed PI-IBS at 6 months. Females and younger patients more often developed PI-IBS at 6 months (57.1% vs. 38.6%; p value=0.04 and 30.37±11.67 vs. 47.12±17.06; p value<0.001) respectively. The risk score was significantly higher in patients who developed PI-IBS (72.4±14.48 vs. 31.56±20.4; p value <0.001). The area under the ROC curve was 0.92 for our study population (95% CI - 0.878 to 0.977). A score of more than equal to 50 had a sensitivity of 91.4% and specificity of 84.2% to predict PI-IBS at 6 months.
Conclusions A PI-IBS risk score of 50 or more is a highly sensitive predictor for PI-IBS development following acute gastroenteritis. It is easy to use and cost effective to identify patients at higher risk of developing PI-IBS so that early counselling and intervention can be instituted.

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Evaluation of esophageal motility disorders by high resolution manometry – Experience at a tertiary care centre in central Kerala

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Introduction Esophageal motility disorders are often underdiagnosed in busy outpatient clinics due to late presentation and lack of awareness. With the advent of high resolution manometry, now it has become easier to diagnose and classify motility abnormalities of esophagus especially achalasia cardia. Our aim was to learn about the clinical and manometric profile of patients with esophageal motor dysphagia.
Methods All patients who had clinically suspected esophageal dysmotility were included in the study after written informed consent. Initial evaluation was made using upper GI endoscopy and barium swallow to exclude patients with structural disorders of esophagus. The patients then underwent high resolution manometry (HRM). Chicago classification was used for classifying motility disorders. Clinical profile and manometric data obtained were entered in Microsoft Excel sheet and analysed using IBM SPSS v16.0.

Results Out of 70 patients enrolled in our study, 25 patients had achalasia cardia (type I-7, II-15, III-3), 6 patients had EGJ (esophagogastric junction) outflow obstruction, 6 had distal esophageal spasm and 10 had ineffective esophageal motility. One patient had jack hammer esophagus, 1 had absent contractility and another had fragmented peristalsis. Twenty patients had normal study.
Conclusion High resolution manometry is an effective tool for early diagnosis and classification of esophageal motility disorders especially achalasia cardia.

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Effect of Biofeed back therapy on anorectal manometry methods in patients with fecal evacuation disorders

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Introduction Biofeedback therapy is an effective therapy in patients with fecal evacuation disorder (FED), a common cause of chronic constipation (CC). We present our data on anorectal physiological parameters before and after biofeedback therapy collected in last 2 years.
Methods Consecutive patients with fecal evacuation disorder ED diagnosed by abnormalities in at least two of the three tests (defecography, anorectal manometry and balloon expulsion test [BET]) undergoing biofeedback (two sessions per day, 30 min each, for 2 weeks) during a 2-year period were analyzed. Clinical evaluation, anorectal manometry (ARM), and BET were performed at the beginning and after biofeedback.
Results Fecal evacuation disorder was detected in 36 patients during course of working up for CC. There were 24 males and 12 females. 34/36 patients (98%) had incomplete evacuation. 32/36 (94 %) had straining. 28/36 (80 %) had features of functional outlet obstruction. Nearly 50 % patients reported digital manual evacuation. The age range is from 24-67 years. 25 % of patients had abnormalities in all 3 parameters. Following biofeedback therapy for 3 weeks. Basal sphincter pressure and median anal pressure reduced and intrarectal pressure increased in 24/36 patients. Dysynergia on ARM and BET was corrected in 24/36 patients (66 %). At 1 month and 3 months follow up 20/36 (60%) patients reported significant improvement symptomatically.
Conclusions Biofeedback not only improves symptoms but also anorectal physiological parameters in patients with FED.

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Anorectal manometery in the evaluation of constipation - Single center experience from a tertiary care center

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Introduction Anorectal manometery (ARM) is used for the evaluation of defecatory diseases and constipation. Aim of the study was to evaluate the prevalence of various ano-rectal diseases and establish the ARM findings in the patients who were referred for constipation and/or symptoms of defecatory diseases.
Methods This was a retrospective study where all patients who were referred for evaluation with ARM from January 2014 to December 2017 were included into the study. Relevant demographic data of the patients including age, gender, comorbidities and symptoms were recorded into pre-designed performas. ARM reports were reviewed and all metrics including basal anal canal and squeeze pressure, sensory functions, cough reflex and RAIR were considered in final analysis.
Results A total of 171 patients were included with a mean age of 47 years and a Male:Female ratio of 1.5. Diabetic patients accounted for 26 (15%) while 29 (16.9%) were hypertensive and 8 (4.6%) patients had a past history of stroke. The most common symptom was constipation 130 (76%) patients amongst which 27 patients (20%) had dyssynergic defecation and 7 (5%) patients also had a sensory defect. Among the pediatric patients (n=7), 3 (1.7%) patients had an absent RAIR. Only 28 (16.3%) patients were referred for the evaluation of evacuatory disorders of which, 16 (57.14%%) patients had weak external anal sphincter and 9 (32.14) patients also had sensory defect. All the patients with dyssynergic defecation (n=30) were treated with Bio-feedback sessions and 27/30 (90%) patients had a good clinical response on subsequent follow up (median duration of follow up 6 months). Rectal sensory disorder was seen in 35 (20.4%) patients of which 5 (3%) were normal on re-evaluation and 21 (60%) patients had weak sphincter. No procedure related complications were noted in this study.
Conclusion ARM is safe and useful in the evaluation of constipation and anorectal disorders. Dyssynergic defecation is the most common diagnosis with a good response to biofeedback therapy.

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Role of 24 hours Ph metry study in evaluation of patients with refractory gastroesophageal reflux disease

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Introduction Proton pump inhibitors (PPIs) are the preferred medications in the management of gastro esophageal reflux disease (GERD). Ambulatory 24 hours pH monitoring is often recommended in patients experiencing symptoms of GERD despite on PPI therapy. Recent studies show that pH studies are predictably normal in this setting. The objective of the study was to describe 24 hours pH findings in patients having persistent symptoms despite PPI therapy.
Methods A prospective analysis was done in IMS and SUM Hospital; a tertiary care hospital at Bhubaneswar for a duration of 6 months from October 2017-March 2018. Those patients who are clinically suspected of having GERD despite being on single dose of PPI therapy for at least 4 weeks were included in the study. pH data was analyzed for 24 hours and were done for total; supine and upright periods. Abnormal reflux parameters were defined by applying three criteria: DeMeester score greater than 14.72; pH less than 4.0 more than 5.5% of the total time, more than 6.3% of the time upright, or more than 3% for the time supine position and pH less than 4 for more than 1.6% of the total time.
Results A total of 32 patients were included in the study. All these patients were referred by gastroenterologists for evaluation of GERD. Twenty-four patients were males while 8 were female patients. The mean age of the patients was 34. De Meester score was greater than 14.72 in eighteen (57%) patients. If the second or third criteria were applied; it was abnormal in twenty-two (69%) patients.
Conclusion In a patient population assessed by a specialist as clinically suspected GERD that is not responding to PPI therapy; a substantial number of patients will have abnormal esophageal pH results. Thus, pH testing is important in the evaluation of refractory GERD.

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Evaluation of anorectal manometry findings in patients of IBS-C and functional constipation

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Background and Aims Dyssynergic defecation is often under recognized in constipation patients which is often amenable to biofeedback therapy. The purpose of the study was to determine the anorectal manometric profile in patients of chronic constipation and to find whether there is any difference in the manometric findings in the patients of IBS-C and FC.
Methods Twenty patients each of functional constipation and IBS-C (total of 40) were included in the study during a 12 month period for prospective observational comparative study and each patient underwent anorectal manometry and pressure recordings like basal pressure, squeeze pressure, RAIR, balloon expulsion test were recorded. Quantitative variables were compared using independent *t* test/Mann-Whitney Test (when the data sets were not normally distributed) between the two groups whereas Qualitative variables were correlated using Chi-square test/Fisher's Exact test.
Results Significant number of dyssynergia was seen in both the groups; FC-45%, IBS-C-35%; with no statistically significant difference between the groups (*p* value-0.519). Basal pressure (72.5±16.13 mmHg vs. 66.45 ±10.72 mmHg, *p* value-0.172), squeeze pressure (116.4±30.1 mmHg vs. 111.3±32.13 mmHg, *p* value 0.608), bearing down (45% vs. 35%, *p* value 0.519) and balloon expulsion test (45% vs. 30%, *p* value 0.327) were not significantly different in FC and IBS-C patients.
Conclusion The study concluded that a significant number of dyssynergia exists in patients of chronic constipation and that there is no statistically significant difference in the anorectal manometric profile of IBS-C and FC.

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Nutrient drink test and single photon emission tomography for evaluation of gastric accommodation in functional dyspepsia

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Background and Aim Impaired gastric accommodation is a major pathophysiological mechanism in functional dyspepsia [FD]. Nutrient drink test [NDT] is a non-invasive test which can be used to assess gastric accommodation. We compared the findings of NDT and single photon emission tomography [SPECT] in healthy volunteers and patients with FD.
Methods Twenty-seven patients (13 men) with PDS diagnosed using Rome IV criteria, and 20 healthy volunteers (14 men) underwent NDT using Ensure (0.94 kcal/mL) at a rate of 30 mL/min. The maximum tolerated volume (MTV) was recorded. After the drink, symptoms were rated using visual analogue scales every thirty minutes for 2 hours. SPECT was done before and immediately after NDT to assess gastric volume and change in volumes were recorded.
Results All patients (100%) had postprandial fullness and bloating at baseline. Eighty-five percent had burping, 77.8% had epigastric pain and 74% had nausea. Early satiety was present in 66.7%. The MTV (mean±SEM) for NDT (637.77±45.9 ml vs. 660 ± 51.18, p = 0.75), fasting SPECT volume (166.48±14.7 vs. 161.3±13.14 ml, *p*=0.8) and post-NDT SPECT volume (650.51±33.76 vs. 685.85±34.78, *p*=0.47) were similar in patients and controls. The MTV correlated with post NDT gastric volumes on SPECT (r=0.57, *p*=0.00029). Early satiety at baseline negatively correlated with MTV (*p*=0.009), and post NDT gastric volumes on SPECT (r = -0.46, *p*=0.04). Other symptoms of FD did not correlate with MTV or SPECT.
Conclusion NDT is simple and inexpensive and can be used to assess gastric accommodation instead of SPECT. Symptoms of FD do not correlate with MTV of nutrient drink. Patients with severe early satiety drink less nutrient drink as compared to those with mild or no symptoms.

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A randomized study comparing the efficacy of Polyethylene Glycol 3350 versus Prucalopride in the management of chronic constipation

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Introduction PEG 3350 and prucalopride are distinct pharmacological agents used for the relief of chronic constipation. PEG 3350 is an established first-line osmotic laxative, widely available for the treatment of all forms of constipation in adults and children. PEG 3350 acts by increasing stool volume through increased hydration, triggering colon motility to improve transit of softened stools and defecation mechanics. PEG 3350 is more efficacious, but with comparable tolerability to laxatives such as lactulose and ispaghula husk. Unlike PEG 3350, prucalopride is a selective serotonin (5-HT 4) receptor agonist. Though majority studies over prucalopride role in chronic constipation were done in females, there are few randomized control studies including both genders shown equal efficacy in males. Prucalopride stimulates the enteric nervous system to enhance the peristaltic reflex, stimulating gut motility and accelerating colonic transit
Aim of study The Aim is to compare the efficacy and impact on quality of life of Polyethylene glycol 3350 vs. prucalopride in patients with chronic constipation.
Methods In this single-centre, randomized, double-blind study, patients with chronic constipation diagnosed as per ROME IV criteria will be given either a 17-34 gm of PEG 3350 or 1–2 mg prucalopride daily for 28 days. The primary endpoint assessed will be the proportion of patients having 3 spontaneous complete bowel movements during the last treatment week.
Results Non-inferiority of PEG 3350+E to prucalopride was demonstrated in the per-protocol population (66.67% vs. 56.52%), and in the modified intent-to-treat population. Statistically significant differences in favor of PEG 3350+E were observed for most secondary variables (bowel movements, stool weight, consistency, time to next SCBM, patient perception of straining and completeness of defecation).
Conclusion PEG 3350+E was at least as effective as and generally better tolerated than prucalopride as a treatment for chronic constipation in this study population.

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Peroral endoscopic myotomy for achalasia in children-Single center experience

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Background Per oral endoscopic myotomy (POEM) is an emerging treatment modality for achalasia cardia (AC). Although efficacy of POEM in adult AC is well established, its role in pediatric AC is less clear. Technical parameters for POEM differ in pediatric patients as compared

to adults. There is limited data about POEM for pediatric AC. This single center study reports outcomes of POEM for pediatric AC.
Methods AC patients (<18 years) undergoing POEM identified from a prospectively maintained database. Pre-POEM evaluation – EGD, barium swallow and high-resolution manometry (HRM) in all. Pre-POEM Eckardt score calculated in all. All patients received posterior POEM. Follow up – EGD and Eckardt scores at 6-weeks, 6 and 12-months. Clinical success defined as post-POEM Eckardt score <3.
Results N=15, median age=15 years (3-18), males=10. Mean duration of symptoms=21.9 months (6-54). Previous endoscopic balloon dilatation (EBD) in 3 (20%). Median pre-POEM BMI=14.9 kg/m2. All patients had Type II AC. Mean pre POEM Eckardt score=7.0±1.7 and IRP=41.82 ±14.2 mm Hg respectively. Median length of myotomy=8 cm (6-11). Mean procedure time = 85.3±31min. Adverse events–mucosotomy–1 (6.7%)–clip closure, post-POEM pleural effusion–1 (6.7%), responded to conservative treatment. Mean hospital stay= 4.4±2.5 days. Median follow-up=79 weeks (6-208). Twelve (80%) patients completed 12 months follow up. Mean post-POEM Eckardt score=1.0±1.1; significant improvement compared to pre-POEM (p=0.0001). Post-POEM GERD–nil. Mean percent weight gain=13.4± 8.2% of pre-POEM weight.
Conclusion POEM is safe and demonstrates excellent therapeutic response for pediatric AC, with superior post-POEM weight gain and low incidence of post-POEM GERD. The results appear sustained at one-year.

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Abdominal tuberculosis in children: Clinical profile, diagnostic methods and treatment outcome from a tertiary care center in North India

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Introduction Abdominal tuberculosis (ATB), is not well described in children, with very few case series reported till now.
Methods We retrospectively analyzed clinical presentations, methods of diagnosis and therapeutic response of abdominal tuberculosis over 10 years.
Results One hundred and fifty-eight children, mean age 10.89 years were diagnosed from 2006 to 2016. <2 years 2%, 2-4 years 6%, 5-8 years 21.5%, 9-12 years 51% and 13-18 years 7.5%. Anorexia and pain abdomen 83%, fever 82%, loss of weight 68%, vomiting 48%, abdominal distension 37%, diarrhea 25%, SAIO 16.5%, and GI bleed 4.5% were the presenting symptoms. Pallor 76%, generalized LNE 20%, doughy abdomen 33%, guarding 20%, hepatomegaly 36%, splenomegaly 18% and ascites 23% were elicited clinically. Among the types of ATB, luminal 60%, (ileum 77%, colon 42%, ileocecal valve 35%, jejunum 30% and duodenum 2%). Lymph nodal 71.5%; peritoneal 39%: ascitic 37% and plastic 2%; omental 23%; granulomatous hepatitis 12% and splenic granuloma in 7% were the other sites of involvement. AFB was isolated in 24 % and histopathology was suggestive in 30%, rest being suggested by imaging and response to ATT. Gene expert was positive in 9% of 23 samples. Eighty-five percent were cured without relapse during follow up of minimum 1 year post ATT completion. Six percent children had ATT induced hepatitis.
Conclusion 1) Almost 25% of ATB in children occurs below 8 yrs 2) Lymph nodal followed by luminal involvement are the most common sites involved 3) Illeum is the most frequent site of luminal involvement; the ileocecal valve may be spared in 40% of these cases. 4) Response to therapy remains the corner stone of diagnosis, with microbial/histologic proof being found in less than a third of the cases. 5) Prognosis for pediatric abdominal tuberculosis is excellent.

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Pediatric prevalence of Clostridium difficile infection in a tertiary care hospital

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Introduction Clostridium difficile is the etiological agent of health care-associated infections. Children less than two years are generally carriers. Recently, *C. difficile* is being considered as a gastrointestinal pathogen in pediatric patients. We carried out a retrospective, investigation on different age group pediatric patients (i) to evaluate the prevalence of CDI confirmed with stool toxin analysis in pediatric patients of different age groups (ii) to look for the association of CDI with antibiotic and clinical symptoms and (iii) to investigate the available follow up data.
Methods The patient population investigated for CDI was categorized into Infant Group (0-2 years), early childhood group (<2-12 years) and teenage group (<12-19 years). Clinical and demographic information were retrieved from laboratory records.
Results Of 1033 patients (0-19 years; M:F=667:366) male gender was significant (p<0.0001). Statistical significance (p<0.0001) was observed between the three age groups (Infant Group, n=241; early childhood group, n=424; teenage group, n=368). The major underlying ailments were gastrointestinal symptoms (31.9%) and malignancies (24.2%). *C. difficile* toxin (CDT) was positive in 22.07%, and was significant (p=0.000) in all the groups. Clinical symptoms were bloody diarrhea (9.87%), watery diarrhea (57.31%), fever (53.05%) and abdominal pain (34.56%). The frequency of diarrhea was significant (p>0.0001). Antibiotic use with clinical symptoms showed significance with watery diarrhea (p=0.000) and fever (p=0.000). Abdominal pain was found to be significant (p=0.007) when correlated with CDT positivity. CDI was positive in a total of 46 (27%) patients on first follow up (n=170). When variables of patients in the repeat follow up (n=47) were compared with their primary admission data and that of first follow up, significant difference was seen in several variables particularly in antibiotic use, CDT status and presence of mucus.
Conclusions CDI is commonly present in hospitalized pediatric patients, but the final diagnosis should be based on accompanying clinical symptoms.

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Outcomes of CRE balloon dilatation in post tracheoesophageal fistula anastomotic strictures. Sparing the agony of the knife

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Introduction Tracheoesophageal fistula (TEF) is a devastating congenital defect of the new born child. Definite therapy of the defect is a surgery to correct the developemental anomaly. A significant number of patients post surgery develop anastomotic stricture which limits the clinical benefit of the intervention to the child. Balloon dilatation of this stricture is a procedure which may alleviate the symptoms. We studied the incidence of esophageal strictures post TEF surgery and the response of the residual anastomotic strictures to balloon dilatation.
Methods All patients with TEF were enrolled and managed as per standard treatment guidelines (primary anastomosis or diversion followed by anastomosis). Follow up was focussed for symptoms of dysphagia and post prandial vomiting. All patients with an anastomotic stricture were addressed with CRE balloon dilation till resolution of the stricture. Subsequent to the achievement of target diameter (12 mm) the patients were followed up for a period of 12 months for recurrence of symptoms.

Results A total of 37 cases (22 males and 15 females) of TEF were operated upon over a period of 4 yrs. Thirty-one patients were managed with primary anastomosis and the rest underwent diversion on and subsequent anastomosis. Subsequent follow up showed a development of anastomotic strictures in 14 patients (37.8%) with 8 males and 6 females. All the patients were taken up for CRE dilatation. A target diameter of 12 mm was achieved in all cases. Average age was 19.3 months (2 months - 72 months). The average dilatation required was 4.4 per child. There was no recurrence after achieving the target diameter. There were no incidence of any adverse effects.
Conclusion CRE dilatation of post op anastomotic stricture is a safe and effective modality of therapy in children of anastomotic stricture in Post TEF surgery.

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Cyclical vomiting syndrome in children: Presentation and outcome

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Objective Cycling vomiting syndrome (CVS) is an important cause of recurrent vomiting in children. We aimed to analyze the clinical profile and outcome of prophylactic therapy in children with CVS.
Methods Children diagnosed as CVS by the Rome III criteria were analyzed for their clinical presentation and outcome (2007-17). Prophylactic therapy was cyproheptadine±propranolol ≤5 years age and amitriptyline ±propranolol >5 years age. Combination therapy was considered in those with non-response to monotherapy. Adjuvant therapy (valproate, carnitine, co-enzyme Q) was added in refractory cases.
Results Of 737 referrals for recurrent vomiting, 34 (4.6%) were CVS. Age of symptom-onset was 76 (6-208) months. Number of episodes before starting prophylaxis, duration of each episode and symptom-free intervals were 5.7 (3-20), 2.5 (1-6.5) days and 3.27 (0.3-12) months respectively. Aura was associated in 50% (abdominal pain, 41%). Family history of migraine was noticed in 8/34 (23%) of children (17% mothers). All children were started on prophylaxis. Amitriptyline prophylaxis was started in 72%. Twenty-one percent of children required combination therapy and 5% required adjuvant therapy. Of the 28 children who are on regular follow up (median-24 months (2-72), 19 (67%) children reported at least one break through symptom. Duration between breakthrough episodes after prophylaxis was 10.9 (0.3-48) months. Sixty-three percent and 50% children at 2 years and 5 years respectively were symptom free.
Conclusion Overall outcome of CVS is favorable. Amitriptyline prophylaxis is effective in majority with prolonged gap between break through episodes. Combination and adjuvant therapies are required in a small proportion.

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Childhood traumatic pancreatitis: Natural history and outcome

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Introduction Trauma is an important cause of pancreatitis in children and there is paucity of literature on management and natural history.
Methods Children with pancreatic trauma in last 8 years were analyzed for presentation, management and outcome. Trauma grading was done according to American Association for Surgery of Trauma.
Results Thirty-six children (age 144[13–194] months) presented after 30 (3-210) days of abdominal trauma due to bicycle handle (18), blunt object (9), fall from height (5) and motor vehicle accident (4). Fifteen cases each had Grade 3 and 4 injury, 4 had grade 5 and grading was not available in 2 cases. Four had injury to other organs (liver [3], kidney [2]). Most children presented with abdominal pain (*n*-26) followed by ascites (*n*-12). Examination revealed palpable lump in 15, ascites in 12, pleural effusion in 9, epigastric tenderness in 5 and anasarca in 3 cases. Antibiotics, nasojejunal feeds, total parenteral nutrition and octreotide were given in 21, 17, 5 and 13 cases respectively. Drainage of ascites was done in 13 (surgical - 1, percutaneous – 12) and collection in 22 (percutaneous -18, endoscopic – 3, surgical -1). ERP was successfully done in 11/12 cases (stenting [4], sphincterotomy [6], nasopancreatic drain [1]). Cumulative hospital stay was 21.5 (3 to 91) days. Two children died (sepsis, multiorgan failure), 2 were lost and 32 were in follow up (11.5 [1 to 96] months). 14/32 developed chronic pancreatitis (CP) (11 parenchymal atrophy, 11 main pancreatic duct dilatation, 7 strictures, 1 calcification, 3 exocrine insufficiency and 2 prediabetes) of which 7 were symptomatic with pain. Longer interval between injury and presentation (73.6 vs. 36.5 days, p=0.03) predicted development of CP.
Conclusion Multidisciplinary team approach is essential for managing pancreatic trauma. Majority (95%) improve, but 40% develop CP of which only half are symptomatic with pain. Delay in therapy post-trauma increases risk of developing CP.

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Primary gastrointestinal lymphoma in children–Changing patterns and spectrum

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Introduction Lymphoma is a rare neoplasm of gastrointestinal (GI) tract. Primary GI lymphoma in children is different from adults and there is paucity of literature on the same.
Methods Children diagnosed with GI lymphoma as per Dawson's criteria (predominant bowel lesion±involvement of corresponding draining lymph node without hematopoietic or reticuloendothelial system involvement) in last 17 years were analyzed. Treatment included chemotherapy ±surgical debulking of tumor.
Results Eighteen children (15 boys) were diagnosed with primary GI lymphoma. The median ages at presentation and duration of symptoms were 168 (36-228) and 3 (1-24) months respectively. Presenting features were pain abdomen in 14 (78%), lump in 8 (45%), vomiting in 9 (50%), bleeding per rectum in 4 (22%), jaundice in 3 (17%) and altered bowel habits in 6 (33%) cases. Eighty-three percent (*n*-15) cases had B symptoms. Six (33%) presented with subacute intestinal obstruction, of which 4 had intussusception. On imaging, tumor location was in duodenum in 4 (22%), jejunum in 2 (11%), ileum in 2 (11%), Ileaocecal region in 4 (22%), and colon in 6 (33%) cases. Colonoscopy and gastroduodenoscopy were done in 5 cases each and showed ulceroproliferative (*n*-5) and nodular masses (*n*-5). Yield of endoscopic biopsy was 90% (9/10) and percutaneous biopsy was 80% (4/5). Diagnosis was established from surgical specimen in 5 cases (resection- 4 and biopsy-1). Histopathology showed Burkitt's lymphoma in 14 (78%), diffuse large B cell lymphoma (DLBL) in 3(17%) and anaplastic large B cell lymphoma in 1 (5%). Surgery was done as primary therapy for

obstruction in 5 (28%) cases and for post chemotherapy stricture in 2 (11%) cases. 13/18 (72%) were followed up for 22 (3-108) months; 9 completed chemotherapy (7–asymptomatic, 2 relapsed), 2 are on chemotherapy and 2 died (febrile neutropenia).
Conclusion In children, GI lymphoma involves colon commonly followed by ileocecum and duodenum with predominant Burkitt's histology. Upfront surgery was required in 1/3rd for obstructive symptoms and 2/3rd have good outcome.

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Microvillous inclusion disease with tufting enteropathy in two infants with intractable diarrhea

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The heterogeneous group of protracted diarrheas starting in the first months of life are traditionally grouped under "intractable diarrheas of infancy" and include many different diseases. Tufting enteropathy (TE) and microvillus inclusion disease (MID) form a group associated with defects in enterocytes. We report two cases who presented with intractable diarrhea and who surprisingly had histopathology findings of both tufting enteropathy and microvillus inclusion disease. First case is a 6 month old baby, born at term, with birth weight of 3 kg, presented with loose stools starting in the first week of life. On examination he had failure to thrive, generalized anasarca with mild ascites and pallor. Laboratory tests showed elevated TLC with thrombocytopenia and hypoalbuminemia. Multiple stool tests revealed presence of 40-50 pus cells as well as occult blood. HIV serology, primary immunodeficiency work up, thyroid function was normal. On gastroscopy there was mild scalloping in the duodenum and colonoscopy showed scattered areas of erythema and ulceration, with intervening areas normal. The second case, a 25 day old male baby presented to us with large volume watery diarrhea starting at day 10 of life. There was consanguinity in the parents and a previous male sibling had died at 14 months of age due to chronic diarrhea and malnutrition. Multiple stool examinations, thyroid function, HIV serology and primary immunodeficiency work up were normal. A gastroscopy and sigmoidoscopy were macroscopically normal. Both cases required prolonged parenteral nutrition, while the former is alive on elemental formula feeds the latter succumbed to severe sepsis. The histopathology in both cases showed presence of tufts along the mucosal surface, as well as multiple intraepithelial vesicles with microvilli with disarray of surface microvilli along with multiple desmosomes and CD 10 positivity, suggesting a diagnosis of both microvillous inclusion disease as well as tufting enteropathy.

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Small bowel bacterial overgrowth syndrome in children: Prospective longitudinal evaluation by jejunal aspirate cultures and hydrogen breath tests

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Introduction and Aims Small bowel bacterial overgrowth syndrome (SBOS) is an underdiagnosed cause of small bowel diarrhea in children. Gold standard jejunal aspirate cultures (JAC) have been used in limited studies. We prospectively assessed a) prevalence of pediatric SBOS, b) specific microbiological profile in JAC and correlation with hydrogen breath tests (HBT), c) response to antibiotics and outcome after stopping the therapy.
Methodology Children with chronic diarrhea >3 months duration of undetermined etiology or without anatomical obstruction were recruited. They serially underwent glucose (day 1) and lactulose (day 2) HBT and JAC by a special jejunoscopy apparatus (day 3). Positive JAC patients received two phases (primary: day 1-14; secondary: day 28-42) of sensitive oral antibiotics with a wash out phase (day 14-28). SBOS was defined as: a) JAC count of ≥100,000 CFU/mL, b) positive HBT (glucose and/or lactulose) and c) response (clinical and breath test) within 2 weeks of completion of second antibiotic therapy. Fulfilment of all three and first two criteria was labelled as confirmed SBOS and possible SBOS respectively. Cases were followed up for 6 months.
Results Confirmed (31%, *n*=16) and possible (8%, *n*=4) SBOS was diagnosed in 52 symptomatic children (Table 1). In SBOS group, JAC yielded *Pseudomonas* (*n*=10), *Escherichia coli* (*n*=9) and *Klebsiella* (*n*=6), *Streptococcus* (*n*=5) and *Acinetobacter* (*n*=4). Against JAC, sensitivity/specificity of glucose (74/96%) and lactulose HBT (46/73%) was seen. Confirmed SBOS showed multibacterial JAC (65%), dual breath test positivity (35%), clinical response to primary (67%) and secondary (100%) antibiotic therapies. Co-trimoxazole was used in primary and secondary antibiotic failure (*n*=4 possible SBOS; *Klebsiella*). Symptomatic recurrence (31% confirmed SBOS) was seen in 3 (2-6) mo follow up and responded (clinical and breath test) to primary antibiotic sensitivity.
Conclusions SBOS (39%) is worth a search in undiagnosed chronic diarrhea and is a treatable entity. One-third may have relapse.

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Endoscopic ultrasonography in children: Pivotal role in diagnostic utility, clinical impact and safety

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Introduction and Aims In the current era of minimally invasive procedures, there is limited data on the role of endoscopic ultrasonography (EUS) in children. We aimed to evaluate the clinical utility and safety of EUS in children.
Methods EUS records of children (January 2017-July 2018) from a prospective database were analyzed for their indications, sedation, findings, yield and change in decision making.
Results Fifty children (35 boys) aged 12.8 (4-17) years underwent 53 EUS (linear±radial) procedures under midazolam and ketamine±propofol sedation with 100% procedural completion and no major complications. Diagnostic (*n*=49) and therapeutic (*n*=4) were performed over 20 (15-40) and 45 (40-70) minutes respectively. EUS was performed for diagnostic dilemma in 49% (*n*=26) and better lesion delineation in 79% (*n*=42). Indications were pancreatobiliary (*n*=37; 73%), lymph nodal (*n*=7; 13%), luminal (*n*=4), hepatic (*n*=2) and miscellaneous (*n*=3). Findings on EUS aided or changed decision-making management in 73% (*n*=39). A new lesion or diagnosis yielded in 37% (18/49), 83% of which were missed on previous radiological imaging. Overall agreement of EUS versus radiological finding for the main indication was seen in 45%. Compared to EUS, radiological imaging had diagnostic accuracy of 47% for debris in peripancreatic cysts and walled-off necrosis. Positive yield of EUS-guided fine needle aspiration cytology was in 6/8 (*n*=5 tuberculosis from periportal and mediastinal lymph nodes, *n*=1 neuroendocrine biliary neoplasm). Therapeutic procedures were EUS-aided cystogastrostomy (*n*=3) and cystoduodenostomy (*n*=1).

Conclusions EUS should be considered as a primary diagnostic and therapeutic tool in children. EUS yields a new diagnosis in more than one third of cases that may be missed on radiological imaging.

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Role of splenic stiffness measurement by shear wave elastography for non-invasive diagnosis of portal hypertension in children

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Introduction Splenic stiffness (SSM) by shear wave elastography (SWE) has been used for non-invasive diagnosis of portal hypertension and varices in adults, but there is scanty literature in children
Methodology Fifty consecutive children less than 14 years old, with a diagnosis of portal hypertension (PHTN) were assessed. USG Doppler, SSM and liver stiffness measurement (LSM) were performed by experienced radiologist and compared with healthy controls. Esophagogastroduodenoscopy (EGD) was taken as reference standard, and compared with SSM and LSM values.
Results Of 70 cases of PHTN screened, 51 were included in the study with 93% success rate for acquisition of SSM. Of the 51, 49% cases were prehepatic, 41% were hepatic and 7.8% were post hepatic type of PHTN. Thirty-nine percent of total cases were EHPVO and 51% (26/51) of all PHTN cases had bled. There were 62% males; mean age was 6.7 years. EGD revealed varices in 94%; grade I, II and III being 13.7%, 35% and 45%. LSM and SSM values of cases (10.31 kPa and 10.26 kPa) were significantly higher compared with healthy controls (5.62 kPa, p 0.002). Further, SSM of non EHPVO group was significant compared to controls (11.10 kPa, p 0.01). There was negative correlation of LSM values and grade of varices, as high-risk varices were associated mainly with EHPVO.
Conclusion SWE is a useful method for non-invasive assessment of PHTN in children, and may indicate the presence of varices. Further validation with larger group of patients is required.

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A single centre appraisal of the etiological spectrum of chronic liver disease in children from Kerala

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Introduction Chronic liver disease (CLD) constitutes around 30% of referral to pediatric gastroenterology (PGE) OP from various centres in India. Our centre is the only hospital under public sector in Kerala, with a dedicated PGE services. We undertook this study to determine the etiological spectrum of CLD in children from Kerala.
Methods All children (age <12 years) diagnosed with CLD (based on clinical, biochemical [LFT] and ultrasound abdomen +/- liver biopsy +/- transient elastography) in our PGE clinic from February 2014 to July 2018 were enrolled in this descriptive study. Etiology directed investigations including genetic testing and upper GI endoscopy were done wherever indicated. The clinical manifestations and laboratory findings of each type of disease were compared using chi-square or Fisher's exact test for proportions and analysis of variance (ANOVA – 1 way) for continuous data.
Results One hundred and thirty-five children were diagnosed with CLD. On analysis-1. Chronic viral hepatitis (B and C) – (n=15 [11.1%]); 2. Metabolic liver diseases - Wilson disease (n=21 [15.6%]); Glycogen storage diseases (n= 7); Tyrosinemia (n=2 and PFIC [n=1]). 3. Autoimmune liver diseases – (n= 12 [8.9%]) 4. Vascular diseases (EHPVO and Budd-Chiari syndrome) – (n=7 [5.2%]) 5. NAFLD – (n= 22 [16.9%]) 6.Neonatal cholestasis syndromes (n=36 [26.7%]) – Biliary atresia (n=27) and neonatal hepatitis (n=9) 7. Alagille syndrome (n=2), sclerosing cholangitis (n=3) and congenital hepatic fibrosis (n=3) 8. Cryptogenic (n=4 (2.9%).
Conclusions Biliary atresia (<5 years) and NAFLD (>5 years) constituted the single most common etiology for CLD in children. Identification of NAFLD as a major etiologic factor for CLD among older children is an important observation from public health perspective considering the burden of life style diseases in Kerala.

EPIDEMIOLOGY

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Clinical profile of inflammatory bowel disease in Kashmir valley

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Introduction Inflammatory bowel disease (IBD) is common worldwide. IBD is a chronic inflammatory disease of unknown etiology. Last few decades has shown increase in IBD cases worldwide, including India. There is no such data from Kashmir valley to best of our knowledge. SKIMS is the only referral tertiary care institute in J&K and we get patients from both Jammu and Kashmir province.
Methods We conducted a retrospective study over a period of 4 years from 2014 to 2017.
Results Over a period of 4 year, from 2014 till 2017, we have seen 268 patients of inflammatory bowel disease (IBD). Out of this 98 (36.56%) were female and 170 (63.43%) were male. Two hundred and forty-seven (92.16%) patients were of ulcerative colitis (UC), 10 (3.73%) patients of Crohn's disease (CD) and 11 (4.10%) were unclassified. Out of 247 patients, 81 (32.79%) patients had involvement of only rectum i.e. proctitis (E1), 106 (42.91%) patients had left sided colitis (E2) and 57 (23.07%) patients had extensive disease (E3). Out of 247 patients 96 (38.86%) had mild in severity (Mayo S1), 84 (34.0%) had moderate (Mayo S2) and 84 (34.0%) had severe disease (Mayo S3). Among Crohn's disease, we had only 10 patients, majority i.e. 8 (80.0%) patients was in the age group between 16-40 years, 2 (20.0%) patients >40 years of age and none below the age of 16 years. Nine (90.0%) patients were having non-stricturing type and only 1 (10.0%) had stricturing type. Out of 10 patients, 7 (70.0%) had involvement of ileocolonic region, 2 (20.0%) colon and in 1 (10.0%) only was involved ileum.
Conclusions IBD is not uncommon in Kashmir valley. We need prospective community-based studies in future to see the exact incidence and prevalence of IBD in Kashmir.

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Impact of awareness on hepatitis B vaccination, a hospital based study in coastal Odisha

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Background/Aim Hepatitis B infection is the dominant cause of chronic hepatitis, cirrhosis of liver and hepatocellular carcinoma in our country. With the declaration of the World health Assembly, "Elimination of viral hepatitis by 2030, it is high time we should seriously concentrate on raising awareness, preventing transmission, scaling up screening, vaccination and treating the infected people. The aim of the study was to see the impact of awareness on HBV vaccination.
Method IMS and SUM Hospital is a tertiary care teaching hospital, we have the facility of free screening and vaccination of hepatitis B on all working days. This is a prospective study on people coming to the hospital for screening and vaccination against hepatitis B. Two dedicated staff speak to people on this infection, and the ways to prevent it. Pictures and posters are displayed in the vaccination area. After consent, screening and vaccination done. Finally, a leaflet on hepatitis B infection in local language is handed over to them.
Results Between January 2017 to July 2018, 7246 people attended the clinic, 1315 opted for screening. One hundred and forty-five (11%) found to be HBsAg positive by the screening test. They were mostly (73%) in the age group 20-40 years. 7101 people were administered the first dose of vaccination. This study was aimed to see the impact of awareness on HBV vaccination. We found, 67% (4729) people completed the third dose of vaccination, 33% discontinued the vaccination schedule, mostly after first dose.
Conclusion With the aim of creating awareness on the first visit, we are able to achieve 67% complete vaccination against hepatitis B. But with more awareness, health education, and involving media, we might able to achieve the expected >90% mark.

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PRucalOpride practice MappIng SurvEy (PROMISE)

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Introduction Chronic idiopathic constipation (CIC) and constipation-predominant irritable bowel syndrome (IBS-C) put significant healthcare burden on society that adversely impacts the quality of life of the general population. In PRucalOpride practice MappIng SurvEy (PROMISE), we aimed to understand and map the current clinical practice for diagnosis and management of constipation.
Methods This was a cross-sectional and non-interventional survey that employed a structured paper-based questionnaire. This questionnaire was developed by the team of subject experts and reviewed by the practicing gastroenterologists. The objective of the questionnaire was to map the clinical practice and perceptions of Indian clinician who are treating patients with chronic constipation.
Results Constipation dominates the gastroenterology focused clinical practice with a 30% to 40% share of total number of out-patients. Investigation based management of constipation is critical at the tertiary (gastroenterology) level to rule out the secondary causes. In addition to hemogram, thyroid profile, abdominal ultrasound and colonoscopy are often used laboratory investigations. Bulk-forming agents, osmotic laxatives and prokinetic agents are the preferred first, second and third therapeutic options, respectively. Approximately 20% to 40% of patients with constipation fail on conventional laxative therapy and stand to get significant benefit from prokinetic drugs like prucalopride which has been rated as efficacious and safe by responding clinicians.
Conclusion Many patients don't respond to conventional laxative therapy despite the availability of multiple laxative agents. The newer oral agent such as prucalopride is going to have a definite place for managing difficult to treat constipation.

LIVER

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Cirrhotic cardiomyopathy-Short-term survival after liver transplantation

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Aims and Objectives (1) To study the cardiovascular functional reserve in patients with liver cirrhosis. (2) To determine the prevalence of cirrhotic cardiomyopathy in cirrhotic patients at our centre. (3) To study the prognostic implication of cirrhotic cardiomyopathy on survival at 3 months post liver transplantation.
Method This prospective study was conducted from July 2016 to July 2017 at Gleneagles Global Hospital and Health City, Chennai. Patients, who were diagnosed as cirrhosis of liver based on clinical, biochemical, imaging and endoscopic findings, were included in study. After informed consent, details of demography. co-morbidity and cirrhosis related complication were noted. Cardiac evaluation included ECG, 2D echocardiography, dobutamine stress test and coronary angiography whenever indicated. Cirrhotic cardiomyopathy was diagnosed based on the standard criteria. Patients who underwent liver transplantation were followed up in the post-transplant period up to 3 months.
Statistics Mann-Whitney *U* test, chi-Square test, Kaplan-Meier survival plot. *P* value of <0.05 was considered significant.
Results Five hundred and eighty-six adult patients with cirrhosis of liver underwent cardiac evaluation. One hundred and ninety-eight (33.8%) patients were diagnosed with cirrhotic cardiomyopathy. One hundred and eighty-nine (80.3%) were males and alcohol was most common etiology (43, 21.7%). Patients of cirrhotic cardiomyopathy were significantly older ($p<0.00001$). QTc prolongation, diastolic dysfunction and systolic dysfunction on stress were more common in patients with cirrhotic cardiomyopathy. Post liver transplantation, there was improvement in diastolic dysfunction in a third of patients (12; 29.3%). There was no statistically significant difference in survival among patients with or without cirrhotic cardiomyopathy (p 0.23) at 3 months.
Conclusion Prevalence of cirrhotic cardiomyopathy is 33.8%. It is commoner in older patients but is independent of etiology of cirrhosis, comorbid states and severity of liver disease. It does not affect short-term survival in patients undergoing liver transplantation.

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Two dimestional speckle tracking echocardiographic (2–STE) abnormalities in cirrhosis and their correlation with severity of cirrhosis using model for end-stage liver disease score

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Introduction Non-invasive cardiovascular imaging modalities like 2D echocardiographic and two-dimensional speckle tracking echocardiographic (2-STE) play a major role in assessing cardiomyopathy in patients with cirrhosis. We aimed to review the non-invasive imaging technologies currently used for assessing systolic and diastolic function in cirrhosis.
Methods A total of 50 subjects, were enrolled with cirrhosis of liver after excluding any known cardiac illness and other etiologies causing cardiomyopathy. Patients were subjected to sonographic evaluation to establish the diagnosis of cirrhosis of liver. We divided the subjects in two group

according to their model for end-stage liver disease (MELD) score (Group A >10.5 MELD and Group B <10.5 MELD). Cardiac assessment was performed non-invasively using 2D-STE and the strain (S) and systolic strain rate (SRS) values belonging to the circumferential (C), and longitudinal (L) functions of the LV were measured.
Results A very high prevalence of diastolic dysfunction was found among the study group. Significant statistical correlation in longitudinal strain (-19.47 ±1.20, -21.85±1.1, *p* value <.001) and strain rate (-1.2±0.18, .1.26±0.13, *p* value <0.001) was observed. There is also significant correlation between circumferential strain (-24.5±1.93, -.25.0±2.43, *p* value <0.001), however there is no correlation found in circumferential strain rate (-1.40±0.3, -1.42 ±0.22, *p* value .412) (*p*-value 0.0451).
Conclusion Cirrhotic patients have a high prevalence of diastolic dysfunction. In the absence of any known cardiac causes it should be attributed to cirrhosis itself. 2-STE can be routinely done in cirrhotic patients to detect cardiac dysfunction.

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Etiological spectrum, clinical profile and prognostic factors in hepatocellular carcinoma patients from middle India

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Introduction Hepatocellular carcinoma (HCC) is commonest primary liver malignancy. Risk factors include various viruses, non-alcoholic steatohepatosis, etc. Our study is conducted to look for the various factors leading to HCC and factors affecting survival.
Methods Two-year prospective study conducted on 50 histologically proven HCC cases. Detailed history, examination and laboratory tests were performed. The statistical analysis of the data was performed.
Results The mean age was 47 10.7 yrs. Presenting complaints included loss of appetite in 74%, weight loss in 70%, abdominal pain in 58%, hemetemesis in 36%, abdominal distension in 32%, jaundice in 22%, hepatic encephalopathy in 12% and skin lesion–pityriasis rotunda in 2% cases. The risk factors were hepatitis B virus (HBV) in 62%, hepatitis C virus (HCV) in 16%, non-alcoholic steatohepatitis (NASH) in 16%, HBV and alcohol in 4% and no risk factor in 2% patients. Sixty percent of patients had underlying cirrhosis while 40% were non-cirrhotics. Lesion was single in 60% while multiple in 40%. HCC most commonly involved right lobe, accounting for 52%. Patients having ascites had significant greater mortality at 1 year (p=0.025). Portal vein thrombosis (PVT) increased the mortality at 1 month (p=0.002) and 1 year (p=0.001) follow up. Higher short-term and long-term mortality with increasing Okuda stage at 1 month (0.05) and at 1 year (p=0.001) was observed.
Conclusion Most patients belonged to 5th decade. Hepatitis B was the commonest etiology. Decreased appetite was the commonest complaint. Most had single lesion and involved right lobe. Ascites, PVT and Okuda staging have prognostic significance.

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Insulin resistance or genetic polymorphism, the hidden secret of non-alcoholic fatty liver disease

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Introduction Insulin resistance is considered as the major contributor for the development of non-alcoholic fatty liver disease (NAFLD), but it is evident that genetic polymorphism also contributes for the development of necroinflammation and subsequent progression of disease. This study was aimed to compare the effect of insulin resistance and genetic polymorphism on the development of NAFLD.
Methods Forty-seven subjects with NAFLD and thirty-four controls were selected for the study after ultrasonography of eighty one consecutive apparently healthy subjects. Anthropometric profile (body mass index [BMI], waist circumference [WC] etc.) lipid profile, hepatic aminotransferases, fasting blood glucose (FBG), were recorded and value of homeostasis model assessment of insulin resistance (HOMA-IR) was analyzed. PNPLA3 genotyping was also done. To see the association between insulin resistance, and genetic polymorphism with NAFLD was evaluated by multivariate logistic regression analysis after adjusting for potential confounding variables. Risk analysis was performed by calculating the odds ratio (OR) and the 95% confidence interval (CI).
Results It was found that 62.5% individual having fatty liver had only insulin resistance without genetic polymorphism and 51.61% individual having fatty liver had genetic polymorphism without insulin resistance. Regarding PNPLA3 polymorphism 80% of the fatty liver group and 55% of the non-fatty liver group showed polymorphism. A subject with PNPLA3 polymorphism had 3.33 (95% CI 1.235% to 8.998%) times increase in odds having NAFLD. A subject with HOMA-IR >1.6 had 4.375 (95% CI 1.525% to 12.55%) times increase in odds having NAFLD.
Conclusion Insulin resistance seems to be more responsible for the development of NAFLD than genetic polymorphism. Individuals having both factors are mostly vulnerable.

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Efficacy of directly acting antivirals in treatment of chronic hepatitis C

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Introduction Directly acting antivirals (DAA) have replaced interferon in treatment of hepatitis C. More Indian data is needed to optimise its use in India.
Methods In a prospective, open label study 45 chronic hepatitis C patients (mean age 49.6 years, 31 males, Child class A=22, B=10, C=13, peginterferon+ribavirin failure 12) were administered Sofosbuvir (400 mg)+Daclatasvir (60 mg) daily for genotype 3 (60% cases) and Sofosbuvir (400 mg)+Ledepasvir (90 mg) daily for genotype 1 (35.6% cases), 4 and 6 (2.2% case each) for 3 months except cirrhotics who were treated for 6 months. Hepatitis C virus (HCV) RNA was assessed at baseline, 3, 6 months and 6 months after completion of therapy to assess sustained virologic response (SVR).
Results Twenty-one (46.7%) had chronic kidney disease and were on dialysis. Compensated cirrhosis (including all peginterferon+ribavirin failure cases) was present in 18 (40%). Genotype 3 and 1 occurred in 13 (62%) and 8 (38%) chronic kidney disease (CKD) cases vs. 11 (61%) and 7 (39%) cirrhotic cases respectively. Overall response at end of therapy as well as SVR was 100%. All patients had negative HCV RNA after 3 months of therapy (including all CKD cases) except 4 cirrhotics in whom viral load was much reduced. Child class improved in all B and C cases. No serious adverse effects were observed except reversible rashes in 2 patients.
Conclusion Three months DAA therapy (without ribavirin) is highly effective in Indian hepatitis C patients even in CKD and cirrhotics with minimal side effects.

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Small-intestinal bacterial overgrowth in cirrhosis and its relation to the severity of liver disease

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Background Small intestinal bacterial overgrowth (SIBO) is known to be present in patients with cirrhosis, predisposing to various complications.
Aim To determine the frequency of SIBO in cirrhosis and correlate with severity of cirrhosis.
Methods Prospective randomized study was done from April 2017 to June 2018 in Department of Medical Gastroenterology, Madras Medical College, Government General Hospital, Chennai. Small intestinal bacterial overgrowth was determined by glucose– hydrogen breath test (GHBT). A basal breath-hydrogen >20 ppm or a rise by 12 ppm above baseline following glucose administration was taken as positive test. Prevalence of SIBO in cirrhosis was compared with healthy controls and correlated with severity of cirrhosis.
Exclusion criteria a) Hepatic encephalopathy grades-III to IV. b) Patients with gastrointestinal bleed in last 1 month. c) Sepsis in previous 4 weeks. d) Significant pulmonary disease. e) Patients on immunosuppressive or narcotics.
Results Of the 100 cirrhosis, 20 were excluded from study due to above mentioned criteria. Forty-five (56.2%) had SIBO, compared to 1 (5%) control (p=0.010). The prevalence of SIBO increased with severity of cirrhosis (Child–Pugh A 20%, B 52% and C 73%; p=0.013). On multivariate analysis, SIBO was independently associated with serum bilirubin and ascites. The best cut-off of serum bilirubin was 2.5 mg/ dL (AUROC 0.77 [95% CI 0.64–0.90]) predicting SIBO with sensitivity 65%, specificity 81%, positive predictive value 77%, negative predictive value 71% and accuracy 74%. Patients having combination of ascites and serum bilirubin 2.5 mg/ dL had 82% chance, while patients having neither had only 10% chance of having SIBO.
Conclusions Small intestinal bacterial overgrowth was prevalent in more than half of cirrhosis. Its frequency increased with increase in severity of cirrhosis. Ascites and raised serum bilirubin reliably predicted presence of SIBO.

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Study of non-invasive assessment of esophageal varices in liver cirrhosis patients by measuring spleen stiffness using fibroscan

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Introduction Many non-invasive surrogate markers for pH or for the presence or grade of esophageal varices (EV) were studied, but only aspartate aminotransferase *(AST)* to platelets ratio index and platelets count to spleen diameter ratio, have been demonstrated to be partially correlated with the presence of EV.
Splenomegaly along with splenic congestion secondary to splenic hyperdyanmic circulation is seen in cirrhotic patients. These changes can be quantified by elastography. The aim of this study was to investigate whether spleen stiffness, assessed by TE, useful tool for grading chronic liver diseases and to compare its performance in predicting the presence and size of esophageal varices in liver cirrhosis patients.
Methodology One hundred and twenty-six patients full filling inclusion and exclusion criterion were taken into the study. All patients underwent transient elastography of liver and spleen for the assessment of liver stiffness (LSM) and spleen stiffness (SSM). Cirrhotic patients underwent esophagogastroduodenoscopy (EGD) to assess esophageal varices.
Results Spleen stiffness showed higher values in liver cirrhosis patients as compared with controls: 54.2 kpa vs. 17.8 KPa (p<0.0001). In liver cirrhosis, spleen stiffness was significantly higher in patients with varices compared with those without (72 vs. 46 KPa, p <0.0001) 46 KPa being the best cut-off value. liver stiffness was also found to be higher in cirrhotic patients with varices when compared to patients without varices (38 vs. 26). Using both liver and spleen stiffness measurement we can correctly predicted the presence of esophageal varices.
Conclusion Spleen stiffness can be assessed using transient elastography, its value is high in cirrhotic patients. In liver cirrhosis patients spleen stiffness can predict the presence, but not the grade of esophageal varices. Esophageal varices better predicted when both spleen and liver stiffness measurements are used.

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Carotid atherosclerosis in patients with non-alcoholic fatty liver disease

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Introduction Non-alcoholic fatty liver disease (NAFLD) shares many features of metabolic syndrome and its presence could signify a substantial cardiovascular risk.
Aim This study is an attempt to investigate the association of NAFLD with carotid intima-media thickness and plaque as surrogate measures of increased cardiovascular risk.
Methods Carotid atherosclerosis and cardiovascular risk factors were assessed in 38 patients with an ultrasound diagnosis of primary NAFLD and 34 age and sex matched controls attending the MGE OPD, MMC and RGGGHS, Chennai from February 2017 to January 2018 were prospectively evaluated. Anthropometric factors-waist circumference, blood pressure, fasting serum samples were analyzed for glucose, triglyceride, cholesterol and its fractions, alanine and aspartate transaminases, gammaglutamyl transferase and C reactive protein. Liver ultrasonographic scanning was used for assessing fatty liver, carotid atherosclerosis was assessed by B-mode ultrasonography of common carotid artery and internal carotid artery and the relation between the two was observed.
Results The metabolic syndrome and its traits, including elevated C-reactive protein, were significantly (p<0.005) more frequent in NAFLD patients than in control subjects. Patients with NAFLD showed more carotid atherosclerosis than controls, with mean intima-media thickness (IMT) of 0.85±0.30 mm and 0.48±0.17 mm (p<0.0001) and plaque prevalence of 62% and 28% (p=0.020), respectively. The level of carotid IMT was more in cases than in controls which was statistically significant.
Conclusion Patients with NAFLD show a cluster of risk factors of the metabolic syndrome and advanced carotid atherosclerosis. NAFLD appears to be a feature of the metabolic syndrome, and its detection on abdominal ultrasound should alert to the existence of an increased cardiovascular risk.

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Budd-Chiari syndrome-spectrum of presentation and obstructive pattern – A tertiary care experience

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Introduction The aim is to evaluate the patterns of presentation and level of obstruction in patients presenting with Budd-Chiari syndrome (BCS) in our centre.
Methods Twelve consecutive cases of BCS were prospectively evaluated. All the patients underwent routine investigations including complete blood count, liver and kidney function tests, HBsAg, anti-HC, portal, hepatic and inferior vena cava doppler.
Results Mean age of presentation 38±10.4 yrs. 66.67% (8) were males, 33.33% (4) were females. Mean duration of symptoms was 42±11.6 months (range 1- 236 months). Hepatic vein thrombosis (HVT) was present in 9 cases (75%), Inferior vena cava (IVC) thrombosis was present in 1 case (8.33%), both IVC and HV thrombosis were present in 2 cases (16.67%). Two cases (16.67%) presented acutely, 7 cases had subacute asymptomatic presentation (58.33%), 2 cases presented with compensated chronic liver disease (16.67%), 1 case presented with decompensated chronic liver disease (8.33%). All the cases were tested for hypercoagulable states. One patient (8.33%) had APLA syndrome, 1 patient (8.33%) had Myelodysplastic syndrome with JAK2 mutation, 2 patients had increased homocysteine levels (16.67%), 2 cases had protein C deficiency (16.67%), 1 patient (8.33%) had increased homocysteine levels and APLA. In 5 cases (41.67%) no cause was found after extensive work up. One case had spontaneous recanalization of hepatic vein, IVC balloon angioplasty was done in 1 patient, HV stenting was done in 1 patient, 1 patient was referred for transplant, rest of the 8 patients were only managed with anticoagulants. Patients with chronic liver disease were put on diuretics, beta blockers.
Conclusion In our series, HVT was the predominant cause of BCS. Non-surgical management was successful in most cases.

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Prevalence of hepatic fibrosis in patients with diabetes mellitus

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Introduction Recent studies have shown a significant association between diabetes mellitus with fatty liver and hepatic fibrosis, and AMP; NBSP; but the prevalence of fibrosis and cirrhosis in diabetes mellitus is poorly known. The study was undertaken to determine the prevalence of hepatic fibrosis in patients with diabetes mellitus irrespective of and AMP; NBSP; the fatty liver.
Methods The study was conducted in the specialty of Gastroenterology. SKIMS. Three hundred and seventy-four diabetic patients having diabetes of more than 5 years duration with age more than 19 years, irrespective of type of diabetes and complications associated with diabetes were assessed and AMP; NBSP; for the presence of fibrosis and cirrhosis. Fibrosis was assessed non-invasively and AMP; NBSP; by fibroscan using and AMP; NBSP; standard M probe. Severe fibrosis was considered if the score was 7 kpa or more and a score of 14 kpa or more indicated cirrhosis. Patients with fibrosis and cirrhosis were evaluated further to rule out any other cause for fibrosis and cirrhosis.
Results One hundred and nine (29.14%) had normal fibroscan (and AMP; LT; 7 KPA),117 (31.28 %) had severe fibrosis and 148 (39.57 %) had cirrhosis which was statistically significant. 77/148 (52.03%) and 14/148 (9.46 %) had features of portal hypertension in the form of varises and potal hypertensive gastropathy respectively. High fibroscan was strongly associated with age, duration of diabetes, complication of diabetes and glycemic control. BMI, ALT and triglyceride levels were not associated with fibrosis.
Conclusion and NBSP There is a significant correlation of diabetes with fibrosis and further studies are required to establish the role of Diabetes as an etiological factor for cirrhosis including liver biopsies.

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A case control study to compare the occurrence of non-alcoholic fatty liver disease (NAFLD) between parent of NAFLD patients and non-NAFLD individuals

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Introduction Prevalence of non-alcoholic fatty liver disease (NAFLD) is increasing worldwide. The etiology is believed to be multi-factorial with a substantial genetic component. However, the heritability of NAFLD is undetermined. This study was aimed to compare occurrence of NAFLD in parents of NAFLD patient.
Aims To compare the occurrence of NAFLD between parents of NAFLD0 patients and non-NAFLD individuals.
Methods An observational case control ongoing study in a tertiary care centre. Total 80 (40 parents of NAFLD patients as cases and 40 parents of non-NAFLD individuals as control having BMI >23) were studied. All were analyzed with anthropometry, SGOT/SGPT, USG abdomen and fibroscan. Data was compared using descriptive statistics.
Results Mean SGPT in parents of case group (37.65±22.42) was statistically significant (p=0.013) as compared to control group (26.5±14.48). Fibroscan liver stiffness among case group (7.52±3.74) was significant p=0.042, as compared to control group (6.07±2.38). Waist-hip-ratio in mothers was found significant p<0.0001 with values of 0.88±0.03 and 0.81±0.03 in case and control group respectively. Fatty liver was detected in 60% parents (24 of 40) of NAFLD patients and 20% parents (8 of 40) of non-NAFLD group which was statistically significant (p<0.03). However, we didn't find significant correlation between laboratory parameters of these two groups of fatty liver. Serum glucose concentration, total cholesterol and triglyceride level were not found statistically significant.
Conclusion Family members of NAFLD patients should be considered at high risk for NAFLD. These data suggest that familial factors are a major determinant of NAFLD. Studies examining the complex relations between genes and environment in the development and progression of NAFLD are warranted.

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To evaluate the role of diffusion magnetic resonance imaging in differential diagnosis of focal liver lesions

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Background Magnetic resonance imaging *(*MRI*)* is currently considered to be the most accurate non-invasive method in the evaluation of liver lesions. Diffusion weighted imaging (DWI) is another mechanism for developing image contrast and relies on changes in the diffusion properties of water molecules in tissues. It uses a pulse sequence (T2-weighted spin echo sequence) and 2 strong motion probing gradients on either side of the 180° refocusing pulse, known as the Stejskal-Tanner sequence.
Methods The main sources of data for the study are patients referred to the tertiary care hospital. Fifty patients referred to the department of Radiodiagnosis MRI department clinically suspected of focal liver lesions

were studied. Recommended sequence used was spin-echo (SE) T1WI, fast SET2WI in axial and coronal plane, gradient echo (GE) and diffusion weighted imaging (DWI) was performed in axial plane with by using two B values (b=0 s/mm2 and b=600 s/mm2) before contrast study.
Results DWI was associated with significantly higher detection rate of all lesions when compared to T2WI (p<0.001) (92.89% vs. 80.47%). By using 2 sample proportion test i.e. significant difference between proportion of detection T2WI and DWI for all benign and malignant lesions (61.42% vs. 51.4%) (Table). There was significant difference for detection rate with DWI between right and left lobe (97.20% vs. 86.56%). Benign lesions had higher ADC, among them simple cysts had highest value. Malignant group had lowest ADC value, among them metastasis had the lowest value 0.79±0.15x10-3mm2/s. Total 13 lesions were missed on DWI including 1 HCC, 6 mets, 6 simple cysts and 41 lesions were missed on T2W imaging including 3 HCC, 36 mets, and 2 simple cysts.
Conclusion Diffusion-weighted (DW) MR imaging can be used for liver lesion detection and characterization, with better results compared with T2-weighted imaging.

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Precipitating factors and outcomes of hepatic encephalopathy in liver cirrhosis: Our center experience

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Aims and Objectives To determine precipitants of hepatic encephalopathy (HE) and their impact on hospital stay and mortality.
Study Design Cross-sectional, analytical study.
Place and Duration of Study Department of Digestive Health and Diseases (DDHD), Kilpauk Medical College Chennai, from January 2018 to April 2018.
Methods Consecutive patients admitted with different grades of HE were evaluated between January 2018 and April 2018. The precipitants of HE were correlated with the different grades of HE; length of hospital stay and mortality. Chi-square test was used for statistical analysis with significance at p<0.05.
Results Of the 104 patients 80 (76.92%) were males and 24 (23.08%) were females. Predominant cause of cirrhosis was alcohol in study population. Seventy-nine (75.96%) patients were in Child-Turcotte-Pugh (CTP) class C. 17% patients had grade 1 HE while 44% had grade 2, 29% had grade 3 and 10% had grades 4 encephalopathy. Precipitating factors were UGI bleed in 50 (48%) patients, constipation in 25 (24%) patients, infections including SBP, enteritis, UTI and pneumonia in 10 (9.6%) patients. Fifteen (14.42%) patients had 2 or more precipitating factors and 4 (3.84%) patients had no precipitating factors. Mean hospital stay was 5+/- 2 days in patients with single precipitating factor and 7+/- 3 days in patients with multiple precipitating factors. Total number of deaths were 4 out of which 3 had multiple precipitating factors and 1 was a case of UGI bleed. Ninety patients were discharged with no encephalopathy, 10 with grade I encephalopathy.
Conclusion Patients presenting with 2 or more precipitating factors and advanced grade of HE had a prolonged hospital stay and increased mortality rate. Upper GI bleeding was the most common precipitating factor at our center

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Slow albumin furosemide infusion with or without terlipressin and noradrenalin (SAFIT NA) improves 28 days survival in acute-on-chronic liver failure (ACLF) than standard medical therapy

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Introduction In liver cirrhosis increased intestinal permeability (IP), bacterial translocation (BT), small intestinal bacterial overgrowth (SIBO) and gut dysbiosis known to occur. Marked increase in IP and BT may occur due to a surge in portal hypertension in acute-on-chronic liver failure (ACLF). Control of large ascites in patients with ACLF using slow albumin-furosemide infusion with or without terlipressin and noradrenalin (SAFIT NA) may decongest the bowel and reduce the increased IP, which may improve 28 days survival.
Methods ACLF of according to CLIF-SOFA and MELD ≥35 were included. Consecutive patients with CVP ≥10 cmH2O received CMT (Arm I) using slow infusion of furosemide (2 mg/ hour), albumin (2 gm/hour; 20-40 g/d); (SAFI), NAC and oral probiotics in addition to SMT for complications of ACLF. Furosemide was stepped up gradually based on urinary sodium (UNa+) excretion. If UNa+ still remained <85 mmol/d, terlipressin infusion [SAFI(T)] was started at 4mg/24 hrs, (max. up to 8 mg/24 hr). Treatment was continued till the patient was clinically dry. Similar patients during the same period in other unit of the department received SMT; (Arm II) for ACLF as per guidelines.
Results Three hundred and six patients with etiologies: alcohol (50 %) cryptogenic (22.5%), HCV (12%), HBV (6.5%), NASH (5.5%) and autoimmune (3.5%) included. Mean age, CTP, MELD, CLIF_SOFA and urinary sodium (UNa) at baseline in ARM 1 (SAFIT NA) were comparable to ARM II. While at day 5 of therapy UNa in ARM 1 and 2 were 137.58±99.43 and 103.40±103.40 respectively, p value 0.02. Overall survival on 28 days follow up was significantly higher those who receive SAFIT NA (24.52±0.14) than those who receive SMT (21.57±0.43), p value <0.01.
Conclusion SAFIT NA therapy improve the survival in ACLF patients than those who receive SMT, along with rapid mobilization of ascites.

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Screening the role of TLR2 signaling mediated immunomodulation as common route of NAFLD pathogenesis in diabetic and non-diabetic, non-obese subjects: A pilot study from Assam

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Non-alcoholic fatty liver disease (NAFLD) in lean subjects suggests a phenotypic and probably with pathophysiology distinctiveness; the molecular mechanism(s) associated being poorly documented. NAFLD is also associated with diabetes mellitus-type II (DM2), and therefore may have a common immunological link of disease genesis. We aimed to delineate the probable role of TLR2 signalling as a common mediator in the pathogenesis of NAFLD via differential immune regulation in lean subjects with or without DM2.
Methodology Blood samples were collected from clinically characterized lean NAFLD (n=26), DM2 linked NAFLD cases (n=21) and healthy controls (n=35) with clinical details and informed consent. All mRNA and protein based expression profiles were studied by realtime-PCR and ELISA respectively. Statistical analysis was performed by SPSS.
Results A distinct upregulation of Th1 cytokines TNF-α, IL-12 and IFN-

gamma, and a downregulation of Th2 cytokine IL-10 was observed in both the case cohorts compared to controls. Increased serum endotoxin levels were observed in cases (highest in DM2-NAFLD cases) compared to controls, and was associated with increased LFT profile markers, significantly with GGTP levels. The sTLR2 protein expression, associated with regulated immune responses, was significantly downregulated in both the case groups compared to controls. The cellular TLR2 mRNA expression was increased in DM2-NAFLD cases (3.13±1.97folds), and more than 12 folds (12.41±6.57folds) in non-etiological NAFLD cases compared to controls. Increased cellular-TLR2 expression correlated positively with Th1 cytokine expression at mRNA level. The mRNA expression of my D88 was upregulated by 2.76±1.93 folds in NAFLD cases compared to controls; and correlated positively with both cellular-TLR2 and TNFα expression.
Conclusions The data suggests a my d88 dependent and independent mechanism of NAFLD development in non-etiological and DM2 patients respectively, greatly underlining the importance of cellular-TLR2 as the common 'molecular switch' of Th1 biased immunomodulation mediated NAFLD pathogenesis under increased gut endotoxemia conditions, therefore underlining its prognostic and therapeutic significance.

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Safety of sofosbuvir in patients with chronic kidney disease patients

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Background and Aims We evaluated the safety and efficacy of Sofosbuvir in CHC patients with CKD.
Methods During last 5 years, around 68 CHC patients visited the Department of Gastroenterology, Aster MIMS, Calicut. Eleven patients lost to follow up and 6 patients were terminally ill. Twenty-four CHC patients with CKD with eGFR less than 30 mL/min/1.73 m2 were included in the study. All patients with genotype 3 were treated with full dose Sofosbuvir [400 mg) on the day of hemodialysis plus full-dose Daclatasvir (60 mg) given daily for either 12 or 24 weeks. All patients with Genotype 1 were treated with fixed dose combination of Sofobuvir + Ledipasvir on the day of hemodialysis. The efficacy was assessed by the sustained virological response (SVR12) with negative HCV RNA 12 weeks after the end of treatment (ETR).
Results The median HCV RNA level in 24 patients was 6,66,109 copies/mL with 15 (62.5%) patients having HCV genotype 1a, followed by genotype 3 in 9 (37.5%) patients, respectively. All patients with underlying cirrhosis/fibroscan score and gt; 15 kpa and hepatocellular carcinoma were excluded 22 (91.6%) patients achieved ETR, and 24 (100%) patients attained SVR12. All patients tolerated the DAAs well with none of the patients reporting any serious adverse events. Minor side effects noted were nausea, insomnia and headache in 2 (8.3%) patients each.
Conclusion Sofosbuvir plus full-dose Daclatasvir or Ledipasvir are safe and effective in treating CHC in patients with CKD with eGFR less than 30 mL/min/1.73 m2.

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To compare the KAM score with MELD and MELD-Na in predicting 3-month mortality after hospital discharge in patients with liver cirrhosis

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Introduction Liver cirrhosis has a high morbidity and mortality. Currently, the mortality predictions are done using model for end-stage liver disease (MELD) score and MELD-Na, both of which have multiple drawbacks. The aim of this study was to compare MELD and MELD-Na with KAM that incorporates Karnofsky Performance Status (KPS), age and MELD score. It is used to predict 3-month mortality and can also be used to select and prioritize patients for liver transplantation.
Methods Seventy-two patients of liver cirrhosis were listed over a period of 13 months for a prospective observational cohort study. The quantitative variables obtained were compared using unpaired *t*-test and ANOVA. Receiver operating characteristic curve was used to find out area under curve of KPS, age and MELD score. Diagnostic tests were used to find out sensitivity, specificity, negative and positive predictive values.
Results Out of 72 patients, 30-day mortality was 16.66% and 90-day mortality was 23.61%. In predicting 30-day mortality, KAM score had the highest AUC (=0.681497) while MELD and MELD-Na were not statistically significant. However, when predicting 90-day mortality, MELD-Na had the AUC=0.680283 with *p*-value of 0.0285 followed by MELD score having AUC=0.648128 having *p*-value of 0.0663. KAM score was not found to be statistically significant.
Conclusion The KAM model was better at predicting 30-day mortality but was unreliable in predicting 90-day mortality. MELD-Na was more accurate than MELD in predicting 90-day mortality. The addition of Na+ to MELD improved its prognostic accuracy.

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Predictors of mortality in severe alcoholic hepatitis at 180 days

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Introduction Severe alcoholic hepatitis (SAH) is associated with significant mortality. We wish to analyze mortality predictors at day 180, which is considered the window period for liver transplant in alcoholics with cirrhosis
Methods Retrospective–prospective comparison of survivors and non-survivors in SAH patients on Pentoxifylline /G-CSF (2012-2017), SAH was defined as patients with alcohol consumption in last 3 weeks, AST, ALT, AST 2 ULN and Maddrey's discriminant function (MDF) ≥32. Patients who received Pentoxifylline±GMCSF for <8 days, aged <18 or >65 y and patients who received corticosteroids or hepatotoxic drugs or had viral hepatitis for last 6 months were excluded. Parameters on day of admission and day 5-9 were used. Primary outcome was 180-day mortality.
Results Forty patients with SAH were included. Thirty-eight were males and 2 females. The mean age was 44.25±10.53 yrs. On univariate data analysis, alkaline phosphatase (p=0.040), prothrombin time at day1 (p=0.032), INR day 1 (p=0.021) and INR day-7(p=0.027), presence of SBP at hospitalization (p=0.004) and hepatic encephalopathy during hospitalization (p=0.031) were significantly associated with mortality. The 30-day mortality was 3/40 (7.5%) and 180-day mortality was 13/40 (32.5%). On multivariate analysis presence of SBP (p=0.027) and INR day-7 (p=0.023) was significantly associated with poor survival. The survival at 180-days could be predicted by the INR-SBP score given by the formula 7.834-3129 x (INR D7) – 1.995 x (SBP). On ROC analysis the AUC for SBP was 0.70 (p=0.036) and INR Day7 was 0.82 (p=0.001). The ROC analysis of INR-SBP score showed statistically significant value.
Conclusion Ascites at day-7 was not associated with increased mortality at 180-days, although presence of spontaneous bacterial peritonitis at hospitalisation and INR day-7 was associated with increased mortality.

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Comparison of acute on chronic liver failure patients defined by APASL and EASL definitions: A prospective study

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Introduction Currently, acute-on-chronic liver failure (ACLF) has been defined differently by Asia–Pacific Association for the Study of the Liver (APASL) and European Association for the Study of Liver (EASL-Chronic Liver Failure (EASL-CLIF) consortium. This study aimed to compare characteristics of patients defined by these disparate diagnostic criteria for ACLF.
Methods This is a prospective observational study. Consecutive patients of decompensated chronic liver disease admitted to a Gastroenterology department of a tertiary care hospital of Odisha from December 2017 to June 2018 were screened for the presence of ACLF either according to APASL or EASL criteria. The patients satisfying either or both of these criteria were included in the study and followed up. The patient's demographics, baseline laboratory parameters and mortality rate were compared using appropriate statistical tests.
Results A total of 109 patients were included in the study. Majority were males (85.3%) with mean age of 45.26±10.96 years and alcohol being the etiology in 81(74.3%) patients. Out of 109 patients, 72 (66.1%) patients had ACLF according to APASL definition, 59 (54.1%) patients had ACLF according to EASL definition and 22 (20.2%) had ACLF according to both. In APASL group, recent alcohol intake was the commonest (58.3%) acute precipitant whereas in EASL group bacterial infection (52.5%) was the commonest acute precipitant. Twenty-eight day mortality was significantly higher in patients satisfying both definitions (63.6%) than either APASL (16%) or EASL group (24.3%); $p<0.001$. Overall, serum creatinine (OR 1.99, 95% CI 1.11 -3.54; $p=0.01$) and MELD score (OR 1.16, 95% CI 1.07 -1.26; $p<0.001$) were independent predictors of 28 day mortality.
Conclusion Alcohol was the commonest cause of chronic liver disease in ACLF; alcohol intake and bacterial infection were the commonest precipitant in APASL and EASL group respectively. The patients satisfying both definitions had high 28 day mortality and warrant early intervention.

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Autoimmune hepatitis in elderly: A single center experience

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Introduction Autoimmune hepatitis (AIH) has been seen in west with only handful of series available in literature. Recent epidemiological studies have shown increase in prevalence of AIH among elderly, but it has been rarely reported from India. The aim was to study the characteristics of AIH in elderly Indian population.
Methods Patients with diagnosis of AIH based on the revised international autoimmune hepatitis group scoring criteria were recruited from 2011 till 2017 for this study. Patients were defined elderly as more than or equal to 60 years and young as <60 years of age. Clinical, serological, histological characteristics and treatment outcome with follow up till 12 months were analyzed and compared between both the group
Results Out of 150 patients, 30 were elder. Females were predominant in younger group (90%) as well as in elder patients (70%). Total bilirubin and alanine aminotransferases level were significantly higher in younger patients as compared to elderly group ($p<0.05$). Chronic presentation including cirrhosis was more common in elderly patients (76% vs. 38%, $p=0.01$). On histology presence of interface hepatitis, lymphoplasmacytic infiltrate, Rosette formation was similar but cirrhosis was significantly more in elderly group as compared to younger group. Prevalence of conventional autoimmune marker was similar in both the groups. Complete response to treatment at the end of 12 months were similar in both the groups (70% vs. 81%, $p=0.6$). However incomplete response to treatment at one year was seen in younger. Due to increased prevalence of co-morbidities including severe osteoporosis appropriate immunosuppressant could not be started in 10% of elderly patients.
Conclusion AIH is an important differential diagnosis among elderly Indian population. They present with chronic hepatitis and cirrhosis more commonly than younger patients. When given appropriate immunosuppressant they have similar outcome as compared to younger population.

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Seroprevalence of hepatitis C virus antibody in the Indian population: A systematic review and meta-analysis

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Introduction Burden of hepatitis C in India is not known. We conducted a systematic review of the available data on anti-HCV seroprevalence in the Indian population.
Methods We searched several publication databases for English language papers that reported data on anti-HCV seroprevalence from India, and also identified other unpublished sources of such data. Data on groups likely to represent seroprevalence in general population and in selected high-risk groups were extracted and subjected to meta-analysis.
Results Of the 3995 published papers and 94 additional data sources identified, 327 were selected; these provided 414 anti-HCV seroprevalence data points. Pooled anti-HCV seroprevalence rates in community-based studies, blood donors and pregnant women were 0.85% (95% CI: 0.00%-3.98%), 0.44% (0.40-0.49) and 0.88% (0.21-1.90), respectively. Among groups considered at high risk of HCV, pooled anti-HCV seroprevalence rates were as follows: people living with HIV (40 studies from 17 states: 3.51% [2.43-4.76]), persons on maintenance hemodialysis (37, 13, 19.23% [13.52-25.65]), people who inject drugs (46, 14; 44.71% [37.50-52.03]), multi-transfused persons (38, 12; 24.06% [20.00-28.36]), persons with sexually-transmitted diseases (7, 5; 4.10% [0.98-9.04]) and those with high-risk sex behavior (6, 5; 4.06% [1.79-7.10]).
Conclusions Community-based data on HCV seroprevalence in India were limited. Large amount of data on blood donors and pregnant women were found, with pooled anti-HCV seroprevalence rates of 0.44% and 0.88%, respectively. Among high-risk groups, anti-HCV prevalence was higher among persons living with HIV, those with sexually-transmitted diseases or high-risk sex behavior, injectable drug abusers, and those receiving hemodialysis or frequent transfusions.

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Usefulness of a novel score in deciding response to direct acting antivirals in decompensated cirrhosis due to HCV in Indian population

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Introduction Decompensated cirrhosis due to *hepatitis C* virus (*HCV*) is a difficult to treat population. At present, there is no gold standard predictors of response to direct acting anti-virals (DAA). We did this study to look usefulness of newly devised novel score known as "BE3A score" to predict response t treatment following DAA therapy.
Methodology De-compensated HCV cirrhosis patients were recruited. Independent variables for each- age, sex, BMI, response to therapy (SVR12), presence of ascites, encephalopathy, ALT, LFT, INR, GFR, MELD score were noted.
Primary Study Endpoint Proportion of patients achieving a clinically meaningful treatment benefit following DAA therapy (down-staging from CPT B → A or C → A). BE3A score calculated by summation of 1 point for - BMI <23.5, no encephalopathy, no ascites, ALT >60 IU/L, albumin >3.5 g/L. Both pre-treatment and post-treatment MELD, CPT and BE3A score were calculated for all patients. The relationship between pre-treatment BE3A score and change in MELD and CTP score was studied.
Results Total 35 patients of de-compensated HCV cirrhosis patients recruited, with females 54%, median age 54 years. Thirty patients were CPT class B whereas 5 patients of CPT class C. Patients with MELD score 6-11, 12-14 and ≥15 were 22, 6 and 7 respectively in pre-treatment period. Calculated BE3A score was 1 in 2 in 48.5%, 3 in 28.5% and 4 in 2.8%. Post-treatment 21 patients (60%) turned into CTP class A, which was significantly more with higher BE3A score ($p<0.05$).
Conclusion Patients with higher BE3A score is more likely to improve, i.e. achieve CTP A status post DAA therapy. Thus, BE3A score can predict response to DAA therapy in decompensated HCV cirrhosis.

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Acute liver failure: Etiology, outcome and complications in a tertiary care centre in north India

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Introduction Acute liver failure (ALF) is a multiorgan failure syndrome with dramatic clinical features and often a fatal outcome. It is defined by severe acute liver injury along with hepatic encephalopathy and coagulopathy, within 6 months and usually <6 weeks, without any previous liver disease. The disease has high mortality rate and complications are quite common. This study aims to study the etiology, outcome, mortality and complications in ALF.
Methods A cross sectional study conducted over a year involving 100 cases was performed which were diagnosed as ALF on basis of liver function tests, PT and INR and clinical examination. The clinical outcome, mortality rate and etiological factors were then assessed. Descriptive statistics were used to analyze the data.
Results A total of 100 patients were included in the study of which 63 were males and 37 females. Out of 63 males, 25 were discharged and 38 expired. Out of 36 females, 21 females were discharged and 15 expired. Among 36 females, 9 females were pregnant. Major cause among pregnant females mortality was hepatitis E virus. Mortality in our study was 53%. Overall the most common cause was viral followed by drug induced failure followed by no cause found followed by autoimmune hepatitis. Among viral etiologies hepatitis B was overall predominant cause followed by hepatitis E. Various factors like grade of hepatic encephalopathy, level of serum bilirubin, lactic acidosis in arterial blood gas, derangement of coagulation profile, derangement of renal function determines outcome of the patient. Complications were present in all patients. The major complication which needed urgent attention was hemodynamic instability followed by deranged coagulation profile followed by raised intracranial pressure.
Conclusion ALF is a disease with significant mortality with viral etiologies as major cause. Management includes prompt diagnosis, aggressive approach and appropriate treatment of complications which increases chance of recovery.

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A study of correlation between transient elastography fibrosis grading and NAFLD score with serum ferritin levels in predicting the severity of disease in patients of NAFLD: A correlative study

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Non-alcoholic fatty liver disease (NAFLD) exists as a spectrum, from simple steatosis without any evidence of cell injury which tends to be stable over time, to steatohepatitis which may progress to fibrosis and then cirrhosis [1] with an alcohol intake of less than 20 g/day for males and 10gm/day for females [2], [3]. Various non-invasive biomarkers have been identified to diagnose NAFLD, but biopsy still remains the gold standard. There is a need to identify an easily available, inexpensive biomarker which can easily predict the severity of NAFLD, which can serve as replacement for liver biopsy.
Method The study conducted in medicine department King George's Medical University, on 41 cases, who visited to us with fatty liver of grade (II-III) on USG whole abdomen, SGOT (>40), SGPT (>40), raised serum triglycerides, raised serum cholesterol, with normal c- reactive protein, normal ESR, viral hepatitis ruled out by ELISA, autoimmune markers of liver diseases negative, with no clinical history suggestive of Wilson's or hemochromatosis, no evidence of any chronic diseases like CRF, no evidence of any hematemesis in the past or present, of all the patients 15 were diabetic and 31 were hypertensive. The cases fasting serum sample was sent for serum ferritin and serum iron evaluation, with transferrin saturation assessment. Fibroscan was done of all the patients, and NAFLD fibrosis score was calculated using http://www.nafldscore.com (using parameters of age, BMI ,diabetic status AST:ALT ratio, platelets, albumin.
Results and Conclusion The mean serum ferritin levels that came in patients of NAFLD is 268.86, mean Fibroscan kpa levels were 15.13, 73.5% of the patients were of NAFLD fibrosis score grade 4, fibroscan showed fibrosis at serum ferritin cut off of 119 ng/mL, co-efficient of correlation between serum ferritin and serum fibroscan is 0.677.

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Temporal profile of HEV RNA concentration in blood and stool in patients with acute hepatitis E

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Introduction Acute hepatitis E is a self-limiting illness caused by infection with hepatitis E virus (HEV). The duration of viremia and fecal viral shedding during this illness is short. However, no data are available on the temporal profile of viral titer in the blood and feces.
Methods Serial serum and stool specimens were collected on alternate days from patients with acute hepatitis E (ALT >5-fold ULN; IgM anti-

HEV positive) presenting within 7 days of onset of symptoms. HEV RNA titer was measured in these specimens using a real-time amplification assay.
Results In all, 17 subjects (median age: 25 [range 19-61] years; all male; duration of illness at enrolment: 5 [3-7] days; maximum serum bilirubin 10.3 [5.9-43.4] mg/dL; ALT 45.4 [11-116] fold ULN; AST 25.4 [2.2-114] fold ULN) provided 113 serum specimens and 71 stool specimens). The profiles of titer of viremia and fecal viral excretion in these patients are shown in the figure. The level of viremia as well as viral excretion declined rapidly within the initial few days after enrolment. HEV RNA began to disappear in both serum and stool beginning at around day 14 of illness and had disappeared by day 21 of illness in all the subjects.
Conclusion The level of viremia and fecal excretion of HEV parallel each other, decline rapidly after the onset of illness and disappear by day 21 of illness. This information should be helpful in better understanding the dynamics of HEV infectiousness and transmission.

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Clinical profile of portal vein thrombosis- A single center study

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Introduction Portal vein thrombosis generally refers to a complete or partial obstruction of portal venous blood flow due to presence of a thrombus in the lumen of the vein or due to malignant obstruction of portal vein. Correct management by adopting adequate diagnostic and therapeutic measures is paramount. Hence this study was done with the aim to study the incidence, prevalence, etiology of portal vein thrombosis (PVT) patients and correlation with the severity of liver disease.
Methods We conducted an observational cross sectional study of patients of PVT in outpatient department as well as hospitalized patients in the Medical Gastroenterology of our hospital (n=70). All patients with PVT on USG abdomen/PV Doppler/CT abdomen were identified. BAVENO VI classification (2015) was used to classify patients with cirrhotic PVT.
Results Among the 70 patients we had, 51 (72.8%) were males and 19 (27.1%) were females. Acute/recent presentation was in 8/56 patients. Cirrhosis (n=48), hepatocellular carcinoma (n=7) were major liver related causes. Acute severe pancreatitis (n=8) were major non-liver causes. Among patients with cirrhosis major causes were alcohol (n=36), hep B (n=8), hep C (n=4). Mean MELD score was 17. Two patients presented as ACLF. One patient has undergone liver transplant. Majority of cirrhotic patients were in CPS B (79.1%) and CPS A (10.4%). Majority of PVT were in portal vein main trunk (Type 1) and were non-occlusive.
Conclusions The occurrence of PVT correlates with the severity of liver disease with the incidence being high in patients with cirrhosis. Patients awaiting liver transplantation need to be treated in selected cases.

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Study of quality of life in caregivers of patients with hepatic cirrhosis

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Introduction Cirrhosis is a chronic disease affecting not only patients but also their caregivers. Most studies have focused on the patient while the caregivers' health has not received much attention.
Methods Cross sectional study of 40 caregivers (CG) of cirrhosis patients and 40 age and sex matched controls. Quality of life (QOL) was assessed by WHOQOL-BREF, caregiver burden by *Zarit Burden Interview* (*ZBI*), anxiety and depression by Hospital Anxiety and Depression Scale (HADS). Unpaired t test, one-way ANOVA and Pearson correlation coefficient were used as statistical tools.
Results Thirteen males and 27 females formed the CG group with mean age 38.38±13.01 years. Majority (55%) were wives, 50% had other caregivers along with primary caregiver. Mean scores of physical, psychological, social and environmental domains of WHOQOL-Bref were significantly lower in cases compared to controls- 46.85±11.99 vs. 81.8±7.1 (p<0.001), 44.30±14.47 vs. 82.28±6.27(p<0.001), 44.05±19.05 vs. 80.7 ±6.59 (p<0.001) and 43.85±13.30 vs. 86.75±6.42 (p<0.001) respectively. Female caregivers had significantly low scores in physical, social and environmental domains. 15%, 70%, 15% had mild to moderate, moderate to severe and severe burden respectively on ZBI with significant inverse relationship between physical, social and environmental domains of WHOQOL-Bref and caregiver burden. CGs with low anxiety and depression scores had better quality of life (QOL). The factors not significantly influencing QOL were age, residence, duration of caregiving, socioeconomic status, number of previous hospitalizations, Child-Pugh and MELD scores, and presence of hepatic encephalopathy in the patients.
Conclusion Caregivers of liver cirrhosis patients had low quality of life scores in all domains of WHOQOL-Bref. Caregivers who had high caregiver burden had low QOL scores and those who had low anxiety or depression scores had better QOL scores. The study emphasized the importance of the health and wellbeing of the caregivers; this is also likely to affect the care provided to and outcome of the patients.

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Acute liver failure: Beyond King's College criteria

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Background High ammonia level which encounters commonly in acute liver failure (ALF), is the main culprit for major complications including cerebral edema. This study was conducted to check the importance of ammonia level along with other factors.
Methods This was a retrospective observational study. Patients presented with ALF and qualifying King's College criteria for liver transplant, from July 2017 to June 2018 were considered. Those who underwent transplant were excluded. Those who were not willing for transplant were included. The level of ammonia, INR, bilirubin, lactate, creatinine and presence or absence of grade 3 or 4 encephalopathy and cerebral oedema were compared between survivors and non-survivors. All data was analysed using the statistical software SPSS, version 22.0. Comparison of variables between the two groups were done by Mann-Whitney U test.
Results Among 17 patients with ALF, two patients underwent liver transplant. In remaining 15 patients 5 patients survived and 10 were died. Both groups had encephalopathy. Ammonia level (micromole/l) was significantly high in non-survivors than in survivors (182.37±92.66 vs. 92.6±24.2: p 0.03). INR level also significant (10.14±2.7 sec vs. 3.90 ±.86 sec). Lactic acid, bilirubin and creatinine level was not significant.
Conclusion Despite knowing about the key role of ammonia in ALF, no much importance is giving for decision making criteria for transplant surgery. Our study observed that the high ammonia level is associated with more mortality. Better care with ammonia lowering therapies may improve survival in ALF patients. Hence it is the time to rethink about the factors predicting mortality in ALF including ammonia.

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CLIF-C ACLF score <65 predicts better survival with aggressive therapy (SIFA[T]) than standard medical therapy

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Introduction CLIF-C ACLF sore 35-65 identifies the sub-group of ACLF patients with good response to intervention. Prospective case-control study to assess prognosis of ACLF patients with ascites, treated with slow continuous albumin, furosemide ±terlipressin (SIFA± T) infusion or standard medical therapy (SMT).
Method ACLF patients were stratified according to CLIF-C ACLF score 35-65 and >65. Consecutive patients in each group received CMT (Arm I) using slow infusion of furosemide (2 mg/hour), albumin (2 gm/hr, 20-40g/d) (SIFA), in addition to SMT for complications of ACLF. Furosemide was stepped up by 2 mg/h every 12 hours for 48 hours based on urinary sodium (UNa+) excretion. If UNa+ was <85 mmol/d, terlipressin infusion [SIFA (T)] was started at 4 mg/24 hrs, (max- 8 mg/24hr). Treatment was continued till the patient was clinically dry and with UNa+ >85 mmol/L. Patients in Arm II received SMT for ACLF and its complications as per guidelines.
Results Three hundred and twenty patients, overall etiology: alcohol (45.5%) cryptogenic (25%), HCV (12.2%), HBV (8%), NASH (5.3%) and autoimmune (4%); Baseline characteristics of Arm I (200) vs Arm II (120 patients): Age 43.5±11.5 vs. 43.7±12.4 years, CTP 11.2±3.2 vs. 11.7 ±1.8, MELD 30.1±7.9 vs. 29.8±7.5, CLIF-SOFA- 10.1±1.56 vs. 10.2± 2.1, number of organ failure 2±1.8 vs. 1.8± 1.4, serum creatinine 1.6±0.9 vs. 1.4 ±1.1 mg/dL and CLIF-C-ACLF - 50.1±8.9 vs 52.1±8.8 (p>0.05) were not significantly different. Twenty-eight day survival in Arm I was 80% vs. 50% in Arm II in patients with CLIF-C ACLF score 35-65 (p<0.01). CLIFC-C-ACLF score >65 had >80% mortality in both arms (p>0.05).
Conclusion CLIF-C ACLF score ≤65 offers a window of opportunity for aggressive therapy in these extremely sick patients having beneficial impact on hemodynamics, intestinal permeability and survival.

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Use of self-therapeutic bi-metallic magnetic nanoparticles for identifying real-time cellular and molecular dynamics of cancer cells

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Introduction Since last decades various kinds of nanoparticles have been functionalized to improve their biomedical applications. However, the biological effect of un-modified/non-functionalized bi-metallic magnetic nanoparticles remains under investigated. Herein we demonstrate a multifaceted non-functionalized bi-metallic inorganic Gd-SPIO nanoparticle which passes dual high MRI contrast and can be quantified inside cancer cells using unique technology.
Methods We used flow cytometry-based side scatter analysis to determine the nanoparticle load in liver cancer cells with different time points. The results of the present study demonstrate that Gd-SPIO nanoparticles have potential to enter inside the cancer cells in time dependent manner which can be quantified using side scatter analysis in flow cytometry. Cellular interaction with MNPs was determined with SEM analysis whereas MNPs internalization was confirmed by TEM analysis. Further the uptake of MNPs by cells was identified by prussian blue staining of cells at each time point of incubation with MNPs. SYBR green-based qRT-qPCR was performed to evaluate the changes in gene expression and miRNA expression levels pre and post-nanoparticles exposure.
Results The flow cytomtery-based analysis represents a real-time quantitative measure of MNPs interaction with cancer cells and its integration with imaging techniques represents a multi-variant platform to monitor nanoparticles uptake and intracellular processing in real-time at single-cell level. T1 and T2-weighted dual-MRI contrast property of Gd-SPIO nanoparticles was also identified using 1.5T Magnetome. The study also demonstrated that Gd-SPIO nanoparticles have potential to induce cancer cell death by production of reactive oxygen species and apoptotic events. Furthermore, Gd-SPIO nanoparticles also enhance the expression levels of miRNA-199a and miRNA-181a-7p which results in decreased levels of cancer markers such as C-met, TGF-β and hURP.
Conclusion The present study paves a way for future investigation of un-modified inorganic nanoparticles to purport enhanced payload in combination with potential anti-tumor drugs/molecules in cancer cells.

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Effective killing of drug-resistant cancer cells using hyperthermic bi-metallic redox nanoprobe

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Introduction Drug resistance in cancer is a major delimiting factor for effective treatment. Despite availability of several kinds of therapeutic molecules, consistent increase in drug resistance has been observed in various types of cancers. Despite promises of novel cancer therapeutic approaches, several crucial challenges have remained to be overcome for successful clinical translation of available agents. Hence, the present study was aimed to investigate the therapeutic efficacy of bi-metallic gadolinium super-paramagnetic iron oxide nanoformulation of ascorbic acid (AA-GdSPIO) in synergism with hyperthermia on ascorbic acid-resistant cancer cells.
Methods Unique nanoformulation of AA with Gd-SPIO was achieved by a simple procedure of establishing different ratios. Extensive chemical characterization of the generated Redox-nanoprobe was evaluated by UV-vis spectra, XRD, SEM, TEM and DLS studies. Effect of Redox-nanoprobe was evaluated using different concentrations and time points on normal and AA-resistant cancer cells alone and in combination with hyperthermia. Dark field and MRI-contrast imaging was performed to determine the loading of redox-nanoprobe in AA-resistant cancer cells. RT-qPCR analysis was performed to determine the quantitative reversal of resistance mechanisms post-exposure to Redox-nanoprobe.
Results UV-vis spectra of redox nanoprobe showed two individual peaks of AA and Gd-SPIO after mixing. The zeta potential showed negatively charged nature of Gd-SPIO nanoparticles, indicating the presence of particle size in the nanoregime. Bi-metallic redox nanoprobe internalized inside the AA-R cancer cells which was identified by dark-field and MRI-contrast imaging of cells in time dependent manner. Post-cellular internalization, the redox nanoprobe was found to generate the highest level of ROS with hyperthermia. The synergetic effect of redox nanoprobe with hyperthermia showed significant decrease in ABCB1 expression as compared to AA-R cells.
Conclusion The present study describes an innovative, highly selective and efficient approach for real-time imaging and treatment

of drug-resistant cancer cells using redox nanoprobe in combination with hyperthermia.

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Reversal of drug-resistance mechanisms in liver cancer cells using low-dose ultra-small size gold nanoparticle-tagged anti-cancer drugs

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Introduction Existing treatment for liver cancers largely fail due to the chemo résistance properties of cancer cells. High doses of drugs lead to systemic toxicity resulting in a multitude of unwanted adverse reactions due to their lack of availability at tumor site, poor tumor intake of drugs and rapid elimination. In present study, we investigated the effect of tagged anti-tumor drugs with ultra-small gold nanoparticles to investigate their effect on drug-resistant liver cancer cells.
Methods We developed a stable colloidal suspension of sorafenib-gold nanoconjugate (SF-GNP) of <10 nm size in aqueous medium for reverting the cancer drug resistance in SF-resistant liver cancer cells in a 3D ex-vivo model system. Quantitative estimation of the amount of SF binds on GNP was performed by HPLC. SF-resistant tumor cell colonies were developed in soft-agar by consistent exposure to IC50 dose of SF up to seven passages. Changes in colony number and cell death were identified post-nanoconjugate exposure to SF-resistant colonies and compared with the untreated groups.
Results In vivo biocompatibility assay of SF-GNPs showed absence of systemic toxicological effects including hematological, biochemical and histological parameters. However, SF-GNP nanoconjugates significantly reduced (>80%) the percentage cell survival and the size and number of SF resistant solid tumor colonies of liver cancer cells in 3D model system. The exposure of SF-GNP nanoconjugate to SF resistant liver cancer cell colonies also provided evidence for anti-proliferative effect and reversal of drug resistance by elucidating the molecular regulatory mechanisms of extracellular matrix factor, tumor growth factor, hURP and drug transporter.
Conclusion This particular strategy of using SF-GNP conjugate in treating SF resistant HCC cells may augment the possibility of SF and related drugs to reduce the load of drug resistance with lower dose and reduced adverse events in advanced cancer by evading the drug efflux mechanisms.

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Engineering biomimetic humanized three-dimensional liver system for drug evaluation and development of extra-corporeal organ support system

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Introduction Liver is the central organ for absorption, distribution, metabolism, excretion and toxicity (ADMET) of pharmacological drugs and molecules. Available in vitro and in vivo preclinical models deals with several limitations including xenogeneic barrier, lack of natural humanized liver architecture and functional responses. Bioengineered humanized livers developed in present study can overcome on such limitations. This humanized liver model system provides better platform which could be used more efficiently to screen the ADMET of several pipeline drugs and other pharmacological molecules. Furthermore, this system could pave a way towards development of extra-corporeal liver support devices for removing toxicity in acute liver failure.
Methods Bioengineered humanized livers were developed in this study using human hepatic stem cells repopulation within the acellularized liver scaffolds which mimics with the natural organ anatomy and physiology. Six cytochrome P-450 probes were used to enable efficient identification of drug metabolism in bioengineered humanized livers. The drug metabolism study in bioengineered livers was evaluated to identify the ADMET.
Results The bioengineered humanized livers showed cellular and molecular characteristics of human livers. The bioengineered liver showed three-dimensional natural architecture with intact vasculature and extracellular matrix. Human hepatic cells were engrafted similar to the human liver. Drug metabolism studies provided a suitable platform alternative to available ex-vivo and in vivo models for identifying cellular and molecular dynamics of pharmacological drugs.
Conclusion The present study paves a way towards the development of suitable humanized preclinical model systems for pharmacological testing. This approach may reduce the cost and time duration of preclinical drug testing and further overcomes on the anatomical and physiological variations in xenogeneic systems. This natural bioartificial liver can also be used as extra-corporeal support system of failing liver of patients waiting for liver transplantation.

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The expression of circulating tumor cells and epithelial–mesenchymal transition genes in peripheral blood samples before and after transarterial chemoembolization in hepatocellular carcinoma patients

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Introduction Transarterial chemoembolization (TACE) is the current standard of care for patients with intermediate-stage hepatocellular carcinoma (HCC) and relatively preserved liver function. Recent progress in gene expression profiling has shed more light on the prevalence of epithelial–mesenchymal transition (EMT) in human cancer. To determine factors associated with mortality after the first TACE procedure.
Methods Total of 5 patients underwent TACE as treatment for hepatocellular carcinoma. Clinical and biochemical parameters before TACE, and response after TACE, were evaluated. Circulating tumor cells, EMT markers were also evaluated by quantitative reverse transcription-PCR (qRT-PCR).
Results Most of the biomarkers cytokeratin 19, cytokeratin 18, Epi-CAM were found to be overexpressed in patients with HCC before TACE. The expression of all the biomarkers were gradually decreases after TACE procedures. The expression level of all the EMT markers such as vimentin snail, slug and twist also decrease after the TACE procedure. All the Biomarkers were confirmed as significant predictors.
Conclusion These data suggest that further investigations are needed on the role of HCC biology in influencing responses to TACE. Prototypical characteristics of these markers have recently been proposed: ideally, they should be cost-effective, reproducible, and easy to evaluate also on pretreatment specimens, such as liver biopsy or liquid biopsy specimens.

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Transjugular liver biopsy in children and adolescents

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Objective Transjugular liver biopsy (TJLB) is widely used in adult patients when percutaneous liver biopsy is contraindicated. Our aim was to evaluate the safety, efficacy and utility of transjugular liver biopsy in pediatric patients who had significant coagulopathy or ascites precluding liver biopsy.
Methods Eighteen children and adolescents (11 male) aged 8 to 18 years from January 2016 to March 2018 underwent the procedure (TJLB) under general anesthesia (14) or intravenous sedation (4). Standard percutaneous liver biopsy was contraindicated because of significantly elevated PT/INR (?15.5/1.5) in 14 (77.8%) patients and thrombocytopenia (?60000/dl) in 10 (55.5 %) patients. Among 18 children, 7 (38.8%) patients had actually severe derangement in both INR and platelet count. Clinically significant ascites was also present in 8 (44.5 %) patients. Initial provisional diagnoses before TJLB were comprised of autoimmune hepatitis (AIH) (6), Wilson's disease (2), portal hypertension (PHTN) under evaluation (2), cryptogenic chronic liver disease (CLD) with hypersplenism (3), hepatitis B related cirrhosis (2) high SAAG ascites of unknown etiology (1), acute on chronic liver failure (ACLF) (1) and aplastic anemia with acute liver failure (1).
Results Adequate biopsy samples for a definitive diagnosis were obtained in 17/18 patients (technical success rate 94.4%). No major or minor complications were seen. A new diagnosis was established in 7 (38.8%) cases (2 AIH, CHF, chronic Budd-Chiari syndrome, congestive heaptopathy, non-cirrhotic portal fibrosis, and normal liver). Another 9 (50%) cases revealed the histopathology of initial suspected etiology (6 AIH, 2 Wilson's, 1 chronic hepatitis B) and helped us to start definitive treatment accordingly. In one case, admitted with acute on chronic liver disease, definitive diagnosis could not be reached due to acute hepatitis A virus induced cytopathic changes in the background of chronic hepatitis.

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Autoimmune hepatitis in children: Experience from a tertiary care centre

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Objective The aim of this study was to evaluate the clinical, laboratory, histopathological characteristics and the response to immunosuppression in children and adolescents with autoimmune hepatitis (AIH).
Methods We retrospectively reviewed the data of 24 children and adolescents with AIH, diagnosed from 2013 to 2018, in the of Pediatric Gastroenterology Hepatology clinic, AIIMS, New Delhi.
Results A total of 24 children (age range from 1.3 to 18 years) were studied. 15 (62.5%) were females. According to simplified AIH scoring system, 14 (58.3%) cases were diagnosed as definite AIH and rest were probable AIH. The predominant mode of presentation was chronic hepatitis (75%) followed by acute liver failure (12.5%), acute hepatitis without liver failure (4.2%) and others (8.3%) like organomegaly, asymptomatic transaminitis. Classification of the patient population was grouped as AIH I (6), AIH II (8) and seronegative (10). The most notable clinical features were jaundice with dark urine (79.2%) and abdominal distension due to organomegaly (58.3%) while the most relevant laboratory parameters were the aminotransferases (87.5%) and high IgG (83.3%). Other autoimmune diseases were present in 21.7% cases and in 33.3% first degree relatives. In the histopathology the most important findings were the interface hepatitis (95.2%), moderate to severe portal inflammation (80.1%) and definite or incomplete cirrhosis (79.2%). During the standard treatment with steroid and azathioprine, 20 patients achieved complete remission with 2 cases showing treatment related side effects (glaucoma, growth failure). Two patients with ALF died during the waiting period of liver transplantation. Relapses were noted in 22.7% cases on tapering steroid doses.
Conclusions AIH should be kept in mind in the differential diagnosis of both acute and chronic liver diseases in the children and treatment with combination of corticosteroids and azathioprine is an effective treatment option with few side effects.

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The correlation of poor oral hygiene with spontaneous bacterial peritonitis in cirrhotic patients with ascites

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Introduction Spontaneous bacterial peritonitis (SBP) is a frequent complication of cirrhosis resulting from factors like prolonged bacteremia secondary to compromised host defences, intrahepatic shunting of colonic blood, and defective ascitic fluid bactericidal activity. Studies have shown that bacteremia is more common in patients with poor oral hygiene. To our knowledge there are no published studies looking at the correlation between SBP and poor oral hygiene. This study was conducted to assess whether SBP is more common in cirrhotic patients with ascites, having poor oral hygiene.
Methods A cross-sectional study of forty-three cirrhotic patients with ascites admitted in Gastroenterology department was conducted between November 2017 and July 2018. Patients were divided into 2 groups (good and poor oral hygiene) using the simplified oral hygiene index (OHI-S). Paracentesis was done and a neutrophil count of and gt;250/cmm was considered as diagnostic of SBP. The collected data was analysed using the SPSS software and *p* value was calculated using the chi-square test.
Results Of the 43 patients studied, 17 patients had poor oral hygiene. Twelve (70.6%) of these 17 patients had SBP, while 2 among the 26 patients (7.7%) with good oral hygiene had SBP. The result was statistically significant (p and lt; 0.0001). Although higher MELD scores and CHILD scores was found in patients with poor oral hygiene, the results were not statistically significant (59% vs. 40%).
Conclusion SBP was more common in cirrhotic patients with ascites having poor oral hygiene. Further prospective studies are needed to determine whether improving oral hygiene can reduce the incidence of SBP and improve outcomes.

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Quantification and functional analysis of dendritic cells (DCs) in peripheral blood of hepatitis C infected patients with disease severity

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Introduction An estimated 3% of the world's population is infected with hepatitis C virus (HCV). With low spontaneous clearance rates by the host immune system, approximately 85% of infected patients have increased risk for developing liver cirrhosis and hepatocellular carcinoma. The mechanisms of HCV persistence remain elusive. Myeloid dendritic cells (MDCs) play an important role in the initiation of adaptive antiviral immune response by acquiring and processing antigens for specific T cells. In addition, While plasmacytoid dendritic cells (PDCs) participate in antiviral responses by producing large amounts of IFN-a/b. Present

study was designed to rule out the role of MDCs and PDCs in HCV infected patients.
Methods Total of 50 patients (anti-HCV positive with no viral load (n=10), acute HCV (n=10), chronic HCV (n=10), cirrhosis with HCV (n=10) and HCV related HCC (n=10)) and 10 age and gender matched control were enrolled in the present study. HCV load was quantified from serum samples by use of real-time polymerase chain reaction (PCR). For DCs analysis, PBMCs were isolated by use of density-gradient separation using Ficoll Hypaque (Pharmacia) and analyzed by using flowcytometry with DCs specific antibodies.
Results Hepatitis C infected patients showed a lower absolute cell count percentage of peripheral blood mDCs when compared to healthy controls, while only antibody positive HCV patients did not display any statistically significant differences with healthy individuals, thereby suggesting the lack of enrolment in peripheral blood of this dendritic cell subset during the HCV infection.
Conclusion We speculate that during hepatitis C, the virus might prevent the activation of circulating myeloid dendritic cells (ILT3/CD11c+) conditioning the natural history of the hepatitis. Thus, an early assessment of mDCs using our gate strategy could give useful suggestions about the possible progression of infection, thereby proposing the early enrolment of the patients in treatment.

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Mitochondrial DNA quantification and its correlation with clinical features in HCV patients

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Introduction Hepatitis C virus (HCV) is a major cause of chronic liver disease, with about 170 million people infected worldwide. HCV can lead to a spectrum of diseases including, fibrosis, cirrhosis and hepatocellular carcinoma. There is no effective vaccine available and current therapies show limited efficacy in HCV infected patients. Mitochondrial abnormality is reported in individuals with HCV infection, but the associated hosts' mitochondrial genetic factors remain obscure. We hypothesized that mitochondria may affect host susceptibility to HCV infection. In this study, we aimed to detect the association between various stages of HCV infection and mitochondrial DNA quantification.
Methods A total of 100 individuals with different stages of HCV infection, 50 who had never been infected by HCV (healthy controls, HC) and 50 with a trace of HCV infection (10=acute; 25=chronic; 10=cirrhosis and 5=HCC) were analyzed for mtDNA quantification along with viral load. Liver function test (LFT) and high-density lipoprotein cholesterol (HDL-C) were also correlated with mtDNA quantification.
Results The results suggested that mtDNA copy numbers significantly decreased in HCV patients with disease progression than in control samples. Further analysis indicated that level of high-density lipoprotein cholesterol (HDL-C) was negatively correlated with mtDNA copy numbers in total HCV patients. Intriguingly, liver function test (ALT, AST and ALP) also showed negative correlation with mtDNA copy numbers in HCV patients with disease progression.
Conclusion Totally, we identified that the mtDNA copy numbers significantly decreased in HCV patients. mtDNA copy numbers showed negative correlation with LFT and HDL-C level of HCV patients.

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Role of miRNAs in hepatitis B virus infected patients before and after anti-viral therapy

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Introduction Hepatitis B, a major global health problem is a potentially life-threatening liver infection caused by the hepatitis B virus (HBV). It can cause chronic infection and puts people at high risk of death from cirrhosis and liver cancer. There is still limited access to diagnosis and treatment of hepatitis B in many resource-constrained settings, and many people are diagnosed only when they already have advanced liver disease. Recent evidences show that miR-122 decreases HBV replication through the inhibitory effect of p53 on HBV transcription, and consequently it acts as a tumor-suppressor through both a decrease in HBV replication and by directly targeting several key pathways. Hence we intend to investigate the role of key miRNAs including miRNA-122 in molecular pathogenesis of HBV infection to investigate therapeutic implications of miRNAs on the underlying host-HBV interaction and disease pathogenesis.
Methods A total of 100 subjects, 50 healthy controls and 50 hepatitis B virus (HBV) infected subjects before and after 3 months, 6 months, 9 months and 12 months treatment with Tenofovir disoproxil fumarate 300 mg were enrolled in the study. HBV DNA was extracted and quantified by RT-qPCR. miRNA-122 expression analysis was done by RT-qPCR and correlated with HBV DNA quantification and liver function test (LFT).
Results Differential expression profile was observed during HBV infection compared to age and gender matched healthy controls. miRNA-122 was found significantly decreased during HBV infection. Analysis of relative fold change revealed significant down regulation of miRNA-122 expression in HBV DNA+ve patients compared to HBV DNA-ve patients. After treatment it was getting up regulated expression levels were observed compared with before treatment.
Conclusion miR-122 can be useful for therapeutic target along with HBV DNA viral load for chronic hepatitis B infection.

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Prevalence of diabetes mellitus in newly detected hepatitis C patients

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Hepatitis C, in addition to liver disease, also causes extrahepatic manifestations in almost 35% of patients resulting in spectrum of autoimmune conditions. The prevalence of type 2 diabetes has been reported to be more. There is a compelling reason to believe this, because studies have shown an increased prevalence of HCV in type 2 DM. The study was conceived to find out the prevalence of Type 2 DM in HCV positive patients and its relation with genotype.
Methods The study was a hospital-based case control study, conducted in the Department of Gastroenterology, Government Medical College Srinagar. All hepatitis C patients were enrolled and investigated as per the study design. Seventy cases and equally matched controls were included. Cases were thoroughly evaluated, and controls underwent GTT, HbA1c, serum insulin levels, HOMA-IR. Analysis was done using Open Epi 3.01, p value of <0.05 was considered significant.
Results Amongst cases, the mean age was 45.97±11.982 years; 67.14% had Genotype 3 and 32.85% Genotype 1. Cases and controls were compared on the basis of fasting blood sugars in three different ranges (≤100 mg%, 101-125 mg% and ≥ 126 mg%) and a 2 hour GTT at three different levels (<140 mg%, 140-199 mg% and ≥200 mg%). Other parameters of comparison included HbA1C, serum insulin levels, HOMA-IR, BMI, LFT and lipids. Amongst all these only the difference in level of HOMA-IR (<2.5 in 45.71% of cases and 65.71% of controls) was statistically significant (p=0.0063). On comparing the diabetogenic potential of

two genotypes on the basis of FBS and a 2-hour GTT, genotype 3 was found to be more diabetogenic.
Conclusion Hepatitis C causes 2.1-fold increase in the prevalence of Type 2 diabetes in patients without evidence of chronicity or complications with increased predisposition to Genotype 3 over Genotype 1.

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A study on outcome of hepatitis C patients in a community with predominant genotype 3 with standard of care treatment before and after advent of direct acting antivirals in Kashmir valley a retrospective cum prospective study

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Introduction The treatment of hepatitis C has evolved by leaps and bounds in last two decades to almost a perfection at present. The aim of our study was to study and compare the response to different regimen during and after the Interferon era.
Methods The current study was a hospital based prospective cum retrospective study. For retrospective data, 200 hepatitis 'C' patients (Genotype 3) from 2011 to 2014 were analyzed with respect to patients' demography, quantitative hepatitis C RNA before treatment, during treatment and after treatment. For prospective study, 290 patients with hepatitis C genotype 3 were studied for two years (June 2015 to June 2017). They were enrolled both from IPD and OPD. These patients were detected HCV positive during blood donation, preoperative evaluation, evaluation of liver function tests etc.
Results For retrospective group, SVR24 was achieved in 90.96% (171/188) patients on Peg-IFN alpha 2a plus Ribavirin (weight based) combination for a period of 24 weeks. For prospective group, SVR12 was achieved in 94.57% (157/166) patients on Sofosbuvir plus Ribavirin combination for a period of 12 weeks and 98% (98/100) patients on Sofosbuvir plus Daclatasvir combination for a period of 12 weeks among non-cirrhotics while as among cirrhotics SVR24 was achieved in 83.33% (20/24) patients on Sofosbuvir plus Ribvirin plus Daclatasvir combination for a period of 24 weeks.
Conclusion Overall in retrospective group an SVR24 was 90.96% and in prospective group SVR12 was achieved in 94.57% on Sofosbuvir plus Ribavirin combination for 12 weeks, 98% on Sofosbuvir plus Daclatasvir for 12 weeks and in cirrhotic group, 83.33% achieved an SVR12 on Sofosbuvir plus Ribvirin plus Daclatasvir combination for 24 weeks.

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Validation and modification of Baveno criteria to rule out high-risk varices (HRV) in patients with compensated cirrhosis

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Background and Aims Baveno VI defines patients with compensated cirrhosis in whom endoscopy can be avoided as those with liver stiffness (LSM) by transient elastography (TE) <20 kPa and platelet count >150,000/mm^3. The aim was to validate Baveno criteria to rule out HRV and to determine whether alternate parameters not including TE would be more accurate in ruling out HRV.
Method Cross-sectional study evaluating patients with LSM>10 kPa who had endoscopy within 6 months of TE evaluation. Factors like hemoglobin, platelet, LFT, RFT, INR, etiology, LSM and MELD score were compared between the groups who had HRV and who did not have HRV.
Results Study included 375 patients who underwent (TE) and esophagogastroduodenoscopy (EGD) from September 2016 to August 2017. Most common etiology was HBV followed by HCV, NASH and ethanol. Out of 266 patients satisfying Baveno criteria to rule out HRV, 262 patients did not have HRV. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) was 96 %, 90 %, 74% and 99 % respectively. Platelet count, Bilirubin, MELD and LSM significantly differed between patients who had HRV and those who did not have HRV. An alternative strategy excluding TE and including platelet count and MELD score was also used. No patients with MELD score 6 showed HRV irrespective of platelet count (sensitivity and NPV=100%). One out of 233 patients with MELD score 8 with was platelet >150000/mm^3 had HRV. By using MELD 6 or MELD <8 and platelet >150000/mm^3 criteria, 251 (67%) endoscopies could have been circumvented. While using Baveno criteria, 262 (70%) endoscopies could have been circumvented.
Conclusion This study validates Baveno VI criteria defining patients in which screening endoscopy can be safely avoided. MELD 6 or MELD <8 and platelet >150000/mm^3 can be used when TE is not available.

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Use of transient elastography in newly diagnosed cases of chronic hepatitis B

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Introduction It is often difficult to decide on starting antiviral therapy in many newly diagnosed cases of chronic hepatitis B. Guidelines recommend treatment mainly based on the liver enzyme values and liver biopsy is not possible in many cases because of its invasiveness. In this study we assessed liver fibrosis non-invasively using transient elastography among patients with a high viral load.
Method One hundred consecutive newly diagnosed cases of chronic hepatitis B after excluding patients with cirrhosis and other risk factors such as ethanol use in toxic dose, metabolic syndrome etc. were enrolled into study. All patients were evaluated with LFT, ultrasound scan of liver and hepatitis B viral load. Transient elastography was performed in all patients with a high viral load of >2000 IU/mL. Data was entered in Microsoft Excel and analysed using IBM-SPS v 16.0.
Results Out of 100 cases, 33 patients had a high viral load. Among these 33 cases 26 cases (79%) were having evidence of advanced fibrosis in transient elastography while only 11 cases (33%) were having an ALT level >2 times ULN.
Conclusion In our study, among patients with high HBV viral load we observed that a significant proportion of patients were having advanced fibrosis despite having a near normal LFT. It will be useful to assess liver fibrosis non-invasively to decide on treatment strategies among patients with chronic hepatitis B.

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A study for rapid bedside diagnosis of spontaneous bacteri peritonitis using leukocyte esterase reagent strip (LERS) test

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Introduction Spontaneous bacterial peritonitis (SBP) is a potentially life-threatening complication of liver cirrhosis with ascites. The in hospital mortality is also very high (30% to 50%). For diagnosis of SBP, use of a reagent strip may be an useful approach. In various studies it has shown high sensitivity, between 85% and 100%, and high specificity between 98% and 100% and NBSP; The principle is based on leukocyte esterase activity. A pyrrole esterified with an amino acid is used as the substrate; hydrolysis of the ester releases the pyrrole which in turn reacts with diazonium salt yielding a violet or purple azo dye in relevant pad of the strip.
Methods Patients were enrolled from March 2017 to September 2017 in the study. The study was conducted at the Department of Gastroenterology, Lokmanya Tilak Medical College and AMP; General Hospital, Sion, Mumbai.
Inclusion Criteria and NBSP Liver cirrhosis patients with ascites, who are hospitalized were included in this study.
Exclusion Criteria 1. Ascites secondary to other etiologies (i.e. noncirrhotic cause of ascites). 2. Cirrhosis with ascites of tubercular etiology. 3. Those who have received antibiotics within last 2 week. 4. On antibiotic prophylaxis for SBP or patients with prior history of SBP.
Results We had analyzed 64 patients in this study. and NBSP; at cut-off of 2+; sensitivity to diagnose SBP was 100%; specificity being 94%; PPV being 57% and NPV being 94%. Similarly at the cut off level of 3+; sensitivity decreased down to 76%; specificity increased to 100%; PPV of 100 % and NPV of 93.75 %. Overall accuracy at 2 + and 3 + was respectively 94.5 % and 93.75 %.
Conclusion LERS strip test of ascitic fluid is a very sensitive and specific method for diagnosis of SBP. It is rapid, simple and cheap. Positive test calls for antibiotics at earliest.

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Correlation between portal hypertensive gastropathy with etiologies of decompensated chronic liver disease

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Introduction Pathophysiology of PHTG not well established till date. PHTG prevalence varies widely in DCLD patients from 36% to 67% among different etiology and 7% to 18% in non-cirrhotic PHTN. Most of studies clearly showed no correlation between PHTG and portal hypertension. Now hypothesis for PHTG development were local and systemic inflammatory factors due to underlying CLD, etiology of CLD and also duration of CLD play the major role.
Aim We found out presence of PHTG across the common etiologies of DCLD including cryptogenic origin and correlation between PHTG and etiology of DCLD.
Method We done retrospective cohort study, collected data from endoscopy registry of MGE Department from June 2018 to June 2016. We were included total 400 patients of DCLD (CTP class B/C) with established etiology and also cryptogenic who underwent endoscopy. In 400 patient 130 patient were ethanol, 70 patients were HBV, 60 patients were HCV, 80 patients were cryptogenic, 40 patients were NAFLD, 10 Wilson's, 6 autoimmune and 4 patients were secondary billiary cirrhosis related. PHTG in each group of patient calculated in percentage then association between etiology of DCLD and PHTG estimated by HR (hazard ratio) and CI using cox regression analysis in multivariate model and considered significant association when p value <0.05.
Results PHTG were present in 76.9% (100/130), 64% (45/70), 70% (42/60), 32.5% (26/80), 70% (28/40), 40% (4/10), 66.6% (4/6) and 25% (1/4) of ethanol, HBV, HCV, cryptogenic, NAFLD, Wilson's, autoimmune hepatitis, and secondary biliary cirrhosis related DCLD patients respectively. Cox regression analysis using multivariate model shows ethanol, HBV, HCV, NAFLD, autoimmune etiology of DCLD significantly associated with PHTG.
Conclusion Persistent moderate to severe inflammatory activity over long period in DCLD patients and also underlying etiology like ethanol, HBV, HCV, NAFLD, autoimmune activity were independent risk factors for development of PHTG.

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Clinical profile of non-alcoholic fatty liver disease (NAFLD) and noninvasive analysis of NAFLD fibrosis score among type 2 diabetic patients in a rural setting

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Introduction Type 2 diabetes mellitus is a common medical condition even in rural settings in our country, screening for non-alcoholic fatty liver disease (NAFLD) among diabetic population is largely ignored due to logistics, we use non-invasive methods for early detection of patients with cost effective screening solutions.
Objective of Study To study the prevalence of NAFLD based on ultrasound and study its clinical profile in type 2 diabetic patients in a rural setting, apply simple non-invasive scoring system (NAFLD fibrosis score). To correlate the NAFLD Fibrosis score (indeterminate and high risk) in patients with fatty liver (ultrasound) with the liver stiffness measured by transient elastography (Fibroscan).
Conclusion There is high prevalence of NAFLD in patients with T2DM (63.86%) based on abdominal ultrasound examination. Female sex, advanced age, obesity, visceral fat (higher waist circumference) and metabolic syndrome in patients with T2DM poses significant risk of development of NAFLD. The common clinical presentation of NAFLD in T2DM was abdominal pain followed by fatigue and these features are strongly associated with NAFLD. Also, lipids in the form of hypertriglyceridemia, lower HDL, and liver derangement in terms of elevated AST, ALT and deranged albumin levels significantly associated with high risk of NAFLD in patients with T2DM. NFS is a simple non-invasive scoring system which helps in identifying and screening at risk patients at a relatively lower cost. High prevalence of diabetes and increased cost burden of health care costs in rural areas, a simple non-invasive scoring system is the need of the hour.

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Changes in hepatic fibrosis in chronic hepatitis C patients treated with direct-acting antivirals: Single centre experience

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Introduction Treatment of chronic hepatitis C (CHC) with direct acting antiviral drugs (DAA) results in sustained viral response (SVR) in more

than 90% of treated individuals with improvement in liver function and liver fibrosis. We assessed changes in liver fibrosis by transient elastography (TE) and fibrosis-4 (FIB-4) score and AST-platelet ratio (APRI) in CHC patients treated with DAA.
Methods Between April 2016 and April 2018, 110 consecutive CHC patients treated with DAAs were included. TE, FIB4, APRI score were performed before treatment and after 12 weeks of completion of therapy, the time of assessing sustained virological response (SVR12). Changes in scores were analysed by paired t test.
Results The median age of the patients was 51 years (range: 28–70 yrs), 46.3% were males, 57% had compensated cirrhosis, 79% were treatment naïve, 92.7% achieved SVR12. Most common genotype was type 3 (62%) followed by genotype 4 (20%). There was improvement in fibrosis scores as TE, FIB4, APRI improved from baseline values of 18Kpa, 2.85, 0.92 to 13.4KPa, 1.9, 0.54 at 12 weeks post completion of treatment. No relationship was found between improvements in liver fibrosis and baseline HCV-RNA, HCV genotype, DAA treatment modality and ribavirin use. Patients with advanced fibrosis (F3-F4, TE >9.5KPa) had significant improvement in fibrosis scores compared to those without advanced fibrosis (F0-F2, TE<9.5) as shown in Table. Patients who achieved SVR12 have shown improvement in liver enzymes with mean SGOT and SGPT improved from baseline 76.26 IU/mL and 81.53 IU/mL to 34.42 IU/mL 31.49 IU/mL respectively at SVR12. Non-SVR12 patients had shown increment in liver enzymes as well as fibrosis scores.
Conclusion Most patients with SVR12 using DAA therapy experienced significant reduction in liver fibrosis particularly those with advanced fibrosis as assessed using TE, FIB4 and APRI

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Clinical profile and risk stratification of alleged poisoning with rodenticides–A single center experience

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Introduction Poisoning with rodenticides is common in India and most commonly causes acute liver failure. However, the spectrum of clinical profile and prognostic factors have not been clearly studied. The aim of this study was to elucidate the clinical profile of patients presenting alleged poisoning with rodenticides and identify prognostic factors of outcome.
Methods This was a retrospective study of all patients with proven poisoning with a rodenticide from January 2006 to November 2018. All relevant demographics including age, gender and comorbidities were recorded in a pre-designed performas. Patients were then studied for course in the hospital and outcomes with in-hospital mortality and/or liver transplantation performed on an emergency basis during the course of admission. Prognostic factors were then analyzed using SPSS v20.
Results A total of 82 patients were included into the study with a mean age of 24.71 and a male to female ratio of 1.15. The majority of patients consumed the rodenticide with an intent to self-harm (67.1%). The most common rodenticide found was zinc phosphide (61%). Liver transplantation was performed in 17 (20.7%). Overall mortality was 14 (17.1%). On univariate analysis, younger age, female gender, accidental consumption, renal failure, hemoglobin <10 gm/dL, total WBC counts <4000 cells/dL and platelet count <100000 cells/dL were found to be significant predictors of poor outcome (p value <0.05). On multivariate analysis, accidental consumption, renal failure and hemoglobin <10 gm/dL were found to be independent predictors of poor outcome.
Conclusion Poisoning with a rodenticide is common in India and has a poor prognosis. Younger age, female gender, history of accidental consumption and pancytopenia at presentation can portend a poor prognosis and help in risk stratification in these patients.

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A rare liver mass

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Introduction Angiosarcoma is an relatively rare tumor of mesenchymal origin affecting the liver, representing between 0.1% to 2% of all primary tumors of the liver. Angiosarcoma of liver affects mainly 2-3 times common in men presenting in their sixth or seventh decade of life and carries a high mortality
Presentation of Case A 42-year-old gentleman presented with Fever for 2 months duration which was intermittent, low grade associated with evening rise of temperature. It was associated with dry cough and weight loss -3 kg in 2 months. Past history is only suggestive systemic hypertension. He received treatment and preliminary investigations from abroad before coming here, reports were in normal limits. He received 2 course of oral antibiotics. For the past one week he noticed right upper quadrant pain which aggravated on deep breathing and coughing, fever became continuous between 101-103 F and anorexia. Systemic examination was normal expect for mildly tender hepatomegaly 4 cm below right costal margin. Contrast CT abdomen suggestive of large liver lesion with hyper vascular borders, and treated with a possibility of liver abscess was enertained based of clinical scinario. Biopsy was inconclusive expect few vascular elements. Tumor markers were normal. Despite adequate treatments his symptoms persisted and worsened, which prompted up to relook revise the imaging, biopsy and IHC was certain to confirm a liver angiosarcoma. He underwent treatment but did succumbed to it, following a cytopenia related sepsis following chemotherapy.
Conclusion Angiosarcoma of liver are rare neoplasm, diagnosis is sometimes a difficult dilemma and carries a high mortality. Best treatment outcome is by hepatectomy, followed by adjuvant therapy. Liver transplantation has a dismal prognosis.

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Transition from well differentiated to poorly differentiated hepatocellular carcinoma: A role of Wnt and Hedgehog signaling pathways

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Introduction Hepatocellular carcinoma (HCC) is one of the leading causes of cancer related mortality and is particularly refractory to the available chemotherapeutic drugs. It is a heterogeneous tumor and is associated with multiple signaling pathway alterations including Wnt and Hh signaling pathways. Despite the advances in HCC treatment it has poor prognosis and the 5 year survival rate is less than 20% across all stages. In most cases HCC is diagnosed at late stages and is associated with diverse histopathological characteristics. The range of cellular differentiation in HCC extends from well-differentiated to poorly-differentiated types and contains varied morphological subtypes. The widespread molecular nature of HCC across different grades is not known.
Method In the present study we investigated the change in expression level of Wnt and Hh pathway molecules across different grades/stages of HCC. N-Nitrosodiethylamine (DEN) induced HCC model in male Wistar rats were used to study the expression level of Wnt and Hh pathway molecules at different stages of hepatocarcinogenesis. At the same time the findings of pre-clinical models were substantiated with the HCC patients' biospecimen data.

Results Our results demonstrated that there is shift in histopathological characteristics coincident with the changes in the expression level of Wnt and Hh pathway molecules. Higher expression of Wnt pathway molecules were associated with well differentiated histological pattern while lower expression of the same molecules were associated with poorly differentiated histological pattern.
Conclusion Simple microscopic examination is not enough to differentiate between different grades of HCC. A significant difference in the molecular signature of each histopathological grade during hepatocarinogenesis would open a window for grade specific treatment option. Thus, our study provides a notion for the potential utility of targeting Wnt and Hh pathway genes differentially/distinctly expressed in lower/higher stage/grade of HCC.

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Non-invasive indices for prediction of high-risk esophageal varices in patients with compensated advanced chronic liver disease

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Introduction With the increasing use of transient elastography, patients with compensated advanced chronic liver disease (cACLD) are on a rise, which in turn leads to the overburden of endoscopy units. Hence, simple, non-invasive tests are needed to identify patients at risk of having esophageal varices prior to endoscopy. This study focuses on the performance of non-invasive indices like spleen-stiffness, liver stiffness-spleen diameter-to-platelet ratio score (LSPS), liver stiffness (LS) and Platelet to spleen ratio (PSR) in predicting high-risk esophageal varices in patients with cACLD.
Methods Two hundred and two consecutive patients with cACLD, defined by liver-stiffness measurement ≥10 kPa were included in the study. Those with history of decompensation, portal vein thrombosis, hepatocellular carcinoma or current β-blocker therapy were excluded. All patients underwent ultrasound-abdomen and upper gastrointestinal (GI) endoscopy. Spleen-stiffness was measured with 2D-shear-wave elastography. LSPS and PSR were calculated based on established formulae. High-risk varices were defined as-large varices (diameter >5 mm) or small varices with RCS. Receiver-operator-curves were drawn for all indices. AUC, sensitivity, specificity, positive predictive value, negative predictive value and accuracy were assessed.
Results Spleen-stiffness cut-off value of 62.8 kPa yielded a sensitivity of 75 %, specificity of 93 %, PPV of 60 %, NPV of 97 %, and accuracy of 90%. Below the cut-off score of 62.8 kPa there was <5% pooled risk of missing high-risk varices. The LSPS cut-off value of 2.4 provided a sensitivity of 74 %, specificity of 92 %, PPV of 56 %, NPV of 96 %, and accuracy of 89 %. Below the cut-off score of 2.4 there was <5% pooled risk of missing high-risk varices.
Conclusion Spleen-stiffness had the best discrimination for high-risk varices followed by LSPS. These tests could spare most of the screening endoscopies with a very low risk of missing high-risk varices.

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Occult thyroid function abnormalities in patients with liver cirrhosis

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Introduction Liver is involved in the synthesis of carrier proteins and metabolism of various hormones. Cirrhosis is closely associated with various abnormalities in endocrinal axes. We studied the presence of occult thyroid function abnormalities in liver cirrhosis.

Methods We evaluated 25 patients of cirrhosis and 25 healthy controls in this cross-sectional observational study. After complete clinical and laboratory tests, we analysed all the data with appropriate statistical tests.
Results In study group (20 males, 5 females) had a mean age of 48.4±11.2 years. Alcohol was most common cause of cirrhosis in 17 patients (68 %), followed by viral causes (HBV, HBC) in 5 patients (20%), others in 3 patients (12 %). According to Child class status; 6 patients were in class A, followed by 11 and 8 patients in class B and C respectively. Thyroid dysfunctions were present in 11 patients; out of which 4 patients had subclinical hypothyroidism. Primary hypothyroidism and sick euthyroidism was seen in 3 patients and 4 patients respectively. Out of these 11 patients having thyroid dysfunction, 8 patients were from Child class B and C. Abnormalities of thyroid function in study group were statistically significant as compared to control group ($p< 0.001$).
Conclusion Occult thyroid dysfunction abnormalities are an important part of clinical spectrum of cirrhosis of liver and usually remain undetected. Thyroid dysfunction often correlates with liver disease severity. Management of these thyroid dysfunction leads to improvement of overall prognosis.

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Efficacy of enhanced liver fibrosis score and transient elastography for assessment of significant fibrosis in chronic hepatitis C

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Introduction Chronic hepatitis C (CHC) patients with Genotype 3 infection having advanced fibrosis or cirrhosis need a longer duration of therapy and sustained virological response rate is lower with currently available directly acting antiviral therapy. Enhanced liver fibrosis (ELF) score and transient electrography (TE) are non-invasive methods for ruling out cirrhosis, have not been compared in Indian CHC patients. The aim of the study is to compare ELF and TE for ruling out significant fibrosis or cirrhosis in CHC patients.
Methods Consecutive CHC patients who attended OPD at GIPMER from September 2016 to May 2018 were included in the study. Patients with decompensated cirrhosis, BMI ≥30 kg/m2 or additional etiology for liver disease were excluded. The liver biopsy was used as a gold standard; The METAVIR scoring system was used for grading fibrosis in liver biopsy. The TE by using fibroscan 430 mini and ELF were done on the same day in fasting state.
Results Total of 48 patients were included, mean age was 35.02 years. The All TE, ELF score calculation and liver biopsy was done in all patients. Median ELF score and TE score for patients were 9.46 and 5.95 kPa respectively. The area under the receiver operator characteristic curve (AUROC) of ELF was 0.619, with the sensitivity of 74% and specificity of 42% for significant fibrosis and AUROC for TE, was 0.860, with sensitivity and specificity 79% and 86% respectively using liver biopsy as a gold standard for diagnosing significant fibrosis
Conclusions TE, as compared to ELF, is a better non-invasive method for diagnosing significant fibrosis in CHC patients.

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Characteristics of hepatocellular carcinoma with different etiologies of underlying chronic liver diseases

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Introduction The study analyzes the differences in clinico-radiological profile of hepato-cellular carcinoma (HCC) in different etiologies of liver disease.
Methods A retrospective study design, analyzed 353 patients with HCC in four groups, according to the etiology of liver disease. HCC due to chronic HCV or HBV infections were called HCC-viral; HCC due to chronic HCV or HBV infections and alcoholic liver disease (ALD) together as HCC-Viral–ALD; HCC in ALD alone as HCC-ALD and HCC in NASH and cryptogenic cirrhosis as HCC-NASH/CC.
Results The etiology wise break-up of HCC patients were as follows, HCC-viral (38.2%), HCC-viral-ALD (24.0%); HCC-ALD (18.9%) and HCC-NASH/CC (18.7%). The mean age of patients was higher in HCC NASH/CC than HCC-viral (62.94±9.901 vs. 58.60±9.827; p=0.018) and HCC-viral-ALD (62.94±9.901 vs. 56.87±9.154; p=0.001). More patients in HCC-NASH/CC than HCC-viral had Child A cirrhosis (68.2% vs. 45.9%; p=0.024) and fewer Child C cirrhosis (4.6% vs. 8.2%; p=0.032). Decompensation was less frequent in HCC-NASH/CC than HCC-ALD (37.9% vs. 64.2%; p=0.002) and HCC-viral (37.9% vs. 53.3%; p=0.039). Compared to HCC-viral, multifocal HCC were more common in HCC-viral-ALD (48.1% vs. 68.2%; p=0.003) and HCC-ALD (48.1% vs. 64.2%; p=0.022). More patients in HCC-NASH/CC had tumour size >10 cm compared to HCC-viral (36.4% vs. 14.8%; p=0.001), HCC-viral-ALD (36.4% vs. 18.8%; p=0.016), and HCC-ALD (36.4% vs. 17.9%; p=0.001). HCC-viral had less frequent macro-vascular invasion (28.9% vs. 46.3%; p 0.012) and extrahepatic spread (20.7% vs. 32.8%; p 0.046) than HCC-ALD. Compared to HCC-viral more patients in HCC-ALD (65.9% vs. 82.1%, p=0.012) and HCC-viral-ALD (65.9% vs. 80.0%, p=0.017) were outside Milan's criteria for liver transplantation.
Conclusion HCC-NASH/CC presents at older age with larger tumors and relatively preserved liver function compared to HCC of other etiology. Multifocal tumors and advanced liver disease are frequent with HCC-ALD than HCC-viral. These differences can impact eligibility for potential curative therapy and overall prognosis.

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Hepatitis B virus reactivation in patients with rheumatological diseases undergoing conventional and biological disease modifying anti-rheumatic drugs

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Introduction Reactivation of hepatitis B virus is well known complication in patients receiving disease modifying anti-rheumatic drugs (DMARDs), mainly biologicals for rheumatological diseases. This study was conducted to assess the degree of risk and prophylaxis for hepatitis B reactivation in patients receiving DMARDs for rheumatological diseases.
Methods Study was prospective study which was carried out in Army hospital R and R, New Delhi and included 50 patients with rheumatological disorders with underlying occult hepatitis B and requiring conventional and biological DMARDs. A detailed clinical, biochemical, radiological evaluation of patients with HBsAg negative and total anti-Hbc positive who were followed up for a period of 1 year was done after ethical clearance. Statistical analysis using W2 or Fisher's exact test.
Results Out of 50 patients 30 received biologicals alone (Group 1), 10 received conventional agents including MTX, SSZ, HCQ (Group 2) and 10 received a combination of both (Group 3). Reactivation developed in 10 patients in group 1 not receiving antiviral prophylaxis (p<0.005) out of which 5 were started on antivirals prophylactically and discontinued. Rest of the 20 patients received antivirals and had no reactivation. One patient out of 10 in group 2 had reactivation and none of them was on antiviral prophylaxis. Two out of 10 patients in group 3 had reactivation in group 3 and all of them discontinued antiviral prophylaxis (p<0.005).
Conclusion Hepatitis B reactivation is significant in patients receiving biological DMARDs for rheumatological diseases and antiviral prophylaxis reduces the chances of reactivation in such groups.

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Hepatitis B reactivation in patients with malignancy undergoing chemotherapy

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Introduction Reactivation of hepatitis B virus is well known complication in patients receiving chemotherapy, mainly biologicals rituximab, anthracyclines and platinum based chemotherapy for oncological diseases. This study was conducted to assess the degree of risk and prophylaxis for hepatitis B reactivation in patients receiving chemotherapy for malignant diseases
Methods Study was prospective study which was carried out in Army hospital R and R, New Delhi and included 50 patients with oncological diseases with underlying occult hepatitis B and requiring chemotherapy. A detailed clinical, biochemical, radiological evaluation of patients with HBsAg negative and total anti-Hbc positive who were followed up for a period of 1 year was done after ethical clearance. Statistical analysis using W2 or Fisher's exact test.
Results Out of 50 patients 10 received rituximab alone (Group 1), 20 received anthracyclines based chemotherapy (Group 2) 20 received platinum based chemotherapy (Group 3). Reactivation developed in 3 patients in group 1 not receiving antiviral prophylaxis (p<0.005) out of which 1 were started on antivirals prophylactically and discontinued. Rest of the 7 patients received antivirals and had no reactivation. Four patients out of 20 in group 2 had reactivation and none of them was on antiviral prophylaxis. Four out of 20 patients in group 3 had reactivation in group 3 and all of them discontinued antiviral prophylaxis (p<0.005).
Conclusion Hepatitis B reactivation is significant in patients receiving chemotherapy and antiviral prophylaxis reduces the chances of reactivation in such groups.

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Sofosbuvir and velpatasvir for chronic HCV genotype 3 infection compared to Sofosbivir and Daclatasvir

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Introduction This study was done to compare the 2 treatment modalities currently available for chronic HCV genotype 3 infections.
Aim was to study the SVR rates and adverse effect profile among south Indian people treated with Sofosbuvir/Daclatasvir and Sofosbuvir/Velpatasvir.
Methods This was a single-center, prospective, observational study performed at a tertiary care centre in south India from April 2015-February

2018. Patients included were those having chronic HCV infection of genotype 3. All selected patients were followed from the beginning of treatment to 12 weeks after the end of treatment. Follow up included history and examination for any adverse drugs effects, blood analyses and clinical interviews (baseline and weeks 2, 4, and 12) during treatment and 12 weeks post treatment.
Results Of the 124 patients who were treated for chronic HCV infection with genotype 3 virus 66 received Sofosbuvir with Daclatasvir while 58 received Sofosbuvir with Velpatasvir. Among the 66 patients treated with Sofosbuvir/Daclatasvir 60 patients (90.9) attained SVR. While in the 58 patients treated with Sofosbuvir/Velpatasvir 56 patients (96.5) attained SVR. The significance of SVR on advanced fibrosis and cirrhosis (F3 and F4), previous treatment experienced were analyzed by chi-square test and were found not significant. Fatigue was the most common adverse event (AE), which developed in 45.45 % (n=30) patients treated with Sofosbuvir/Daclatasvir and in 31.03% (n=18) patients treated with Sofosbuvir/Velpatasvir. AE were more in those with cirrhosis compared to non-cirrhotics.
Conclusions The sustained virologic response with treatment was high in patients treated with Sofosbuvir/Velpatasvir compared to Sofosbuvir/Daclatasvir. Patients in the Sofosbuvir/Velpatasvir group had lower adverse effects occurrence. Except one patient who developed severe sarcopenia other AE were few and mild and none result in discontinuation of treatment.

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Elasticity characterization of malignant and benign liver lesions by shear wave elastography

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Introduction Supersonic shear wave elastography is a novel technology that allows evaluation of soft tissue stiffness. The aim of the study was to determine the elasticity characteristics of focal liver lesions by shear wave elastography.
Methods This was a retrospective study including all patients with FLL admitted in our ward over a period of 6 months. Diagnosis of FLL was obtained by typical imaging findings. For elasticity characterization of FLLs, median of 5 consecutive stiffness measurements was used as a representative value for each lesion. Background liver stiffness was measured at 3 cm from the lesion periphery and lesion-parenchyma stiffness ratio was calculated.
Results Sixty-eight patients, 37 males and 31 females, were included in the study. Thirty-one patients had cirrhosis and rest of the patients had normal background liver parenchyma. There were 33 malignant lesions including HCC with cirrhosis (23), IHCC (2) (out of which one patient had cirrhosis), De novo HCC (1), metastasis (7), and 35 benign lesions including hemangioma (15), FNH (4), abscess (5) and complex cyst (11). Mean stiffness of malignant lesions was 69.5 kPa, and that of benign lesions was 24.2 kPa. Mean stiffness of HCC (53.2 kPa) was lower than that of metastasis (62.4 kPa) and was higher than benign FLLs (24.2 kPa). Mean stiffness ratio of HCC (4.1) was lower than that of other malignancies. This may be due to the fact that HCCs were relatively softer especially in background of cirrhosis, when compared with other malignancies. According to this study FNH had highest stiffness among benign liver lesions (FNH-10.1, hemangioma - 9.3, complex cyst - 8.4, abscess - 9.1 kPa).
Conclusions SWE could be a useful method for the differentiation of benign and malignant FLLs. Stiffness value was better than stiffness ratio in characterizing FLLs.

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A very rare complication of sorafenib in the treatment of hepatocellular carcinoma

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52/M known case of hepatocellular carcinoma started on sorafenib one week following the initiation of sorafenib presented with abdominal pain and reduced urine output. Biochemical parameters suggestive of acute kidney injury (AKI). Patient was taken for dialysis. His clinical condition deteriorated during the hospitalization and biochemical parameters showed rising blood phosphorus, potassium and uric acid and hypocalcemia. At this point of time diagnosis of tumorlysis syndrome was made. Patient was treated with adequate hydration, allopurinol and hemodialysis. His clinical condition deteriorated over the course of hospitalization and died of sepsis 10 days following hospitalization.
Conclusion Tumorlysis syndrome following initiation of sorafenib in hepatocellular carcinoma is very rare. Less than five case reports regarding the same has been published till date. Hepatocellular carcinoma patient following sorafenib initiation if presenting with AKI we also have to think in lines of tumorlysis syndrome.

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Circulating damage associated molecular patterns and ammonia levels modulate immune dysfunction in acute liver failure

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Introduction Acute liver failure (ALF) is characterized by rapid and progressive loss of hepatic function and high plasma ammonia is shown to be associated with increased mortality. Damage associated molecular patterns (DAMPs) (HMGB1, HSPs and IL-33) have been shown to modulate systemic immune responses. We investigated role of circulating DAMPs and ammonia in modulation of immune cells in ALF.
Methods Plasma was collected at day 0 and 3 to determine levels of DAMPs (HMGB1, heat shock protein 60/70, S100A8/9, SAA and IL-33) using ELISA. Phenotypic analysis of immune cells was done. Age matched 15 healthy controls (HC) were included.
Results ALF patients (n=25, age 28+9 yr, 48% males, 75% viral etiology) had MELD 32±10, SOFA 13±3.9, J to HE duration 4.4+ 3.5 days, HE grade III-IV, 82% with cerebral edema, 50% meeting King's college hospital (KCH) criteria, 40% with suspected sepsis and ammonia levels 286.5 μg/dL (123-761). Ammonia had positive correlation with INR and MELD score (p<0.01) while DAMPs had negative correlation. HMGB1 (p=0.0428), HSPs and S100A9 significantly correlated with ALT levels while HMGB1 correlated with AST (p<0.05). DAMPs were significantly increased in non-survivors at day 3. In ALF, at day 0, immune cells showed significantly (p<0.05) reduced activation (CD16-neutrophils, HLADR-monocytes and NKG2D-NK cells), migration (CXCR1 and CXCR2-neutrophils) and increased adhesion (CD66B for neutrophils) markers. HMGB1 and HSP60 positively correlated with CD66B expression on neutrophils while ammonia levels negatively correlated with CXCR2 on neutrophils and HLADR expression on monocytes (p<0.05). At day 3, IL-33 showed positive correlation

with NKT % and NKG2D expression ($p<0.01$) while HSPs and S100A8/9 had negative correlation with NK cells ($p<0.05$).
Conclusion Ammonia and DAMPs differentially modulate immune cells. Higher ammonia reduces neutrophil activation, migration capabilities and monocyte HLA DR expression. DAMPs specifically affect the NK and NKT cells however, the mechanism is not known.

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Effect of sofosbuvir and daclatasvir on lipid profile, glycemic control and quality of life index in chronic hepatitis C, genotype 3 patients

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Background The management of hepatitis C has progressed from Interferon based therapy to oral direct antiviral therapy. Deranged lipid levels (total cholesterol, triglyceride) after treatment with interferon-based therapy is well known. There is paucity of data on changes in lipid profile, glycemic parameters, alteration in quality of life with the newer regimen. This study was designed to assess the changes in lipid profile, glycemic parameters, quality of life in chronic hepatitis C patients with genotype 3 after treatment with Sofosbuvir and Daclatasvir.
Methodology Study was a single centre, prospective study, conducted at tertiary care hospital from January 2017 to December 2017. Fifty patients receiving oral Sofosbuvir (400 mg) and Daclatasvir (60 mg) once daily for a period of 12 weeks for chronic hepatitis C, genotype 3, were recruited.
Results Total cholesterol levels (166.90 to 192.38 mg/dL, CI 18.38 to 32.58, p value <0.0001) and low density cholesterol (LDL) levels (100.88 to 121.56, CI 14.02 to 27.34, p value <0.0001) were significantly elevated after the treatment. A significant decrease in median levels of HbA1c (glycated hemoglobin) was observed (5.57 to 5.41, CI -0.25 to -0.06, p value <0.002). Quality of life markedly improved in all domains i.e. physical, physiological, social relationships and environment according to world health organization quality of life instruments (WHOQOL-BREF) questionnaire. Treatment was found to be effective with sustained virological response (SVR) achieved in 94% patients.
Conclusion Our study reports a substantial increment in total cholesterol, LDL cholesterol with Sofosbuvir and Daclatasvir treatment regimen, predisposing patients to coronary artery disease. Improvement in quality of life and SVR of 94% suggests adequate control of hepatitis C infection with minimal adverse effects.

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Prevalence of organ failures and its association to mortality in acute on chronic liver failures

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Introduction Acute-on-chronic liver failure (ACLF) is a newly recognized clinical syndrome characterized by pre-existing chronic liver disease or cirrhosis associating with multiple organ failures and high 28-day mortality (50% to 90%).Our objective was to obtain prevalence of organ failures and its impact on mortality in these patients.
Methods Patients admitted to the department of Gastroenterology of our institute fulfilling the definition of ACLF based on the Asia-Pacific Association for Study of Liver Disease (APASL) consensus were included. Complete history and medical evaluation to assess the etiology of underlying liver cirrhosis and to identify the acute precipitating insult of worsening liver function was done. Data was prospectively recorded, and individual clinical and laboratory parameters were assessed to identify predictors of 28 days mortality.
Results Forty-five out of 140 patients screened for ACLF were analyzed in the study. Median age was 42 years and 63% were males. Alcohol was the primary cause of cirrhosis in 62%. Infections and active alcoholism were the main precipitating acute insult in 57% and 34% patients respectively. More than one acute insult was seen in 30.5% patients 28 days in hospital mortality was 37.77% and was highest in patients with sepsis (67.8%). Highest mortality was seen with cerebral (94%) and lung as organ failure and mortality increased as the number of organ failure worsened.
Conclusion ACLF carries high short-term mortality and early intervention by liver transplantation should be considered in patients who shows high risk of mortality. Patients with cerebral or lung failure or more than 2 organ failure have most worse outcome.

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Liver abscess in cirrhosis: A retrospective study

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Introduction Liver cirrhosis is often associated with severe immunodeficiency, malnutrition, and risk of mortality. Chronic alcohol intake is an important cause of liver cirrhosis and also a risk factor for amebic and/or pyogenic liver abscess.
Methods The aim of our study was to detect any association between alcoholic liver cirrhosis and liver abscess. For which we included 116 patients (outdoor/indoor) of liver abscess in our department from June 2017 to May 2018. All patients were evaluated with biochemical, imaging, esophagogastroduodenoscopy (EGD) test and other relevant investigations.
Results Out of 116 patients 22 (18.96%) had underlying liver cirrhosis. The mean age of patients was 46±12 years. Eight (36.36%) patients had the single liver abscess, while multiple liver abscess was present in 14 (63.63%). Serum antibodies to *E histolytica* was present in 9 (40.90%) patients. Of 22 patients with associated liver cirrhosis, 12 had CTP class-A, 8 had CTP class-B, and 2 had CTP class-C cirrhosis with 1 patients complicated with variceal hemorrhage during his course of illness of etiology of liver cirrhosis among 22 patients 19 had alcoholic cirrhosis while 3 had HBV cirrhosis with concomitant alcohol intake.
Conclusion Chronic alcohol intake with associated malnutrition is a risk factor for liver cirrhosis and liver abscess. In our study, we find that the risk of both amebic and the pyogenic liver abscess had increased in patients with underlying cirrhosis (alcoholic/HBV related).

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Spectrum, clinical profile of spontaneous bacterial peritonitis and factors affecting outcome in these patients in terms of mortality

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Introduction Spontaneous bacterial infection of ascitic fluid is the most common infection in patients with cirrhosis of liver. In-hospital mortality of patients with SBP is high. The spectrum, clinical profile and various clinical parameters affect the prognosis of these individuals. This study looks into these parameters in these patients.

Methodology Study design -Prospective observational cohort study. Time frame - One year (November 2014-November 2015). All patients admitted in PVS Memorial Hospital, Kaloor, Kochi diagnosed to have SBP in cirrhosis of liver. Data collected was based on clinical history, physical examination, laboratory parameters and the course in the hospital until improvement, discharge or death.
Results About 250 patients were enrolled in the study. Study population had a mean age of 56 years. Males predominated (83.2%). The survival rate in our study population was 86.4%. Multi drug resistant organism (19.2%), suboptimal ascitic fluid improvement, high child score and higher MELD score were independent predictors of mortality. SIRS (22.8%), higher creatinine level (mean of 1.48), higher INR (2.23 vs. 1.5) and lower sodium levels (122 vs. 129) was associated with higher mortality.
Conclusion Gram negative organisms were the predominant group of organisms causing spontaneous ascitic fluid infections out of which *Escherichia coli* was the most common organism. Infection with multidrug resistant organisms and suboptimal response to initial antibiotic treatment indicated poor prognosis. Features of SIRS and renal dysfunction at admissions were the two parameters which showed highest association with mortality. Higher Child-Pugh-Turcot score, hyponatremia, higher bilirubin level were independent predictors of mortality.

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A rare case of acute hepatitis in South India: Case report

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Sixty-five-year-old male referred from local Hospital for acute hepatitis B started on Tenofovir two weeks back. Without HBV DNA quantification due to worsening LFT. HBV DNA quantification and serology studies were consistent with acute hepatitis B with IgM HBc positive, IgG HbC negative, HBeAg positive and HBV DNA of 57000000. Bilirubin remained high with SGOT, SGPT showing dual spikes. Liver biopsy showed acute hepatitis. With a failure to response a second antiviral Entecavir was started. There was a clinical and biochemical response after one week, he was re-admitted with Ascites and INR 1.6. Hepatits D RNA PCR results came as 160000 copies IgM HDV positive and IgG HDV negative. HBV DNA was repeated after total 5 weeks of NA showing decrease to 2 logs. No specific therapy was started for hepatitis D owing to the decomposition. After supportive care for ALF he improved clinically and biochemically. A diagnosis of hepatitis B and hepatitis D co-infection was made depending on serological features of IgM HBc and IgM HDV positivity and natural history corresponding to co infection. Patient is currently on follow up.
Conclusion HDV is a defective virus needs hepatitis B virus for survival. They can cause disease as a part of co-infection or superinfection with co-infection being rare and super-infection being severe and chronic. Hepatitis D virus prevalence vary geographically with India being a low prevalent country mainly due to contribution from Northern parts of India. There has been only single case series report of hepatitis D infection from South India, A study of prevalence of hepatitis D in hepatitis B patients undergoing dialysis in a tertiary Care Centre from Chennai. No cases has been reported from Kerala. So in cases of un-resolving Hep B a co infection must also be considered in South India though it is a rare entity.

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Endoscopic ultrasound-guided caudate lobe abscess drainage- A case series

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Introduction Percutaneous drainage of the liver abscess may be difficult in caudate lobe abscess due to the anatomical position. Percutaneous drainage is also associated with significant pain and few complications. Surgical management is associated with significant morbidity. An alternative option is endoscopic ultrasound guided aspiration or drainage through stomach wall in view of anatomic proximity to caudate lobe.
Methods Four consecutive patients who presented with symptomatic caudate lobe liver abscess were selected from 2014 till 2017. In all the four patients, percutaneous drainage was considered difficult by Radiologist. In them endosonography guided aspiration/drainage was done through the gastric wall under sedation.
Results All the four patients had a successful clinical outcome following EUS guided abscess drainage.
Conclusion EUS guided aspiration or drainage of liver abscesses is feasible and a safe option in patients where percutaneous drainage may be difficult.

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Early antiviral treatment (Tenofovir) leads to emergence of functional T cells with decline in hepatitis B viral load and prevent vertical transmission in HBsAg positive pregnant females

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Background Chronic HBV being an immune mediated disease, there is little data of HBV flares leading to reduction in viral load and immune reconstitution with or without anti-viral therapy during kinetics of pregnancy.
Methods Twenty-four HBsAg+ pregnant-females treated with 300 mg/day tenofovir from first trimester (T, ~12 wks; Gr.I) and 11 HBsAg positive non treated pregnant (NT, Gr. II) were analyzed for changes in serological (ALT/AST), virological (HBV DNA, HBeAg, anti-HBe and quant HBsAg) and HBV specific immune correlates of HBV flares throughout the pregnancy. Healthy pregnant females (H, n=6) were also included in the analysis as controls.
Results We studied the early effects of anti-viral treatment in the second trimester, 3rd trimester, followed through at delivery and 3 month post-partum. Mann–Whitney and univariate analysis revealed decreased expression of exhaustion marker PD1 on CD4+ and CD8+T cells and its clinical correlation in Gr.1compared to Gr. II. Gr. I females also showed higher HBV specific IFN-γ, IL-17A and decreased IL-10 and TGF-β secreting CD4 and CD8 T cell compared to Gr. II. Along with increased HBV specific T cells, antibody secreting plasma B cells were also increased in Gr. I than Gr. II. In the subsequent 3rd trimester, at delivery and in post-partum, in addition to increased HBV specific effector T cells, Tregs cells and inhibitory immune parameters declined and effective HBV specific pro-inflammatory responses were increased in Gr. I compared to Gr. II. Spearman correlation showed significant negative correlation of ALT, CD4+1 / CD8+ IFN-γ+ T cells with HBV DNA levels. Although, there was continues decline in HBV DNA, HBsAg levels throughout the pregnancy in Gr. I, significant reduction in HBsAg was observed at delivery and HBV DNA led to few HBsAg+ve babies at birth.

Conclusion Early start of anti-viral treatment in HBsAg positive pregnant females could prevent viral flare and HBV vertical transmission.

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Study of clinical profile of and treatment response of Wilson disease in a tertiary care center

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Introduction Wilson disease is caused by a defect in the ATP7B gene that results in impaired biliary copper excretion leading to accumulation of copper in several organs, commonly in liver and brain, causing neurologic dysfunction with chronic liver disease.
Methods The study was conducted in the Department of Medical Gastroenterology, Govt. Stanley Medical College, Chennai, from October 2017 July 2018. Sixteen patients diagnosed to have Wilson disease were taken into the study. Patients were analysed based on their clinical features at the time of presentation and they were followed up for clinical response to treatment.
Results Age distribution was 11–61 years with majority in the age group between 15–30 years. Majority of the patients (68.7%) presented with hepatic manifestations. Twenty-five percent patients had neuropsychiatric manifestation. Two patients (13%) had both neurological and hepatic manifestations, both of them presented with tremor. Three patients were asymptomatic and was diagnosed on family screening. Nine patients (56%) were born out of consanguineous marriage. Kayser–Fleischer (KF) ring was found in 56% of patients. All patients with neurological features, 2 out of the 3 asymptomatic patients and 3 patients with only hepatic features had KF ring.Ten patients were treated with penicillamine, 2 patients with zinc and 4 patients were treated with zinc and penicilamine. Nine patients noted improvement with chelation therapy in the form of improved LFT and decreased 24-hour urine copper. Two patients with DCLD underwent liver transplantation and did well in post liver transplant follow up. Fifty-six percent had stable disease and 25% deteriorated, now on liver transplantation work up.
Conclusion Family screening is important for early diagnosis. Hepatic manifestations were found to be more common. Penicillamine and zinc therapy can effectively treat Wilson disease with hepatic symptoms. Liver transplantation remains life saving for those with fulminant and end-stage disease.

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A unusual complication of amebic liver abscess- Hepatogastric fistula

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Introduction Amebic liver abscess is a common tropical disease. The incidence of amebic liver abscess varies between 3% to 9 % of amebiasis. The major complications are pleuropulmaonary, intrapleural and intraperitoneal rupture, jaundice and ascites etc. 2. Only few cases of heaptogastric fistula is described in literature.
Case report Sixty-year-year-old male, known DM-2 for 5 years well controlled on OHA presented with high grade fever for 7 days and RUQ pain for 5 days. He denies any history of alcohol addiction. On clinical examination he was febrile, pale and had tachycardia. He had mild tender hepatomegaly. His hemogram revealed severe anemia and leukocytosis (Hb-6.9 g/dL, TLC-27,700, P-85 %), prerenal acute kidney injury (AKI) (creatinine 3.21 mg/dL), normal bilirubin, mildly raised transaminases (SGOT-64, SGPT-58), reversal of albumin /globulin ratio. His ultrasound abdomen was 430 mL centrally liquefied left lobe liver abscess (segment 2/3). His amebic serology was reactive. He was started with intravenous metronidazole and supportive treatment. He became afebrile in 72 hrs and parameters of SIRS improved. Hs leukocytosis decreased. Follow up ultrasound examination showed 360 mL centrally liquefied abscess in segment 2/3. On day 9 patient developed hematochezia. Upper GI endoscopy was s/o thickened gastric folds in fundus with? fistulous communication with seeping of ancovy sauce like fluid. Colonoscopy was s/o large ulcer in transvers colon. CT abdomen was s/o left lobe liver abscess with fistulous communication with stomach. He was managed conservatively with IV metronidazole, IV antibiotics and supportive treatment. His serial ultrasound examination showed resolution of abscess and an upper GI endoscopy after 4 weeks showed closing of fistula tract.

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Albumin bilirubin index: A new simple score to predict short term mortality in alcoholic acute-on-chronic liver failure

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Background and Aims Alcohol is a major cause of acute-on-chronic liver failure (ACLF). There is a need for a simple prognostic score to predict 90-day mortality and liver transplant prioritization. We evaluated the albumin bilirubin index (SALBI), previously validated in hepatitis B ACLF as a predictor of 90-day mortality in alcoholic ACLF.
Methods This is an interim analysis. Consecutive patients with alcoholic ACLF were included. Following scores were calculated on day 1 of admission- model for end-stage liver disease (MELD), MELD-Na, Chronic Liver Failure Consortium Acute on chronic liver failure [CLIF-C ACLF] and ALBI. Patients were followed until death or 90 days.
Results Thirty-nine patients (44.90+7.81 yrs; 37 males) were included. Median MELD, MELD-Na, CLIF C ACLF and ALBI for patients who died was 34, 35, 100, −0.43 respectively as compared to 24, 29, 93, −0.71 in who survived (p<0.001 for all scores). The AUROC for MELD, MELD-Na, CLIF-C ACLF, ALBI was 0.891, 0.896, 0.982, 0.982 respectively; however, this was not significant (p -0.198). The ALBI score at −0.59 showed 96.2% sensitivity and 92.6% specificity in predicting 90-day mortality. The ALBI according to Grade of ACLF was as follows: Grade 0 was −0.68 + 0.23, Grade1 was −0.64 + 0.2, and Grade 2 ACLF was −0.36+0.21 and Grade 3 ACLF was −0.35 + 0.18.
Conclusions The ALBI was thus regarded as a sensitive and specific score to predict 90-day mortality in this interim analysis in patients with alcoholic ACLF.

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Thalidomide for the treatment of gastric antral vascular ectasia: A case series

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Background and Aims Gastric antral vascular ectasia (GAVE) is an uncommon but important cause of chronic gastrointestinal bleeding. It is often associated with systemic diseases such as autoimmune diseases, liver cirrhosis, chronic renal insufficiency and cardiovascular disease. Patients with recurrent bleeding from GAVE are a challenge to treat. We investigated the efficacy and safety of thalidomide for refractory bleeding from GAVE in this pilot study.
Methods Patients with GAVE bleeding and requiring ongoing transfusion were eligible for this open nonrandomized study. Thalidomide was started

with 100 mg/day and continued for 6 months. Adverse events, hemoglobin, blood chemistry, and blood transfusion were monitored during the treatment period.
Results The study was conducted from January 2017 to June 2018 at Madras Medical College. Six patients were recruited for this study. Among the 6 patients with GAVE, 3 had chronic parenchymal liver disease, 2 had systemic sclerosis and in 1 patient, we could not find the cause in spite of extensive evaluation and he had angioectasia all over the small bowel revealed by capsule endoscopy. All patients were started on 100 mg/day of Thalodomide. Two patients discontinued thalidomide within 8 weeks, because of skin rash in 1 patient and peripheral neuropathy in another patient. All side-effects resolved when Thalidomide was discontinued. These two patients required the same volume of blood transfusions per month as pre-study. In contrast, the four patients who continued 100 mg/day of thalidomide for 6 months did not require any transfusions during the 6 months of medication.
Conclusion Thalidomide should be considered as a therapeutic option in patients who are resistant to conventional therapy, but it should be monitored for of its side-effects.

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Screening of non-alcoholic fatty liver disease using new screening biomarker triglyceride and glucose index (Tyg) index

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Background Triglyceride and glucose index (TyG) is being proposed as a marker of insulin resistance. We wanted to compare the ability of TyG, as compared with the predictive value of alanine aminotransferase (ALT), to identify individuals at risk for non-alcoholic fatty liver disease (NAFLD). In a Chinese study, TyG threshold of 8.5 was found to be highly sensitive for detecting NAFLD subjects and was found to be suitable as a diagnostic criterion for NAFLD in adults.
Methods A cross-sectional study is being conducted in Department of Gastroenterology, Osmania Government Hospital, Hyderabad in 100 people aged above 20 years from 1st January 2018 to 15th November 2018. NAFLD is being diagnosed by ultrasonography.
Results Till date we have collected data for 78 patients. Physical examination, anthropometry and BMI was collected. ALT, FPG, uric acid (UA), and serum lipids was collected and analyzed for the biochemical measurements. Till date the data collected and analyzed is showing the mean age as 51.5 (±13.8) years and mean BMI 26.3 (±4.8) kg/m2. The median values of TyG index and ALT was found to be significantly elevated in subjects with NAFLD in contrast to those without the disease (both $p<0.05$).These results suggest that TyG is superior than ALT in association with NAFLD risk.
Conclusions TyG is effective in screening people at risk for NAFLD.

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Evaluation of ascitic fluid lactoferrin levels in patients with liver cirrhosis

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Background Lactoferrin is a iron-binding protein. Lactoferrin is found in various bodily secretions. Although elevated levels of lactoferrin provide a biomarker for inflammatory bowel diseases and colorectal cancer, the clinical significance of these elevated levels in ascitic fluid of patients with ascites caused by liver cirrhosis is limited.
Very few studies have evaluated the clinical usefulness of ascitic fluid lactoferrin level in patients with liver cirrhosis. Parsi et al. assessed the utility of ascitic fluid lactoferrin level for the diagnosis of spontaneous bacterial peritonitis (SBP) in patients with cirrhosis. However, few studies have evaluated the findings of Parsi et al. to clarify the clinical usefulness of ascitic fluid lactoferrin level for the diagnosis of SBP in patients with liver cirrhosis. We aim to study the usefulness of ascitic fluid Lactoferrin levels in patients of liver cirrhosis.
Methods A cross-sectional study of 100 subjects, both male and female with ascites due to cirrhosis of liver presenting to the Department of Medical Gastroenterology in Osmania General Hospital from October 2017 to October 2018.
Results Till date we have collected data from 86 patients. Ascitic fluid lactoferrin levels are measured using ELISA kits along with basic laboratory work up and routine ascitic fluid analysis. The median ascitic fluid lactoferrin levels were significantly higher in patients with SBP than in those without SBP.
Conclusions Ascitic fluid lactoferrin level can be a useful diagnostic tool to identify SBP in patients with ascites caused by cirrhosis.

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Efficacy and safety of directly acting antivirals (DAAs) in hepatitis C virus (HCV) infected patients in Indian scenario-3 year observational study from a tertiary care centre in South India

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Introduction Hepatitis C virus (HCV) infection is a major cause of liver disease affecting 1.6 % of population. Indian data regarding safety and efficacy of directly acting antiviral (DAA) therapy for HCV infection is limited, hence the importance of this study. The primary objective was proportion of patients who achieved sustained virological response 12 weeks after cessation of treatment (SVR12). Secondary end point was adverse events due to DAAs.
Methodology This was a three year, single-centre, observational study performed at a tertiary hospital in South India from April 2015-April 2018. All selected patients were categorized into 3 groups based on genotypes (1, 3, 4) and followed up with history and examination for any adverse drugs effects, blood analyses, clinical interviews at baseline and weeks 2, 4, and 12 and 12 weeks post treatment along with liver stiffness measurement using fibroscan pre and post-treatment. Those with genotype 3 received (Sofosbuvir+ daclatasvir or sofosbuvir+ velpatasvir) +/- ribavirin and those with genotype 1 and 4 received (sofosbuvir+ledipasvir or sofosbuvir+velpatasvir) +/- ribavirin according to EASL guidelines and availability.
Results Of the 210 patients, 46 were in genotype 1, 123 in genotype 3 and 41 in genotype 4. Overall rate of SVR12 was 91.8 % (n=192/210). Among 46 patients with genotype 1,SVR 12 was 100% (n=46/46) and among 123 patients with genotype 3, SVR 12 was 88.6% (n=109/123). 90.5% patients from genotype 4 (n=37/41) attained SVR12. Fatigue was the most common adverse event, 45.2% (n=95). The significance of SVR on overall advanced fibrosis and cirrhosis (F3 and F4) were analysed by chi-square test and were found not significant (p> 0.5).
Conclusion The efficacy and safety of DAAs in HCV infected population in Indian scenario is comparable to Western standards. However low rates of SVR12 in genotype 3, the commonest genotype in India, needs to be addressed further.

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Management of chronic hepatitis B resistance in a tertiary care centre in India: A real-life experience

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Background The emergence of antiviral resistance has been an important challenge in the treatment of chronic hepatitis B (CHB) for years, until the era of nucleoside/nucleotide analogues (NA) with a high genetic barrier to resistance. Current guidelines suggest that entecavir and tenofovir, which are the most potent drugs, should be used as first-line NAs to prevent resistance in the long term. High serum hepatitis B virus (HBV) DNA levels are an independent risk factor for disease progression to cirrhosis and hepatocellular carcinoma (HCC) in patients with CHB. The primary goal of antiviral therapy for CHB is to prevent liver disease progression.
Method An observational study from January 2014 to December 2017 of patients referred to the out patients clinic of gastro unit of Medicine Department of KGMU, Lucknow, for treatment of CHB. Assessment of demographic, laboratory data and clinical presentation at the time of referral. Biochemical and virological tests were performed at the baseline, at 3-month intervals in the first year, and every 6 months thereafter.
Treatment and end-points All NA-naïve patients with CHB received Tenofovir (TNV) monotherapy. The primary end-point of this study was the proportion of patients achieving a complete virological response (CVR), which was defined as an undetectable HBV DNA level (<20 IU/mL) during the follow up period.
Result We have accessed total 537 HBV infected patients, in which we have evaluated HBV-DNA level to see whether to start antiviral therapy or not. In which 250 patients were found whose HBV-DNA level was >2000 IU/mL, were started TNV. All the patients respond well except 6 patients in which we don't achieve the CVR after 3 years of TNV antiviral therapy. In non-responder patients, we started entecavir 0.5 mg.
Conclusion Tenofovir resistance is negligible in the treatment of hepatitis B, even after long-term of treatment.

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Management of accidental exposure to HBV and HCV in health care workers: An experience at tertiary care hospital

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Introduction Health care workers (HCW) have a high risk for occupational exposure to hepatitis B virus (HBV), HCV and human immunodeficiency virus (HIV). HBV is the most infectious but is preventable by safe and effective vaccination. The present retrospective study was aimed to know the prevalence of accidental exposure to these viruses and its management amongst the HCW.
Study Design Present study was retrospective analysis of all HCW who voluntarily reported injuries by needle prick, sharps and splashes on cut skin and mucous membranes by blood/body fluids mainly to HBV and HCV. A detailed history of HBV vaccination, number of doses received was noted. HBsAg, anti-HBs and anti-HCV was performed in all and LFT wherever needed.
Results The study included 41 HCW (21M/20 F) who reported during the period of 2012-2018. There were 20 doctors, 12 nurses, 7 laboratory personnel and 2 workers in the age group 18-45 yrs. Needle prick with known HBsAg positive during various procedures was the commonest (34/41) followed by splash (5/41) and spill over of blood or body fluids (2/41). HCV exposure was reported by 2HCW who had normal LFT and HCV seronegativity at baseline. Vaccination against HBV was reported in 33/41(80.4%) and anti-HBs was positive in 30/33 (90.9%). Anti-HBs was positive in 5/8 (62.5%) non-vaccinated subjects. Anti-HBs titres were in the range of <10, 10-50, 51-100 and >100 mIU/mL in 9.1%, 27.2%,18.1% and 45.4% respectively. A booster dose of HBV vaccine was administered in all with titers < 50 mIU/mL. HBIG was administered in all anti HBs negative HCW followed by active immunization. At 6 months follow up none of them developed chronic HBV or HCV infection.
Conclusion 1) Immediate analysis of anti-HBsAg titre helps in avoiding HBIG. 2) HBIG administration required only in 18%. 3) Single booster dose is sufficient in HBV exposure in majority. 4) HCV is less efficiently transmitted hence can be managed by follow up LFTs and HCV RNA.

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The relationship of serum vitamin A (Retinol) levels with disease characteristics in patients of liver cirrhosis

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Introduction Vitamin A is stored in hepatic stellate cells which are also involved in pathogenesis of liver cirrhosis. But there is scarcity of data on whether vitamin A levels are associated with severity of cirrhosis and can be used as a prognostic marker in cirrhosis patients.
Aim To study the relationship of serum vitamin A (retinol) levels with disease characteristics in patients of cirrhosis and to compare it with age and sex matched control group.
Method Case control analytical study of forty-five consecutive patients of cirrhosis of liver with age and sex matched control group of forty-five healthy volunteers from February 2017 to September 2018.
Results Serum vitamin A levels were significantly ($p<0.05$) lower among patients with cirrhosis (28.96±9.63 μg/dL) compared to age and sex matched control group (62.36±42.19 μg/dL). Patients with 6-month survival had significantly higher serum vitamin A levels as compared to those could not survive (30.15±9.21 μg/dL vs. 19.4±8.08 μg/dL, $p=0.01$). There was a trend towards decreasing serum vitamin A levels with advancing CHILD PUGH class A to C. But it was not statistically significant ($p=0.16$).
Conclusion Serum vitamin A deficiency in patients with cirrhosis was associated with increased mortality.

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Combined hepatocelluar cholangiocarcinoma: A diagnostic conundrum

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Introduction Primary liver tumor with combined histology of hepatocellular carcinoma and cholangiocarcinoma (cHCC-CC) is a rare entity with an overall incidence varying from 0.4% to 4.7%. Lack of specific treatment guidelines, poor response to the various surgical and palliative therapeutic options often result in dismal outcome. Familiarity with the clinical and imaging features for differentiating from either Hepatocellular carcinoma (HCC) or cholangiocarcinoma (CC) is important. Variable atypical findings depending upon the dominant component (cholangiocellular or

hepatocellular) should raise an index of suspicion and final confirmation by histopathology. We present the clinical and imaging profile of cHCC-CC patients along with review of literature.
Method Case records containing prospectively collected data of the patients reporting to our hospital were reviewed retrospectively. Data of histopathologically proven cHCC-CC patients with complete records were included. Demographic details, clinical features and imaging characteristics on multiphasic CT or MRI of the Liver were analyzed.
Results Seven patients of mean age of 43.5+20.7yrs with male female ratio of 4:3 were evaluated. Abdominal pain (71 .4%) and anorexia (42.8%) were the commonest complaints. Three patients has hepatitis B related chronic liver disease and raised serum alpha-fetoprotein (>1000 ng/mL), one was hepatitis C positive. Four patients had single hepatic mass and three had multiple; the size varied from 3.3-18cms. The masses showed variable enhancement which included arterial phase hyper-enhancement, delayed washout or centripetal fill-in and with/without capsule enhancement. Pattern of enhancement of different masses was also different within the same patient. Biliary dilatation and lymph node enlargement was noted in 2 and 1 patient each. Only three patients could be given treatment (TACE [2] and oral sorafenib [1]).
Conclusion Combined HCC is a complex and challenging entity with dismal prognosis and thus differentiation is important. Atypical imaging findings should raise the suspicion and biopsy should be recommended for final confirmation

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A study on empiric response to cefotaxime for treatment of spontaneous bacterial peritonitis

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Introduction Spontaneous bacterial peritonitis (SBP) is defined as an infection of ascites in the absence of a contiguous source of infection. SBP occurs in 10% to 30% patients with cirrhosis and ascites with in-hospital mortality rates from 20% to 30%. The diagnosis is by presence of an absolute PMN cells >250 cells/ mm^3. This study was done to assess the response of cefotaxime on SBP as reports of resistance have emerged.
Methods We conducted an interventional study involving 36 patients from June 2017 to June 2018. All patients with decompensated cirrhosis with ascites, having ascitic fluid PMN cells >250 cells/ mm^3, with or without prior history of SBP, with or without symptoms of SBP, were studied and treated empirically with cefotaxime. Ascitic fluid was repeated at 48 hrs. and response was assessed by 25% decrease in PMN cells.
Results Our 36 patients of SBP were 27 males and 9 females, among them 33% were Child score B and 66% were Child score C, with most common presentation being abdominal pain. The mean age was 42.5 years. Most common cause of cirrhosis was ethanol related (n=20). Mean MELD score was 17.5. However only n=25 (69%) patients achieved satisfactory response with at least 25% reduction of their PMN count. The remaining 11 patients (31%) were shifted to alternative antibiotics. The most common organism responsible was E coli.
Conclusion As switch to another antibiotic was necessary to achieve resolution of infection in 31% of our patients, 3rd generation cephalosporins are no more the best first empiric choice of SBP. So, in patients with high MELD and child C cirrhosis we should plan to start higher antibiotic as empiric treatment. Also, there is an urgent need for clinical trials on alternative antibiotic for first line empiric therapy for SBP.

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Management of hepatocellular carcinoma associated with hepatic venous outflow tract obstruction (HVOTO-HCC): A challenging task for an Interventional Radiologist

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Introduction 1n hepatic venous outflow tract obstruction (HVOTO-HCC) is rare entity which has recently come into limelight due to the availability of interventional treatment options for HVOTO resulting in prolonged survival. Treatment is challenging as both HVOTO as well as HCC needs to be treated for effective outcome. We highlight the management and outcome of these cases undertaken at our centre.
Methods HVOTO-HCC patients presenting to our hospital were evaluated. Detailed clinical, biochemical and imaging examination was done. Ultrasound Doppler, multiphase CT liver/dynamic MRI/venography were undertaken. HVOTO treatment was based on the site and type of obstruction. Staging and treatment of HCC was based on the Barcelona Clinic liver cancer Staging (BCLC). Treatment response and survival was studied.
Results HVOTO-HCC (n=15) were included. For HVOTO, 8 patients received therapy- transjugular intrahepatic portosystemic shunt (TIPS) 3, IVC angioplasty 2, IVC stenting 2 and HV stenting in 1 patient. Complete or partial response was seen in 5 patients while 3 did not respond to therapy. Ten HCC patients were treated (trans-arterial chemoembolization [TACE] in 8, trans-arterial chemotherapy in 2 and TACE followed by percutaneous acetic acid ablation in one patient). Local tumor response could be assessed in 9 patients. Complete response was seen in 5 patients and partial response in 4 patients. Six patients are alive while 4 have died. The mean survival period was 20.5 months.
Conclusion Treatment of HVOTO-HCC is challenging and requires great skill and expertise. It is mandatory to treat both HVOTO and HCC for an effective outcome.

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Differential expression of hepatic CYP2R1 in patients with cirrhosis

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Introduction Hypovitaminosis D is common in patients with cirrhosis, and it is one of the implicated factors in hepatic osteodystrophy. The liver is an important intermediary site of vitamin D metabolism. Metabolism of vitamin D in the liver employs D-25-hydroxylase enzyme for the conversion of vitamin D into 25-hydroxyvitamin D (calcidiol). This enzyme is encoded by the CYP2R1 gene. This study aims at analyzing CYP2R1 expression in liver biopsy tissue of patients with cirrhosis and diseased controls.
Methodology The study was done on liver biopsy samples from 16 cirrhotic and 12 diseased controls (post-mortem liver biopsies of Crohn's disease, severe acute pancreatitis, acute liver failure, chronic pancreatitis and liver abscess patients). Total RNA was extracted from the biopsies by using commercial kits (Qiagen, RNA isolation kit). Concomitantly cDNA was obtained by reverse transcription by using high fidelity 1st strand cDNA synthesis kit (Agilent). The mRNA expression of CYP2R1 was estimated using the CYP2R1 specific primer by real-time PCR. Fold change was

calculated using 2-ΔΔct. Appropriate statistical tests were used. A p-value of <0.05 was considered significant.
Results Among cirrhotic patients, 12 were males and 4 were females and their mean age was 44.0±13, 13 years. Out of 12 diseased controls, 5 were males and 7 were females with mean age of 38 ±12.8 years and measured serum bilirubin (mg%) in patients with cirrhosis was 17.3 (0.8-32) as compared to disease control was 1.3 (0.2-19.7). The hepatic CYP2R1 gene expression was significantly decreased (2.8 fold) in cirrhotic patients as compared to its expression in diseased controls (p<0.05).
Conclusion Serum bilirubin level is significantly high with the down-regulated CYP2R1 gene in cirrhotic patients as compared to disease control, which explains hypovitaminosis D in these patients.

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Surviving fulminant hepatitis B without liver transplant

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Introduction We hypothesised that the overwhelming immune response against hepatitis B virus (HBV) causing acute liver failure (ALF) maybe countered by immunosuppression.
Methods We report 3 HBV ALF patients (September 2017 - August 2018) (23 (20 – 23) years old, median (range); 1 male) (jaundice to encephalopathy interval: 1 (1-2) day) who survived with high dose steroids and Tenofovir. Both females were pregnant – primi (2nd month gestation); 2nd gravida, (2nd month gestation). Two patients also had plasma exchange, none opted for liver transplantation.
Results At presentation, serum total bilirubin : 16 (13-28) mg%, SGPT 1996 (1693-3568) IU/mL, INR 5.94 (3.6-8), plasma vWF antigen 327 (192-640) %, MELD 39 (31-39), SOFA score 8 (8-9) and hepatic encephalopathy grade 3 (3-4). Two patients needed mechanical ventilation. Two patients were HBsAg positive. All 3 patients were IgM core antibody positive, E antigen negative, had HBV DNA 20000 (2000 - 7 lakhs) IU/mL and seronegative for hepatitis A, C, E and HIV. None had prior history of hepatitis B. Possible routes of HBV acquisition: sexual (1 patient); ear-piercing (1 patient). Tenofovir was started from day 1 of hospital stay; methyl prednisolone infusions (250 mg for 1 day, 500 mg for next 2 days) given 1–5 days later; then, prednisolone (40 mg/day) - tapered over 14 days. In 1 patient, methyl prednisolone was stopped after 2 days (gram negative bacteremia). Co-trimoxazole was given as PCP prophylaxis. All patients improved, were well 6 (2-11) months later and became HBsAg negative. One lady delivered a healthy baby, one is in 4th month gestation. Complications of high dose steroids: gram negative bacteremia (2 patients), 1 also had Candidemia.
Conclusion We report 3 HBV ALF patients (hyperacute presentation) who survived without liver transplantation with Tenofovir and immunosuppression.

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To study cardiac manifestations in chronic liver disease

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Introduction The systemic circulation in patients with cirrhosis is hyperdynamic with an increased cardiac output, heart rate and a reduced systemic vascular resistance as the most pronounced alterations. With this background, objective of this study is to assess the cardiac functions in patients with chronic liver disease and study the prevalence of cirrhotic cardiomyopathy in these patients.
Methodology A descriptive study conducted with 35 patients with diagnosed case of liver cirrhosis. Participants were enrolled after excluding any known cardiac illness and known causes of cardiomyopathy. Patients were subjected to biochemical and sonographic evaluation to confirm cirrhosis of liver. Cardiac assessment was performed non-invasively using ECG and transthoracic echocardiography. Results were interpreted using Chi-square/Fisher's exact test. A p value 0.05 was considered to be significant.
Results Among 35 participants, mean age was- 53.37 years (min-32, max-81) with 74% male and 26% female. Ascites (60%) and anorexia [60%] were most common presenting symptoms. 48% participants were in category of B as per Child-Pugh score. Mean MELD score was 27.6 (min-7, max-40). In cardiac assessment, 54% participants presented with Qtc prolongation in ECG and 71% and 29% presented with diastolic dysfunction grade I and grade II respectively. Mean ejection fraction was 70.57 (min-44, max-82).Cardiac abnormalities did not correlate with the severity of liver dysfunction.
Conclusion There is high prevalence of cardiac dysfunction amongst cirrhosis of liver. Diastolic dysfunction which is seen in all patients of cirrhosis suggest that all patients with cirrhosis of liver must be screened for cardiac dysfunction. This may help in planning fluid therapy especially in patients have hepatorenal syndrome.

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Prevalence of non-alcoholic fatty liver disease in patients of coronary artery disease and its association with coronary artery disease severity

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Background It was believed till few decades back that target organs for metabolic syndrome are heart and brain with increased prevalence of cardiovascular and cerebrovascular accidents. Now liver is concerned as another very important target organ of metabolic syndrome with non-alcoholic fatty liver disease (NAFLD) being most common liver disease worldwide. Despite high prevalence of NAFLD, the most common cause of mortality amongst metabolic syndrome remains coronary artery disease (CAD).
Objectives This study aims to evaluate the prevalence of NAFLD in CAD patients and relation of fatty liver disease with the severity of coronary artery disease.
Methods This study was a cross-sectional descriptive-analysis research that included 83 patients who were proved CAD on angiography (>50% stenosis). The severity of CAD was assessed by the number of vessels involved (vessel score: vd). An ultrasound was performed for all patients and intensity of fatty liver involvement was graded from 0 (absence of steatosis) to 3 (severe steatosis). Results were interpreted using Chi- square test. A p value <0.05 was considered to be significant.
Results 43.3% of the CAD patients had NAFLD on ultrasonography. Those patients who had CAD along with NAFLD had significantly higher body mass index (p<0.05). Moreover, coronary angiographic data indicated that the presence of NAFLD significantly correlated with the CAD severity score as so: 25% of people of SVD, 52% of people with 2vd and 73% of people with 3vd had fatty liver that was statistically significant (df=4; p<0.01).
Conclusion This study showed a high prevalence of NAFLD in patients with documented CAD. More severe the CAD, higher the chances of NAFLD. Based on this small study we confer that

all patients with NAFLD need screening for CAD with higher chances of CAD amongst severe fatty liver disease.

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Acute viral hepatitis A/E with severe acute hemolysis: Case series

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Acute viral hepatitis A or E in general is self-limited but in rare cases it may cause severe hemolysis, acute liver failure, renal failure and/or cholestasis. We report two cases of acute viral hepatitis A/E complicated by acute severe hemolysis. A 18-year-male presented with progressive jaundice since 7 days. Investigations revealed leukocytosis, very high total bilirubin–53 mg/dL, SGPT–5130 U/dL, PT- INR 1.42, high creatinine 3.64 mg/dL, high ammonia, IgM HAV reactive. Evaluation showed severe hemolysis (very high indirect billirubin, LDH, reticulocyte count). He was treated with intravenous N-acetyl cystein, steroids (IV methylprednisolone in tapering doses followed by oral), plasmapheresis (5 sessions), hemodialysis and multiple blood transfusions for severe hemolysis, acute liver and renal failure with anuria. There was complete resolution of jaundice, hemolysis after eight weeks of onset of illness. Renal failure resolved after three months. Second case- A 30 year male presented with progressive jaundice of 2 months duration with weight loss, breathlessness. Investigations revealed IgM HEV reactive, total billirubin 23.43mg/dL, hemoglobin 5.9g/dL and hemolysis (high retic count 5.2%, direct coomb test positive) with other causes of hemolysis like autoimmune, infections other than hepatitis A/E and glucose-6-phosphate dehydrogenase (G6PD) deficiency ruled out. He was treated with oral steroids for HEV related immune mediated hemolytic anemia and blood transfusions. After 3 weeks of treatment there was no evidence of hemolysis and jaundice resolving. A prompt diagnosis and treatment of acute hepatitis A/E associated complications is essential, as uncommon presentation may delay diagnosis leading to permanent morbidity and high mortality in fulminant cases. We demonstrated rare cases of severe hemolysis related to hepatitis A/E in absence of other causes of hemolysis and efficacy of steroid, plasmapheresis in acute hemolysis and renal failure related to acute viral hepatitis.

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The spontaneous symptomatic acute exacerbation of chronic hepatitis B - clinical profile and outcomes

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Introduction Spontaneous severe symptomatic reactivation of chronic hepatitis B (CHB-AE) has high mortality especially after the onset of decompensation. The aim was to study the outcome with early antiviral therapy (AVT) in CHB-AE.
Methods The consecutive adult patients having CHB-AE seen in Out-Patient department or admitted at Department of Gastroenterology, G.I.P.M.E.R., Delhi were enrolled in study. The severity of CHB-AE was classified at first presentation on basis of total bilirubin and prolongation of prothrombin time as mild (Bil 2-5 mg/dL, PT <3 secs), moderate (Bil >5-15 mg/dL, PT <3 secs and severe (Bil >15 mg/dL or PT >3 secs or decompensation). The AVT was started in moderate and severe disease at the time of presentation and patients were followed up till 3 months or death.
Results Total of 53 patients with confirmed CHB-AE and followed till end point were finally included in study. The mean age was 39.8±14.4 yrs and 38 (72%) were males. In moderate CHB-AE group we had (*n*=21 (39.6%) patients, non-cirrhotic *n*=18, cirrhotic *n*=03) and median duration of symptoms was 25 days (21-28 days), S. Bil 9.3 mg/dL (7.9-10.9 mg/dL), ALT 1161 IU/mL (608-1395 IU/mL), S. Alb 3.9 gm/dL (3.6-4.4 gm/dL) and HBV DNA 33910 IU/mL (7916-1900000 IU/mL) respectively. Severe CHB-AE group had (*n*=29 (54.7%) patients, non-cirrhotic *n*=18, cirrhotic *n*=11) and median duration of symptoms was 28 days (21-42 days), S. Bil 19.32 mg/dL (15.4–23.1 mg/dL), ALT 1088 IU/mL (311-1440 IU/mL), S. Alb 3.5 gm/dL (3.1-4.2 gm/dL) and HBV DNA was 174931 IU/mL (7600 – 66760 IU/mL). The AVT in mod CHB AE was (Entecavir *n*=14, Tenofovir *n*=7) and in severe CHB-AE was (Entecavir *n*=24, Tenofovir *n*=05). There were 4 (7.5%) deaths in CHB-AE, all death were in severe CHB-AE.
Conclusion The initiation of AVT at time of presentation in symptomatic moderate and severe CHB-AE reduces mortality.

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A case of combined hepatocellular and cholangiocarcinoma in a patient with cirrhotic liver presenting as a index variceal bleed

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Introduction Combined hepatocellular cholangiocarcinoma (CHC) is uncommon form of hepatic neoplasm creating diagnostic dilemma. Hereby we are presenting a case of CHC.
Method We had a case of 65-year-old female, k/c/o DM II on OHA, came with index esophageal variceal bleed (EVBL done). There was no h/o weight loss/ LOA/ethanol intake. HBV/HCV- neg. As a workup of CLD she underwent (USG abdomen) which showed-coarse liver echotexture with irregular surface. Splenomegaly, ascites +. Hypoechoic mass (4 x 3.9 cm) in left lobe of liver. To know further details of lesion she underwent CECT (abdomen) which showed –irregular hypodense lesion with thin rim of peripheral enhancement in segment II of liver – 5.5 X 3.9 cm size. ? Cholangicarcinoma was considered. No IHBR dilated. Sr AFP level was elevated.
Result To confirm diagnosis liver Bx done which favored adenocarcinoma. However, immunohistochemistry showed overlapping features of both poorly differentiated HCC and poorly differentiated adenocarcinoma (cholangioca. favored). (Glypican 3, CK 7 positive, Heppar 1 neg).
Conclusion Case of combined hepatocellular – cholangicarcinoma in pt. With liver cirrhosis with index bleed.

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Utility of liver dry weight copper and liver biopsy staining for copper in diagnosing hepatic Wilson disease

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Introduction Of additional tests used in diagnosing hepatic Wilson's disease (WD), liver biopsy staining for copper is much more widely

available than liver dry weight Copper (LDW Cu) estimation. We compared the clinical utility of these 2 tests to diagnose WD.
Methods We retrospectively analyzed LDW Cu (by atomic absorption spectroscopy) and liver copper staining (rhodanine) in diagnosing hepatic WD. Semi-quantitative score was based on type of granules, zonal distribution and extent of staining (each scored 0-3; total score 0-9). Serum ceruloplasmin (ferroxidase) activity was assayed (normal >200 U/L). WD diagnostic scoring was based on EASL-WD guidelines (2012).
Results Of 141 patients with LDW Cu available, 18 were diagnosed to have WD (M: 11; age: 23 years, 9-52; median, range). In these 18 patients, liver biopsy core weight was 0.84, 0.34-15.2 mg; LDW Cu: 306.3, 5.9-2365.6 μg/g; liver copper stain score: 4.5, 0-7. Nine of the 18 patients fulfilled EASL-WD diagnostic criteria (score ≥4; low serum ceruloplasmin:6, KF ring:7; 24 hr. urinary copper >50 μg: 18) prior to liver biopsy. Of these 9 patients, LDW Cu (225.03, 27.5-2365.6 μg/g) was raised in 7 patients (> 55 μg/g: 3; >250 μg/g: 4) and 5 showed Copper granules (Cu score: 4, 0-9). One patient had no copper on histology nor raised LDW Cu. Nine patients did not fulfil EASL-WD diagnostic criteria (i.e. score ≥4) prior to biopsy (score 3: 5 patients; score 2: 4 patients). Of these 9 patients, LDW copper (387.5, 5.9-1844.5 μg/g) was raised in 7 patients (> 55 μg/g: 2; > 250 μg/g: 5) and 6 showed Copper granules (Cu score: 5, 0-6). Only 1 patient (score: 3; probable WD) did not have copper on either histology or LDW.
Conclusion Staining for copper granules on liver biopsy is as helpful as LDW Cu estimation in confirming hepatic WD in difficult to diagnose situations.

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Plasma exchange therapy in liver failure: Femoral port insertion may be preferable

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Introduction Optimal site of IV access for plasma exchange (PLEX) in liver failure patients is unclear. Significant coagulopathy in these patients makes jugular venous access prone to bleeding; while femoral venous access may have higher risk of sepsis.
Methods Prospectively collected database of liver failure patients who underwent PLEX between July 2016 to July 2018 was retrospectively analyzed. The choice of IV central access for PLEX was based on clinician's preference (i.e. either femoral / jugular). The IV access was secured with USG guidance, after adequate blood product transfusions. All patients underwent low volume PLEX (30-50 ml/kg/session). The number of sessions were decided on a case-to-case basis. The patients were monitored during and after PLEX sessions and complications were noted.
Results Forty-five patients (M:27; age:29 (7-66) years; ALF-23; SAHF-8; ACLF-14) were included. Median 2 (1-10) PLEX sessions per patient were done. All patients had coagulopathy (PT:30.8 [11.9-120] seconds, and platelet count: 1.29 [0.15-6.94] lakhs/ cu.mm), prior to port insertion and required multiple units of blood product transfusion. Ten patients had jugular (ALF:1; SAHF:5 ACLF:4) and 35 had femoral (ALF:22; SAHF:3; ACLF:10) central IV access. Significant port-site bleeding was noted more commonly in jugular access (3/10 [30%]) as compared to femoral access (2/35 (6%); *p*-value:0.065). One patient in jugular access group required packed red cell transfusion and further PLEX sessions were discontinued in 2 patients (1 in each group) due to port site bleed. Blood stream infection (Gram negative bacilli), possibly secondary to port insertion was noted in one patient each from jugular and femoral access groups (*p*-value:0.4).
Conclusions In liver failure patients undergoing PLEX, significant port-site bleeding was less common with femoral access as compared to jugular access; whereas the risk of blood stream infection was similar.

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A rare association of isolated agranulocytosis with hepatitis B reactivation

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Introduction Hepatitis B infection has been reported as cause of thrombocytopenia but not isolated neutropenia. Many other infectious agents have been implicated in causing neutropenia. Among hepatotropic viruses, hepatitis C has been reported to cause neutropenia. We present a case of isolated agranulocytosis caused by reactivation of hepatitis B.
Case Report A 50-year-old woman presented with history of jaundice for 2 months and high-grade fever for 4 days. Physical examination was unremarkable except for icterus. On investigation, CBC showed Hb-11.8 gm/dL, TLC-1200cells/μl with absolute neutrophil count of 24 cells/μl, platelet count-2.9 lakhs/μl. Peripheral smear did not reveal any abnormal cell lines. LFT was SGOT-417 IU/L, SGPT-304 IU/L, alkaline phosphatase-115IU/L, GGT-51U/L, T. bilirubin-29.2 mg/dL, D. bilirubin-25.1mg/dL. USG-abdomen showed mild hepatomegaly with normal CBD and no IHBRD. Viral markers showed HBsAg was positive, serology for HAV, HEV, HCV, HIV were negative. HBeAg was negative, anti-HBc–total and IgM were both positive. HBV-DNA was 66420 IU/mL. Fever persisted for 10 days in spite of antibiotics. Blood and urine cultures were sterile twice. No evidence of infection by brucella, salmonella, rickettsia was found. Autoimmune profile (ANA, anti-dsDNA, Coomb's test) was negative. HRCT chest revealed B/L lower lobe atelectasis with no consolidation. Patient persisted to have severe neutropenia. Bone marrow biopsy showed normal erythroid and megakaryocte series with marked leucopenia and neutropenia. Patient was treated with supportive care (antibiotics, antifungals, nursed in isolated room) and Inj. G-CSF 300 μg subcutaneous was given for 5 days. Patient was also started on Tenofovir alafenamide 25 mg OD. Patient improved after 2 weeks, was afebrile and discharged with normal leukocyte count and improving LFT. On follow up 7 days after discharge her leukocyte count was 4800 cells/μl.
Conclusion Viral hepatitis B may be associated with isolated neutropenia as was found in this case. Hepatitis B infection should also be kept in mind in patients with neutropenia.

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FIB – 4 index better correlates with significant fibrosis than newly described FIB – 5 in patients with non-alcoholic fatty liver disease

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Introduction A simple non-invasive marker for non-alcoholic fatty liver disease (NAFLD) remains elusive. We evaluated a recently described non-invasive marker FIB; 5 and compared with FIB.

Methods Consecutive patients with biopsy proven NAFLD patients were included in the study. Their FIB and FIB; 5 scores were calculated from laboratory parameters at the time of biopsy. Patients were divided into two groups; group A (Metavir score of F0-F1; non-significant fibrosis) and group B (Metavir score of F2-F4; significant fibrosis). AUROC of these scores were calculated and compared.
Results One hundred patients were included in the analysis (group A 62, group B 38). Their mean age was 44.31; 13.68 years for group A and 41.26; 11.51 for group B. Group A included 29 males (46.8%) and 33 females (53.2%). While in group B; there were 13 males (34.2%) and 25 females (65.8%). Median FIB; 4 score of group A was higher than that of group B (2.71; 4.64 vs. 1.16; 2.84; *p* value 0.06). Median FIB; 5 score for group A and group B was (04.67; 05.69 vs. -02.02; 14.44; *p* value 0.007). FIB; 4 value above 1.45 had sensitivity, specificity, PPV and NPV of 47.4%, 90.30%, 75% and 73.7% respectively for predicting significant fibrosis. FIB; 5 value above 7.505 had sensitivity, specificity, PPV and NPV of 18.4%, 53.20%, 19.4% and 51.6 % respectively for predicting significant fibrosis. While FIB; 5 value above 0 had sensitivity, specificity, PPV and NPV of 57.1%, 83.9%, 61.5 % and 81.2 % respectively for predicting significant fibrosis. AUROC for FIB; 4 was 0.771 (p=0.0012) and that of FIB; 5 was 0.329 (p=0.159).
Conclusion FIB 5; predicts significant fibrosis better than FIB 4.

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Isolated tubercular liver abscess in a patient without immunodeficiency: A rare case report

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Introduction Isolated tubercular liver abscess without any other organ involvement is an extremely rare presentation of tuberculosis. It is usually associated with pulmonary and gastrointestinal tuberculosis in immunocompromised patients.
Case report We report a case of 23-year-old man with fever and weight loss for 3 months. On investigation, liver function test was normal with a high value of ESR. USG and CECT of the abdomen were done and two abscesses of size 44 mm x 37 mm and 27 mm x 22 mm were detected in the liver. CT guided FNAC was done and the histopathology report confirmed as a tubercular abscess. The patient was treated successfully with anti-tubercular therapy for 6 months.
Conclusion Although tubercular liver abscess is very rare, it should be considered in differential diagnosis of prolonged fever with liver abscess so that early intervention will prevent morbidity and mortality of the patients.

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Addition of simvastatin to carvedilol improves hemodynamic response in non-bleeder cirrhotics- A 1-year follow up analysis of a randomized controlled trial (NCT02465645)

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Introduction Hepatic venous pressure gradient (HVPG) is the best surrogate marker for predicting treatment response to beta-blockers in cirrhosis. We analyzed the hemodynamic effect and decompensation events of long-term continuation of simvastatin with carvedilol.
Methods Non-variceal bleed cirrhotics were prospectively randomized to Carvedilol (Gp.A, n=110) or Carvedilol plus Simvastatin (Gr.B, n=110). Effect of drugs in HVPG reduction (reduction of ≥20% or< 12 mmHg) was measured at 3-months. High risk varices and HVPG non-responder patients underwent endoscopic variceal ligation (EVL) at 3-months and the treatment was continued in others. Decompensation event was defined as new episode of variceal bleed, new onset hepatic encephalopathy, worsening of ascites and jaundice. Patients without decompensation events underwent repeat HVPG measurement at 1-year.
Results Baseline parameters were comparable. Mean Child-Turcotte-Pugh (CTP) score in Gr. A was 7.29±1.94 and in Gr. B was 7.66±1.83 (p=0.28). Overall, 121 (55%) patients underwent HVPG at 3 months with 72 (59.5%) responders and 104 (85.9%) continued treatment for 1-year. Seventeen (14.1%) non-responders underwent primary EVL. The mean reduction in HVPG was significantly greater in Gr. B (n=24) than A (n=22) at 1-year, (-5.45 vs. -3.00 mmHg, p=0.007). Total decompensation events at 1-year in the two groups were comparable (Gr. A=24.5% and Gr. B=21.6%, p=0.82). Patients who were responders at 3-months (n=72) showed lesser decompensations than non-responders (18.6% and 34.4%, p=0.068). The 6-month and 1-year complication free survival was 98% and 81% in responders and 71.9% and 65.2% in non-responders (p=0.003). On univariate analysis, age, model for end-stage liver disease (MELD), CTP score and response at 3-months were significantly associated with decompensation events but on logistic regression analysis, baseline CTP score (CTP>8, sensitivity=70% and specificity=74%) was significantly associated with risk of decompensation in non-responders at 1-year (OR-1.69, 95% CI-1.26-2.28, p=0.001).
Conclusion Patients with cirrhosis and esophageal varices and achieving HVPG response at 3 months show significantly decreased overall risk of hepatic decompensation at 1 year. Long-term simvastatin therapy helps in achieving greater degree of portal pressure reduction on longer treatment duration.

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Incidence of accidental exposures to HBV and HCV in health care workers

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Introduction Accidental exposure by needle stick and other injuries is a recognized source of exposure to blood borne pathogens like hepatitis B (HBV) hepatitis C (HCV) and human immunodeficiency viruses (HIV) to health care workers (HCWs). Many of accidental injuries remain unreported thus prevent HCWs from receiving post exposure prophylaxis (PEP). The present observational study was aimed to know the incidence of needle prick and other exposures to HBV and HCV in HCWs.
Methods This observational prospective study was conducted in a tertiary care hospital. A questionnaire was distributed to HCWs in various departments which included information on demographic data, accidental exposure to blood/blood products and other body fluids, needle prick, splash of infective material in the past one year. Immediate post exposure measures taken, serological testing, vaccination status and PEP received if any was noted.
Results The study included 281 HCWs in the age group 20-56. Accidental exposure was reported in 69/281 (24%) including 24 doctors, 42 nursing staff (28 trainees) and 3 technicians. Commonest mode of accidental injury reported was contact with; blood in 35/69 (50.7%).This was followed by splash in 17 (24.6%), needle prick and sharp injury in 16 (23.1%) each. The incidence of accidental exposure was highest in young HCWs (82%). Use of protective devices at time of

injury was noted in 32/69 (46.3%), cleaning the injury site with soap and disinfectant was frequently used first aid measure (66.6%) by HCWs. Most of the injuries occurred in surgical units, acute care; emergency areas. The accidental injury was reported to the concerned authorities only in 19%. HBV vaccination was recorded in 54/69 cases, anti Hbs status was known only in 7 cases. HBIG was administered in 6 cases.
Conclusion 1) Accidental exposure to blood/blood products is common especially in young HCWs (75%). 2) The awareness of reporting to concerned authorities is very low. 3) Awareness and amp; education about preventive measures for HBV and amp; HCV is very low.

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Comparison of fibroscan values in chronic hepatitis B patients before and after six months of treatment with tenofovir and to compare the HBV DNA levels in them

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Aim To compare the fibroscan values of chronic hepatitis B patients before and after 6 months of treatment with Tenofovir and it's correlation with HBV DNA levels.
Method A cross sectional study was conducted in 53 patients with chronic hepatitis B who were to be started on Tenofovir from June 2017 to June 2018 and fibroscan values after six months of Tenofovir was compared with previous values. There were 22 males and 30 females. Out of these, for 2 males and 2 females, Tenofovir was started for age being more than 40 years, and for one female it was started for a family history of hepatocellular carcinoma. For the remaining cases Tenofovir was started for those in immuneactive phase. The sensitivity of fibroscan compared to liver biopsy from previous studies were found to be 26% for F1(6KPA), 84.6% for F2, 96% (F3), and 86% for F4 and hence in this study fibroscan was used as a surrogate marker for fibrosis.
Results There was no significant decrease in fibroscan values in patient before and after 6 months of treatment with tenofovir. Increase in fibroscan by 0.3 or more in 15 (p<0.01), 7 males and 8 females. However, the HBVDNA levels reduced in all with chronic B. The reduction in DNA was more in patients for whom Tenofovir was started in immunoactive phase.
Conclusion There were no significant decrease in fibroscan values in patients who were treated with Tenofovir for chronic hepatitis B, prior to and after 6 months of treatment.

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Overexpression of augmenter of liver regeneration modulates cell proliferation in hepatic cells via miRNA-26a and Akt/Cyclin D1 pathway

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Background Liver is a unique organ of the body due to its property of regenerating post-injury or partial hepatectomy. However, the mechanisms regulating this process are not clearly understood. Augmenter of liver regeneration (ALR) is a protein known to augment the process of liver regeneration. miRNA-26a was shown to modulate cell proliferation in several cells by targeting PTEN. Hence, we hypothesized that the positive regulation of cell proliferation by ALR might be through modulating miRNA-26a/PTEN pathway in hepatic cells.
Methods Huh7 cells and HepG 2 cells were used for all the experiments. MiRNA-26a was overexpressed in these cells using siPORT NeoFX transfection reagent. After 72 hours of transfection, the cells were collected for protein or RNA analysis. The total cellular protein was used for Western blots for the detection of PTEN, GSK3b, b-catenin, Cyclin-D1, Akt, p-Akt. b-actin was used as an internal control in all the Western blot results. Real-time PCR was done to estimate miRNA-26a expression and it was normalized with 5S rRNA.
Results Overexpression of ALR caused a 4-fold increase in miRNA-26a expression in Huh-7 cells and a 66% decrease in PTEN expression. This caused activation of proliferation pathway by up-regulation of cyclin D1 by 9-fold. miRNA-26a overexpression resulted in a decrease in the expression of PTEN (target protein for miRNA-26a) by 40% (n=3, p<0.05) but ALR expression was not altered significantly. Over expression of miRNA-26a resulted in an up-regulation of p-akt expression (2-fold over control) and decrease in GSK3b protein expression, resulting in an increase of both b-catenin and cyclin D1 (3-fold increase compared to control) protein levels.
Conclusion These data demonstrate that ALR upregulates miRNA-26a which in turn down-regulates PTEN, to activate p-akt/cyclin D1 axis of cell proliferation.

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Can fibroscan predict the severity of vitamin D deficiency in patients of non-cholestatic chronic liver disease

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Introduction Liver is an important organ involved in vitamin D metabolism. Vitamin D deficiency [25-hydroxyvitamin D[25[OH]D) is quite prevalent in patients with chronic liver disease (CLD). Liver fibrosis plays important role in prognosis of CLD patients.
Aim To determine the prevalence, extent and amount of disturbance in serum calcium, parathyroid hormone (PTH) and vitamin D in CLD patients and evaluate the correlation between 25(OH)D levels and liver fibrosis as assessed by fibroscan in patients with CLD.
Methods It is a prospective, cross sectional observational study. Eighty patients (55 males and 25 females; mean age 47.06±12.53 years) data was collected with confirmed diagnosis of non-cholestatic CLD between November 2017 and April 2018 and severity was graded with Child-Turcotte-Pugh (CTP) and model for end-stage liver disease (MELD) score. Serum levels of 25-hydroxyvitamin D(25[OH]D), PTH, PT/INR, calcium, phosphorus, LFT were done. Fibroscan was done in all patients.
Results Total patients with CTP A (n=26), CTP B (n=30), and CTP C (n=24). Causes of cirrhosis was alcohol (n=30), hepatitis B (n=20), hepatitis C (n=4), NASH (n=9), autoimmune (n=2), Wilson (n=3), cirrhosis secondary to EHPVO (n=6) and NCPF (n=6). Serum 25(OH)D levels were inadequate in 78 out of 80 patients. Vitamin D deficiency (<20 ng/mL) was found in 60 patients and vitamin D insufficiency (20-30 ng/mL) found in 18 patients. Only 2 patients had adequate serum vitamin D levels (>30 ng/mL). Secondary hyperparathyroidism (serum PTH >65 pg/mL) was seen only in 5 patients. Patients with CTP score >9 had significantly lower serum 25(OH)D compared to CTP score <7 (10.33±2.85 ng/mL vs. 19.02±7.41ng/mL; p<0.001). Significant correlation was found between high Fibroscan value (>27 kpa) and lower serum 25(OH)D (<20 ng/mL) levels (p<0.001). Fibroscan was predictive of coagulopathy, hyperbilirubinimea, hypoalbunemia and high MELD score.
Conclusion Lower vitamin D levels are very common in chronic liver disease and showed significant correlation with severity of

CLD. Fibroscan correlated positively with severity of vitamin D deficiency.

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Hepatitis B virus (HBV)-induced augmenter of liver regeneration (ALR) modulates cell cytotoxicity via suppressing reactive oxygen species in hepatic cells

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Background Hepatitis B virus (HBV) infection is one of the leading causes of world-wide deaths. Although HBV is shown to induce reactive oxygen species (ROS), apoptosis was not induced in HBV-infected cells. Augmenter of liver regeneration (ALR) is known to induce hepatocyte survival. We hypothesized that HBV could inhibit apoptosis by increasing expression of ALR, which in turn might reduce intracellular ROS through a negative feedback regulation.
Methods The intracellular ROS levels were measured in HepG2 and HepG2.2.1.5 (HepG2 cells expressing HBV) cells or in HepG2.2.1.5 cells transfected with ALR expression plasmid by fluorescence microscopy using H2DCFDA. Expression of Nrf-2 and ALR were determined using Western blots. For HBsAg ELISA, spent media was collected from ALR expressing HepG2.2.1.5 cells. ALR-plasmid or ALR-siRNA transfected HepG2.2.1.5 cells were used for Western blotting of Caspase-3.
Results HepG2.2.1.5 cells showed significantly higher ROS levels compared to HepG2 cells (20% vs. 3%). There was an increase of 7.3-fold in Nrf-2 expression and 2.14-fold in ALR expression in HepG2.2.1.5 cells compared to HepG2 cells. Addition of H2O2 to HepG2.2.1.5 cells decreased cell survival by 11% and ROS scavenging by NAc caused 10% increase in cell survival. H2O2 treatment of HepG2.2.1.5 cells increased Nrf-2 expression by 8.62-fold and ALR expression by 7.42-fold. N-acetyl cysteine (NAc) treatment resulted in 37% reduction in Nrf-2 expression and 60% reduction in ALR expression in HepG2.2.1.5 cells. ALR caused 10% decrease in ROS in HepG2.2.1.5 cells. NAc treated cells showed only 5% ROS positive HepG2.2.1.5 cells. HBsAg levels were increased by 32% in HepG2.2.1.5 cells treated with ALR siRNA ($p<0.05$, $n=3$). ALR effected apoptosis by decreasing cleaved caspase-3 by 45% and increasing cell proliferation by 11%.
Conclusion In this study we showed that HBV-induced ALR, at least in part, might be responsible for down regulating intracellular ROS levels, thereby inhibiting the cytotoxicity. This indirectly could help the HBV virus survival in hepatic cells.

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Jeevan Rekha- A successful community based approach for hepatitis C

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Introduction The prevalence of chronic hepatitis C virus (HCV) infection has been estimated at between 1.2% and 1.7% in the adult global population. In India, the prevalence rate is estimated to be around 1%. The main reasons for delay in treatment in developed countries is high cost and long waitlist but situation is totally reverse in developing country like India where total cost of treatment is exceptionally low and there is no waiting list.
Methods The oral antiviral drugs combination became available in India in December 2015. The Haryana government came up with Jeevan Rekha project and patients belonging to below poverty line and Schedule caste and tribes were treated free and General category patients were treated at highly subsidized rate of 80 Dollars for whole course. Thus, many patients came on treatment who were not able to afford treatment in past. Later on free treatment was started to everybody in Haryana. Total ten thousand patients have been treated under this project with oral antiviral as per scientific protocols.
Results The Haryana government bears a burden of 80 Dollars/patient for whole course of treatment and tests for 12 weeks whereas in United States of America for 12 weeks treatment, cost is 84,000 Dollars. Up till now around ten thousand patients have been treated with SVR of more than 97%, mainly due to predominantly non-cirrhotic group, good compliance, less side effects, easy accessibility and affordability, no waiting list.
Conclusions HCV treatment has focused on the costs of therapy in developed countries but in developing country like India, Haryana state has developed a model named Jeevan Rekha, whereby good policies has been made thus passing benefit to needy patients.

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Comparison of eGFR using creatinine and cystatin C in patients with cirrhosis of liver with normal serum creatinine - To detect early renal impairment

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Introduction Functional renal failure is often seen in cirrhosis of liver, especially in advanced liver disease. Precise evaluation of renal function is crucial. Serum creatinine-widely used for assessment of renal function as it is easily accessible and inexpensive. But several reports have challenged the role of the assay in estimation of GFR especially in cirrhotic patients. Reference methods of estimation of GFR are not routinely feasible in clinical practice. Hence, several biomarkers have been evaluated for estimation of GFR in this population. Cystatin C is a cysteine protease inhibitor, unaffected by age, gender, race, muscle mass hence used as a biomarker for AKI.
Aims To compare and correlate eGFR in patients with cirrhosis of liver using serum creatinine and serum cystatin C based on MDRD, CKD equations, in cirrhotic patients with normal serum creatinine.
Methods Forty patients with diagnosed cirrhosis of liver with normal serum creatinine were included in the study. Patients with serum creatinine >1.2 mg/dl, sepsis, HCC, hypothyroidism, CKD were excluded. Measurement of serum creatinine (modified Jaffe) and serum cystatin C (nephelometry) was done. eGFR in all patients were calculated using MDRD formula and CKD EPI formula for eGFR (CKD EPI creat, CKD EPI cys C, CKD–EPI creat-cys C) were calculated.
Results A total of 40 patients were included- male 90% and female 10%. The number of patients in CTP A, B and C were 7.5%, 40% and 52.5% respectively. Mean cystatin C was found to be high in 52% patients and in patients with CTP C cirrhosis (1.01+/- 0.42). Mean eGFR using MDRD (98.7+/-44), using CKD EPI cystatin (96.3+/- 47). AUROC analysis showed larger area under curve in the eGFR using CKD EPI cystatin C formula (1) as compared with eGFR using MDRD(0.56), EPI cystatin creatinine (0.93).
Conclusion Cystatin C may be used as a biomarker for early detection of renal impairment in patients with cirrhosis of liver.

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Hepatocellular carcinoma presenting as dysphagia

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Introduction Hepatocellular carcinoma (HCC) is the most common malignancy of liver presenting in patients with chronic hepatitis B or hepatitis C infection or underlying chronic liver disease. It is usually seen in 6th decade of life. HCC rarely infiltrates the Gastrointestinal (GI) tract with a reported incidence of 0.5-2% presenting as hematemesis and malena. 2. Here we present a case of dysphagia due to hepatocellular carcinoma infiltrating the gastroesophageal (GE) junction.
Case Report A 72-year-old male with presented with one month history of progressive dysphagia for solids and liquids, dull aching pain in the right hypochondrium and epigastrium with associated weight loss of 10 kgs in one month and loss of appetite. No significant past history.
On General examination he was lethargic and cachectic (BMI: 17 Kg/m2). Systemic examination of his abdomen revealed hard, irregular liver mass palpable 5 cms below the right costal margin, there was no splenomegaly or stigmata of chronic liver disease. Upper GI endoscopy done showing ulcerated friable growth at the level of GE junction for which biopsy was done. Contrast enhanced CT abdomen was done for staging of GE junction growth which interestingly showed two heterogeneously enhancing masses in arterial phase with wash out in venous and delayed phase one in the right lobe and other in the left lobe.
His alpha-fetoprotein (AFP) was 1,81,500 ng/mL. Patient followed up with GE junction growth biopsy report which showed pleomorphic hepatocytes with vesicular nucleus and prominent nucleoli suggestive of hepatocellular carcinoma. There was no involvement of portal vein. His Child-Pugh score is 5, performance status ECOG 3 and BCLC stage D.
Conclusion HCC presenting as dysphagia due to infiltrating the gastroesophageal junction is a rare presentation.

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Low volume plasma exchange (PLEX) improves survival in severe alcoholic hepatitis patients – A case control study

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Introduction Severe alcoholic hepatitis (discriminant function, DF>32) has high short-term mortality. We report improved survival with low volume plasma exchange (PLEX) in severe alcoholic hepatitis (AH) patients.
Methods Severe AH (DF>32) patients who underwent PLEX during May–June 2018 (cases) and severity matched historic controls treated with standard medical therapy were recruited for this study. In addition to low-volume PLEX (performed daily or on alternate days with fresh frozen plasma as replacement), oral Prednisolone (20 mg/day tapered over 40 days), N-Acetylcysteine and zinc were used in cases. Plasma von-Willebrand factor (vWF) antigen levels (normal range: 50-150 U/dL) were assessed. Primary outcome studied was survival at discharge from hospital.
Results Five cases (age: 37, 29-49 years; median, range) and 32 controls (age: 38, 30-63 years) were studied. All study patients had acute-on-chronic liver failure as per APASL criteria. Baseline DF, MELD score and plasma vWF levels were similar in cases (87.2, 42-430; 42, 23-53 and 785 U/dL, 300-1048 U/dL respectively) as in controls (72.5, 34-188; 29.5, 17-49 and 779 U/dL, 212-1347 U/dL). A median of 5 (1-8, range) PLEX sessions were done per case with 1.4 (1.4 - 1.6) liters plasma exchanged in each session. No PLEX related serious complications were noted. Hospital stay in cases (18, 10-35 days) was longer than controls (6.5, 2-12 days). Composite poor in-patient outcome (death/discharged in terminal state) was noted in 18 (56%) controls but in none of the cases (p value: 0.10). On medium term follow up, two PLEX patients died (49 and 66 days).
Conclusion In this preliminary report, low volume PLEX along with low dose steroids appears to be safe and tends to improve short-term in-hospital outcome in severe alcoholic hepatitis.

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A rare case of primary hepatic neuroendocrine tumor

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Introduction Primary hepatic neuroendocrine tumors (PHNETs) are extremely rare. Edmondson et al. described the first case in 1958. There are about 150 cases reported till date in the literature. We here report 65-year-old female with primary hepatic neuroendocrine tumor.
Case Report A 65-year-old female admitted with complaints of abdominal pain and low-grade fever since one month. She had no history of jaundice, flushing, diarrhea or vomiting. She had a past medical history of appendectomy and hysterectomy done more than 20 years ago. On physical examination, she had hepatomegaly up to 10 cm below right coastal margin.
On Laboratory investigation, liver enzymes slightly raised. Viral serology was negative. CECT abdomen was suggestive of hepatomegaly with multiple focal ill-defined iso- to hypo-dense lesions noted in both lobes of liver. Serum alfa-fetoprotein (2.53 ng/mL) and CEA (1.65 ng/mL) were normal. UGI Endoscopy showed features of portal hypertension with esophageal varices and portal hypertensive gastropathy. Colonoscopy done to look for primary source was normal.
Liver biopsy revealed well-differentiated neuroendocrine tumor. Serum chromogranin A levels were found to be high normal. Synaptophysin was found to be diffusely positive on IHC. Ki 67 index was 4% (intermediate grade). Other markers like CK-7, CK-20 and Hep-PAR-1 were all found negative. Ga68DOTATOC scan showed primary hepatic neuroendocrine tumor with gross hepatomegaly with multiple small hypodense lesions in both lobes.
Despite that the liver represents the common site for metastases from other gastrointestinal neuroendocrine carcinomas or other tumors, primary hepatic neuroendocrine tumors are rare, but can occur. The diagnosis of PHNET is a medical challenge, as radiological appearances on ultrasound, CT scan and MRI can mimic other pathologies. We report a rare case of a PHNET in an adult female presenting with abdominal pain and hepatomegaly.

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Long-term outcome of patients with decompensated autoimmune liver diseases treated with steroids and azathioprine

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Introduction There is little information on the outcome of treatment of decompensated autoimmune liver disease (DAILD) with immunosuppressive

therapy. Liver transplantation may be the only curative option as these patients are at higher risk of adverse effects. We report our experience of outcome of treatment of DAILD with steroids and azathioprine.
Methods Patients with DAILD admitted in Sir Ganga Ram Hospital since January 2011 were enrolled. DAILD was diagnosed by simplified score for autoimmune liver diseases. Comprehensive serological markers and TJLB was done in all patients. Patients with HCC and those not consenting were excluded. All patients received prednisolone (30 mg/day tapered to 10 mg/day) with or without azathioprine (50 mg/day). On follow up, response was defined as reduction in CTP score of 2 or more.
Results A total of 24 patients (13 females), age 51.25 (21 - 73 years) with median CTP score 9 (range,7-12) were included. After a median follow up of 31.5 months (5 - 95 months), sixteen patients had response. Eleven patients improved from Child B to A, three from Child C to B and two from Child C to A at the last follow up. Fourteen patients had resolution of ascites and three had regression of varices. Five patients died of progressive liver failure, two were lost to follow up and one had incomplete response. Side effects of steroids (diabetes and sepsis) was seen in eight patients each, gastrointestinal ulcer bleed was seen in one. However, steroids could be restarted in all. Twenty patients received Azathioprine and eight had cytopenia requiring stoppage of drug.
Conclusion There was a transplant free survival in 16/24 (66.6%) of patients over a median follow up of 31.5 months. Sepsis, diabetes and cytopenia are common however drugs could be restarted or modified in all patients.

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Study of association between hypoxia, diastolic dysfunction and severity of liver cirrhosis

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Introduction The presence of cirrhotic cardiomyopathy, which includes a left ventricular diastolic dysfunction (DD) and hypoxia as an earliest sign in hepatopulmonary syndrome (HPS) seems to deteriorate the course of liver cirrhosis and the prognosis. The prevalence of DD and hypoxia due to development of HPS in cirrhotic patients averages about 45% to 50% and 4& to 47% respectively.
Methods Fifty cirrhotic patients from January 2017 - March 2018 were considered for the study after excluding known case of cardiovascular disease, respiratory disease, renal disease or any major systemic disease. Severity of cirrhosis was evaluated by Child-Pugh score. All patients underwent echocardiogram and oxygen saturation documented by portable pulse oximetry in supine, sitting, standing position, pulmonary function tests done by spirometry and chest X-ray was taken.
Results Forty (80%) patients were male and 10 (20%) were female. The mean age of patients was 52.78±15.2 years *n*=20 (40%), *n*=18 (36%) and *n*=12 (24%) of patients were in Child-class A, B, and C, respectively. Of the 50 patients *n*=18 (36%), *n*=12 (24%), *n*=14 (28%) were having mild, moderate, severe diastolic dysfunction respectively with *n*=06 (12%) being normal LV function. There was a significant correlation between diastolic dysfunction, disease duration and severity of cirrhosis. There was also significant relation between hypoxia in child class B, Class C with moderate and severe diastolic dysfunction and severity of liver cirrhosis.
Conclusion Hypoxia and presence of diastolic dysfunction will significantly correlates with severity and duration of cirrhosis.

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Do the new International Club for Ascites criteria make a difference in the evaluation and management of acute kidney injury in patients with acute-on-chronic liver failure and decompensated chronic liver disease? A prospective study

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Background and Aims New International Club for Ascites (ICA) diagnostic criteria are expected to help in early identification and management of acute kidney injury (AKI). The present study aimed to determine the impact of the new criteria on the frequency, type and response to therapy of AKI in patients with acute-on-chronic liver failure (ACLF) and decompensated chronic liver disease (DCLD) with ascites.
Methods Consecutive patients admitted with ACLF (APASL criteria) and decompensated cirrhosis with AKI (ICA-AKI definitions) were recruited and analyzed.
Results AKI was detected in 51 of 106 patients (48%) (44 [86.3%] men, mean age 46.4±11.6 years, mean CTP 11.3±1.8 while MELD score was 27.2±7) with ACLF (*n*=25) or DCLD (*n*=26) admitted between July 1st 2017 and June 30th 2018. Clinical profile and spectrum of AKI in patients with ACLF and DCLD is given in Table 1. AKI was found to be pre-renal in 22 patients (43%), HRS in 23 (45%), ATN in 3 (6%) and CKD in 3 (6%). Serum creatinine at admission was 2.24±1.39. It returned to baseline in 35 patients (69%) and failed in 16 (31%). In HRS patients, 13 (57%) showed complete while 10 (43%) showed partial response, terlipressin needed to be continued for 7 days or more in 13 patients (56.5%). Major identifiable precipitating event was infection (21%) with SBP being most common (73%). Baseline urine Na was 28.3±8.2 mmol/day, which improved to 156.5±36.2 mmol/day at day 5. Mean renal artery resistive indices were 0.73 while systemic vascular resistance (SVR) were 1347±121 in pre-renal patients, 1588±146 in ATN patients and 964±164 dynes/sec/cm5 in patients with HRS. HD was required in 6 (11.7%). Overall 44 patients survived (86%) the acute event.
Conclusion New ICA-AKI definitions led to increased percentage of patients diagnosed with AKI with pre-renal and HRS being the most common forms. Systemic vascular resistance (SVR) is lower in HRS, reflecting severe systemic vasodilatation and can be used to differentiate it from other forms of AKI.

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Prevalence of non-alcoholic fatty liver disease among prospective liver donors, comparison of ultrasonography abdomen, CT, MR spectroscopy and liver biopsy for diagnosis of fatty liver in prospective donors

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Introduction Non-alcoholic fatty liver disease (NAFLD) is the hepatic pandemic of the twenty first century. The increasing prevalence of NAFLD in the general population translates directly into an increasing prevalence of NAFLD in both, potential deceased and live liver donors. Graft steatosis, in turn, affects both, the quality and the quantity of donor livers available for transplantation. The development of primary dysfunction, early allograft dysfunction, poor overall graft survival, and other complications have been reported in recipients of steatotic grafts in liver transplantation.

Methods A total of 124 prospective liver donors over a period from June 2014 to March 2016 from Apollo Hospital, Delhi were included in this study. The demographics, findings on general physical and systemic examination, anthropometric measures results of blood investigations done as part of donor work up, radiological investigations and liver biopsy findings were noted.
Results Out of 124 study participants 73 (59%) were male and 51 (49%) were female. Mean age of participants was 31.71 years. Prevalence of fatty liver was 23% on USG abdomen, 31% On CT liver attenuation index (LAI), 49% on MRS. High BMI (>25 kg/m2), increased WC and WHR were significantly associated with presence of fatty liver. USG abdomen in comparison to CT LAI had sensitivity 55%, specificity 91%, PPV 72%, NPV 82% and accuracy of 80% in diagnosing fatty liver. Similar values for CT LAI in comparison to MRS were 57%, 95%, 92%, 70% and 77% respectively and for USG abdomen in comparison to MRS the values were 43%, 95%, 96%, 63% , 69%. For MRS vs. liver biopsy similar values were 100%, 33%, 92%, 100% and 92% respectively.
Conclusion NAFLD epidemic is directly translating into higher prevalence of fatty liver among prospective liver donors. MRS is emerging as a useful test to quantify hepatic fat, comparable to liver biopsy.

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Validation study of non-alcoholic fatty liver disease (NAFLD) fibrosis score (NFS) for non-invasive diagnosis of fibrosis in NAFLD in South Indian population

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Background The incidence of liver cirrhosis is significantly high in South Indian population. The rising incidence of non-alcoholic fatty liver disease (NAFLD) is likely partially responsible for these figures. Liver biopsy is not a practical diagnostic option in all patients suspected to have NAFLD. Hence validation of non-invasive markers of fibrosis is important in this population with a high prevalence of NAFLD.
Aim To evaluate the diagnostic accuracy of some NAFLD fibrosis score (NFS) in South Indian population with NAFLD.
Methods Biopsy-proven NAFLD patients were recruited from our tertiary care centre. Study period was from January 2016 to July 2018. NASH CRN fibrosis staging system was used to stage fibrosis. NAFLD fibrosis score was calculated using Age, BMI, IFG/DM, AST, ALT, platelet count, serum albumin. The sensitivity, specificity, positive predictive value, negative predictive value, and area under the receiver-operating characteristic curve (AUROC) for predicting advanced fibrosis using NFS were calculated. Results A total of 99 liver biopsies met the criteria for NAFLD during the study period. The mean age was 48.8 (21-83). 60.6% were males, 74.7% had a BMI>25, DM was seen in 50.5%. The severity of score was classified as none or mild fibrosis (stage 1, 2) 50.50% and advanced fibrosis (stage 3, 4) 49.5%. The high proportion of advanced fibrosis could be because of selection bias. A NFS score >0.676 had a diagnostic accuracy of 93.9% in detecting advanced fibrosis. Using NFS score >0.676 as a cut off we could avoid biopsy in 56.6% of NAFLD patients.
Conclusion NAFLD fibrosis scores (NFS) can reliably diagnose advanced fibrosis in a high proportion of patients with NAFLD, allowing liver biopsy to be used in a more directed manner.

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Pediatric liver transplant across the blood group- An option for early transplant

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Introduction The initial experience with ABO incompatible (ABOi) orthotopic liver transplantations (OLTs) was dismal. In the current study, we investigated whether ABOi pediatric OLTs could achieve acceptable patient outcomes. The option for ABOi transplantation is vital because critically ill children have limited access to donor liver allografts. We present 3 cases of children less than 1 year who underwent ABOi liver transplant successfully at our center.
Results Two male child and 1 female child underwent ABO incompatible LRLT in our center in last 6 months. At the time of operation average age of Child was 11 months, average weight was 7.3 kgs while average PELD was 15.5. Average GRWR was 4.2. First child had blood group O+ve and received B+ ve donor liver and had anti B titres of 1:2, second child had blood group O+ve and received donor liver from her mother who was A2+ve. She had anti-A titres of 1:256 while the third child was O+ve and received liver from A1+ve mother and had anti-A titres of 1:16. First two child had ICU stay of 4 day and were discharged on POD 20 in stable condition while third child had bowel perforation and underwent small bowel resection on POD9. He required re exploration and closure of two small perforation on POD 13 and was discharged in stable condition on POD 30. None of child required steroid pulse or immunoglobulins and are doing well till date.
Conclusion ABOi LRLT seems to be safe without an escalation of immunosuppression and should be considered as an additional option to timely facilitate the transplantation.

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Fibroscan in assesment of tenofovir response to chronic hepatitis B

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Background and Aims Tenofovir disoproxil fumerate (TDF) is the most potent drug for CHB. There is a lack of data on Tenofovir efficacy, compliance and response on fibrosis in Indian population. The aim of the study is to determine the response of tenofovir in progression of fibrosis assesed by Fibroscan.
Method This is an institution based observational study, in a tertiary care hospital in Trivandrum, Kerala. Subjects who were started on Tenofovir for various indications, for at least 6 months in the past 2.5 years and whose pre-treatment Fibroscan and relevant investigations are available were enrolled. Patients were called for repeat fibroscan and investigations. Compliance is assessed separately by interview with both patient and bystander.
Results Total 52 patients were enrolled in the study. Ten patients (19.5%) were not properly compliant to tenofovir. Average duration of treatment was 1.4 years. Indications for treatment were persistently raised ALT in 46%, USG showing coarse liver in 29%, biopsy proven fibrosis in 10%. Viral load decreased in 42 (81%) while remained static or increased in 10 (19%). Lack of compliance increased the risk of increase in viral load by 11.66 times (p=0.001). The pre-treatment TE average was 12.2 when compared to post treatment average of 11.8 which was not statistically significant. TE value decreased in 27 while increased or remained same in

25. Pre-treatment higher AST (avg 65 vs. 45) and ALT (avg 85 vs. 61) determined the possibility of reduction in TE score (p=0.048). Corresponding METAVIR fibrosis score decreased in 13 (25%) and remained static in 36 (69%) and progressed in 3 (5.7%).
Conclusion Tenofovir therapy significantly decreases the viral load, but the compliance with medication is an issue to be addressed. Tenofovir does not significantly reduce TE value even though it prevents progression of fibrosis.

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Prevalence, risk factors and prognostic significance of sarcopenia in liver cirrhosis in Indian population

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Introduction and Background Sarcopenia (loss of muscle mass) is common in cirrhosis and is associated with poor outcomes. Prevalence, prognostic significance and diagnostic criteria for sarcopenia in cirrhotic population in Indian subcontinent is not established.
Aim To estimate the prevalence, risk factors and prognostic significance for sarcopenia in patients with liver cirrhosis evaluated in a tertiary care centre in South India.
Methods A cross sectional study conducted from January 2018 to July 2018. All adult cirrhotic patients who had a CT abdomen were included. Patients with extrahepatic malignancy, malabsorption syndromes, Coexisting tuberculosis and CKD stage 4 and 5 were excluded. Clinical, anthropometric and biochemical data was collected for all patients. Psoas muscle area (PMA) was measured at L3 level in a plain CT scan of abdomen and skeletal muscle index calculated.
Result A total of 55 patients met the inclusion criteria. The male to female ratio was 47:8. The mean age distribution was 48.4 yrs (34-66). Sarcopenia was seen in 56.4% patients with liver cirrhosis. Prevalence of sarcopenia was similar in both sex groups. Serum albumin and serum creatinine was not statistically different in patient with and without sarcopenia. Prevalence of sarcopenia did not differ with CTP class (Child A-52.17%, Child B-64.7%, Child C-53.3%), MELD score (MELD <20- 53.4% vs. MELD >20 – 61.6%) or presence of HCC. Sarcopenia was more common in diabetic patients with cirrhosis (62.5% vs. 37.5%). There was also a significantly higher incidence of SBP in patients with cirrhosis and sarcopenia (16.1% vs. 8.3%).
Conclusion In this single centre study, incidence of Sarcopenia in patients with liver cirrhosis was 56.4%. Presence of diabetes mellitus may be a cofactor for sarcopenia in liver cirrhosis. Incidence of spontaneous bacterial peritonitis is increased in patients with liver cirrhosis and sarcopenia.

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Case series of acute liver failure patients managed conservatively in a transplant centre

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Introduction We present 7 cases of acute liver failure (ALF) fulfilling King's College criteria for liver transplantation managed conservatively without liver transplant.
Methods Observational study in last 6 months and review of relevant literature.
Results Median age of our study population was 30 out of which 5 were female and 2 were male. Two patients had ALF related to rodenticide paste (yellow phosphorous) ingestion, 2 due to paracetamol poisoning, 1 related to HEV, 1 due to HEV in pregnancy with DILI, while 1 had ALF due to HAV. Median INR at presentation to our centre was 7.2. Median bilirubin was 13. Median ammonia was 109. All of them had normal serum creatinine. Median MELD score was 31. Median ICU stay was 4 days. Two patients had grade III encephalopathy and required mechanical ventilation for airway protection. Patient with HEV in pregnancy with DILI had spontaneous abortion during hospital course and required CVVHF. All patients received intravenous N-acetylcysteine, 100 mg/kg for 3 days, glutathione therapy for 5 days and Inj. Vitamin K. All patients received antibiotics according to antibiotic policy after sending surveillance cultures. None of them was given osmotic therapy and fresh frozen plasma for coagulopathy correction. Median hospital stay was 8 days. All patients were discharged in clinically stable condition.
Conclusion ALF is associated with high mortality without liver transplant however can be managed conservatively without liver transplant in selected group of patient. Good prognostic indicator being MELD <33, arterial ammonia <124, normal serum creatinine, early hospitalization and initiation of antioxidant therapy. Osmotic therapy is not always necessary. coagulopathy should not be corrected with plasma unless there is any bleeding or need of invasive procedure. CVVHF can be used as bridge for recovery if needed.

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Comparison of non-invasive screening tools with Fibroscan in patients with non-alcoholic fatty liver disease

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Background Fibroscan, even though non-invasive, is a costly and not routinely available modality in assessing fibrosis.
Aim of our study was to determine the efficacy of non-alcoholic fatty liver disease (NAFLD) fibrosis score (NFS), aspartate transaminase to platelet ratio index (APRI) and fibrosis – 4 (FIB4) vs. Fibroscan in assessing fibrosis in NAFLD
Methods This is a single center study carried out in NAFLD patients attending a tertiary care center who were diagnosed using ultra sound abdomen showing fatty liver. Baseline parameters of liver function test, blood routine, anthropometry and Fibroscan were taken for these patients. APRI, FIB 4, NFS were calculated for these patients and area under the cure (AUC) were calculated.
Result Of the 689 patients who were screened, the cut-off of significant fibrosis with Fibroscan was taken as 10 Kpa . Standard cut off for APRI, FIB-4, NFS score were taken. 2, 3.25, 0.676 respectively. AUC, sensitivity, specificity and positive predictive value and negative predictive values for APRI, FIB 4 and NFS respectively were 0.759, 0.11, 0.98, 0.74, 0.68 (APRI), 0.773, 0.92, 0.16, 0.35, 0.81 (FIB-4) and 0.808, 0.16, 0.98, 0.85, 0.70 (NFS).
Conclusion APRI and NFS score were found to be more specific while FIB 4 was found to be more specific in the study population in ruling in significant fibrosis.

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Post mortem liver biopsy: Utility in diagnosing the etiology of liver diseases

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Introduction Liver diseases are the most common cause of mortality in the gastrointestinal wards and intensive care units. Clinicians are unable to identify the cause of liver disease in a proportion of such patients. We aim to look at the spectrum of liver diseases leading to mortality by analyzing the post-mortem liver biopsies.
Methods The study was conducted at a tertiary care centre in North India. All the patients who were admitted with a diagnosis of liver disease which could be either cirrhosis, acute on chronic liver failure (ACLF) or acute liver failure (ALF) and who succumbed to their illness underwent post-mortem liver biopsy. The liver biopsies were studied by two experienced pathologists for description and assignment of a possible etiology. All the post-mortem liver biopsies which were done during the period from January 2018 to June 2018 were included for this analysis.
Results A total of 53 patients underwent liver biopsy during the study period. The diagnosis were as follows: ACLF in 12 (22.6%) patients, cholestatic disease in 8 (15.1%) patients, cirrhosis in 7 (13.2 %) patients, steatohepatitis in 6 (11.3 %) patients and sepsis related changes in 5 (9.4 %) patients. Three patients (5.7 %) each had ALF, granulomatous hepatitis, Budd-Chiari syndrome and tumor infiltration. Two patients (3.8 %) did not have any specific changes and 1 (1.9 %) patient had primary sclerosing cholangitis. Overall, a definite diagnosis could be made in 51 (96.2 %) patients out of the 53 who underwent liver biopsy.
Conclusion Post-mortem liver biopsy could identify the diagnosis in the majority of patients who die due to liver disease.

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Improved long-term survival in patients with severe alcoholic hepatitis acute-on-chronic liver failure (ACLF) grade III with SIFA (T)

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Background Severe alcoholic hepatitis (SAH), acute-on-chronic liver failure (ACLF) grade III is a subset of patients with a very high short-term mortality. Pathophysiology of ACLF is dominated by severe systemic inflammation and aggravated hyperdynamic circulation originating from the gut and leading to multi organ dysfunction. Using a treatment approach that address major pathophysiologic derangements may improve survival.
Aim To study the efficacy of slow infusion of furosemide, albumin with or without terlipressin (SIFA [T]) in patients with SAH, ACLF grade III and compare it with a similar cohort treated with standard medical therapy (SMT).
Methods SAH (mDF >32), ACLF grade III according to EASL. Consecutive patients of severe SAH ACLF grade III received SIFA (T) (Arm I) using slow infusion of furosemide (2 mg/hour), albumin (2 gm/hour; 20-40 g/d; (SIFA) in addition to SMT for complications of ACLF. Furosemide was stepped up by 2 mg/h every 12 hours for 48 hours based on urinary sodium (UNa+) excretion. If UNa+ still remained <85 mmol/d, terlipressin infusion (SIFA [T]) was started at 4mg/24 hrs, (max. up to 8 mg/24 hr).Treatment was continued till the patient was clinically dry and with UNa+ >85 mmol/L.
Result Fifty-one patients with SAH ACLF grade III were included from July 2016 to July 2018. Twenty-seven received SIFA (T) and 24 received SMT (Arm II). Baseline parameters were similar. Significant improvement ($p<0.05$) was seen in urine sodium (27.6±21 to 202±106 mmol/24hrs), and creatinine (2.3±1. 67. vs. 1. 63.± 0. 9). after treatment in group I while there was no change in group II (serum creatinine [2.4 ±1.7 to 1. 99.±1.7]; UO (525±85 ml/day to 810±150 ml/d]). 28-day, 180 days, and 1 year survival in Arm I was 62%, 52%, 37% vs. 46%, 29%, (20% in Arm II ($p<0.05$).
Conclusion SIFA (T) in severe alcoholic hepatitis ACLF grade III may improve survival.

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Asssessment of autonomic dysfunction in patients with cirrhosis of liver: A simplified electro-hemodynamic approach

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Introduction Cirrhotic patients with autonomic dysfunction are often asymptomatic, non-specific, challenging to treat and with potential risk of cardiac arrhythmias and increased mortality.
Methods Thirty patients with cirrhosis of liver irrespective of the CTP class were enrolled with controls (n=30). Subjects who were on drugs known to cause autonomic disturbance were excluded. For parasympathetic nervous system, heart rate variation with respiration (E/I), Valsalva ratio, lying standing ratio (L/S) and for sympathetic nervous system, blood pressure variation to standing/postural and sustained grip were documented.
Results In our study the etiology of chronic liver disease was alcohol in 56.61 % patients, HBV in 3.33%, HCV in 23.33% and cryptogenic/NAFLD in 16.67%. There were 5 patients in CTP class A, 10 in CTP class B and 15 in CTP class C. Autonomic neuropathy (AN) was present in total of 22 out of 30 (73.33%) of the cases. CTP A had no evidence of AN. In CTP B 5 (50%) had early parasympathetic damage and 2 (20%) had definite parasympathetic damage. In CTP C, 4 (26.7%) patients had definite parasympathetic damage and 11 (73.3 %) had sympathetic damage. The mean E/I ratio, Valsalva ratio, L/S ratio were 1.17, 1.20 and 1.13 respectively in cirrhotic group irrespective of CTP class ($p<0.001$). Among parasympathetic tests heart rate response to deep breathing (E/I) ratio was the most frequent observed abnormal test (18, 60%) and among the sympathetic tests rise in BP to sustained grip was the most frequent observed abnormal test (14, 46.71%).
Conclusion AN was present in total of 22 out of 30 (73.33%) of the cases. CTP A had no evidence of AN and AN was significantly related to the severity of CLD. Evidence-based treatment options for autonomic symptoms in CLD are lacking and further studies are needed to extrapolate data.

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Correlation of muscle mass and strength with fibrosis asessed by Fibroscan, in patients with non-alcoholic fatty liver disease

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These factors have been postulated as mechanism involved in the pathogenisis of non-alcoholic fatty liver disease (NAFLD). Muscle mass and strength are important predictors of NAFLD.

Aim of the present study is to compare the muscle mass and strength with transient elastography and to determine whether muscle mass and strength can be used as a marker of degree of fibrosis in patients with NAFLD.
Methods Six hundred and eighty-nine patients attending OPD of Medical Gastroenterology, Medical College, Trivandrum with USG evidence of fatty liver were enrolled. All patients were subjected to anthropometric measurements and Fibroscan after informed consent. Liver stiffness measurement were compared with MAMC and Handgrip using Chi-square analysis.
Result TEE inversely correlated with handgrip of dominant hand (CHI-4.75, p=0.018), hand grip of non-dominant hand (CHI-8.61, p=0.002) and mid-arm muscle circumference (CHI- 15.6, p= 0.001).
Conclusion With an increase in muscle power and mass, there was significant reduction in fibrosis. Muscle mass and power can be used to determine the degree of fibrosis in patients with NAFLD.

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To compare the efficacy of number connection tests and psychometric hepatic encephalopathy score (PHES) for diagnosis of minimal hepatic encephalopathy

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Background and Aim To compare the efficacy of number connection tests and psychometric hepatic encephalopathy score (PHES) for the diagnosis of minimal hepatic encephalopathy (MHE) in patients of chronic liver disease (CLD). PHES is an internationally accepted gold standard test for diagnosis of MHE. The sensitivity of PHES is 96% and specificity is almost 100% in the diagnosis of MHE but it is complex to perform.
Methods We enrolled 100 patients of CLD with more than 12 years of education and enrolled them into both arms 1. PHES–fifty patients and 2. NCTs (A and B) -fifty patient. All patients with overt HE were excluded using West-Heaven Criteria. We calculated the PHES score by the online PHES calculator. The cut-off of 30 seconds was used for NCT A and 60 seconds for NCT B. We compared both groups to check the efficacy as compared to each other.
Results Of the 100 patients 70 were males. Alcohol was the cause of cirrhosis in 80 patients; Child-Turcotte-Pugh (CTP) class C was present in 54 patients, class B in 46 patients. All 100 patients completed the tests. Out of 50 patients 16 patients showed MHE in PHES arm. In case of NCT-A and B arm 14 patients showed MHE positive result. All 16 patients showing MHE in PHES arm and all 14 patients from NCT arm were CTP class C. The p value was <0.05 so the hypothesis was true and there was no significant difference between the two arms.
Conclusion Combination of NCT A and B in the diagnosis of MHE is comparable with PHES. NCT is simpler to perform and produces similar results as PHES.

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Assessment of clinical and metabolic profile of lean non-alcoholic fatty liver disease

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Spectrum of non-alcoholic fatty liver disease (NAFLD) ranges from non-alcoholic fatty liver (NAFL) to cirrhosis, commonly it is seen in association with obesity and DM. However recent studies have shown that it is also seen in lean and non-diabetic population. So we tried to assess clinical and metabolic profile of lean NAFLD. Lean NAFLD is defined as NAFLD with BMI less than 23.
Our aims are: 1. To determine the frequency of lean NAFLD among NAFLD 2. To evaluate the clinical and metabolic profile of patients with lean NAFLD in comparison to overweight or obese NAFLD This is hospital based Cross sectional observational study.
Results Total 90 patients recruited till now, among them 16 (18%) are lean, 8 (9%) are overweight and 66 (73%) obese. However, in all we could not get data, so we compared between lean (15) and overweight and obese (70) patients, both groups are similar in age group. Lean NAFLD have lesser degree of fasting insulin as compare to overweight and obese NAFLD, but not statistically significant, however TG level is significantly more in lean NAFLD as compare to overweight and obese NAFLD (p=0.0001). Metabolic syndrome is seen in 26 among overweight and obese NAFLD, where as in 2 among lean NAFLD. Insulin resistance is significantly more in overweight and obese group (p=0.01). Transaminases are significantly higher (p<0.01) in overweight and obese group as compared to lean NAFLD group.
Conclusion Lean NAFLD is not a rare form of NAFLD, dyslipidemia is most common associated factor for lean NAFLD. Transaminases are significantly higher in overweight and obese group.

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Study of acute kidney injury in chronic liver disease patients

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Introduction Renal dysfunctions amongst end stage liver disease (ESLD) patients is common with impact on outcome. If diagnosed early, outcome may be good in majority, There-fore we aimed to study the prevalence and causes of acute kidney injury (AKI) amongst all patients with ESLD requiring admission and its outcome.
Methods All consecutive patients who presented at liver clinic from 1st October 2015 to 30th September 2016 with ESLD requiring admission formed the study group. All patients were evaluated for etiology of ESLD, presence of AKI and its causes. Treatment outcome was measured among AKI patients.
Results Total 116 patients were recruited as per study protocol. Symptoms at presentation were abdominal distension 16 (44%), fever 10 (27%), abdominal pain 8 (22.2%), jaundice 9 (25%), decreased appetite 10 (27.7%), decreased urine output 13 (36.1), loose stools 9 (25%), GI bleed 4 (11.1%). Out of 116, 36 patients (31.03%) had AKI. Etiology of AKI was -HRS in 19 patients (52.7%%), prerenal failure in 6 patients (16.6%), sepsis in 10 patients (27%) and 1 patient had CKD. Of these 36 patients with AKI ,10 patients (27.7%) had CTP-B and 26 had (72.3%) CTP-C. Out of 36 patients with ESLD with AKI, 8 patients (22.2%) expired in hospital and additional 3 patients left against medical advice in view of poor prognosis suggesting an overall mortality of 30.5 %, while 25 patients were discharged. All 8 patients who expired in hospital had HRS. Overall out of 22 patients with HRS, 8 patients (36.36%) expired in same admission.
Conclusion 1. Every third patient of ESLD requiring admission has AKI. 2. Among ESLD patients with AKI, HRS has worst prognosis with more than one third dying in same admission. 3. Sepsis remains the most important identifiable cause of AKI amongst ESLD.

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Answering the donor graft shortage-successful outcome of ABO incompatible Pediatric living related liver transplants

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Background and Aims ABO-incompatible (ABOi) liver transplantation is usually contraindicated because of risk of antibody-mediated humoral rejection of graft. Ours is a busy living related liver transplant (LDLT) center. We describe 7 successful cases of patients who had LDLT from ABOi donors.
Methods Study period-July 2010 to April 2018. ABOi LDLT patients <18 years age. Protocol consisted of rituximab 2 weeks prior (>3 years) and plasmapheresis before LDLT. Target anti-ABO titres pre-transplant was less than 1:16. Plasmapheresis to aim anti-ABO titers below 1:32 was planned up to 4 weeks post-op. Mycophenolate was started one week prior to transplant. No child was splenectomized and no local graft infusion used. Standard triple immune suppression (steroid, mycophenolate mofetil and tacrolimus) was used postoperatively.
Results Out of 200 Pediatric LDLT patients, 7 were ABO incompatible (ABOi). Indications- biliary atresia- 4; PFIC–2, chronic rejection 1(re-transplant). Median age 33 months (7-91); median PELD score 24 (19-42). Mean graft-to-recipient weight ratio 1.79. Initial range of isoagglutinin IgM and IgG titers were 1:32–1:256 and 1:64–1:256 respectively in 6 patients on whom median 4 (range 2–6) cycles of plasmapheresis done. One patient had titre 1:1024 where immune adsorption technique was used in view of 3 failed plasmapheresis along with Rituximab. Postoperative IVIG was used in 2 patients. No rejection, bacterial or fungal infections noted. Postoperative complications included portal vein thrombosis (one-successfully re-explored) and CMV infection (one). Mean hospital stay was 19 days (18-23 range). Patient and graft survival was 100% in recipients at a mean follow up of 24 months (range 1-59 months).
Conclusions ABO-incompatible LDLT can be safely performed in children with excellent outcome. Preoperative reduction of antibody titres <1:32 by plasmapheresis is essential for successful LT. Immunoadsorption (glycosorb) technique is more effective than routine cascade plasmapheresis in patients with very high antibody titres.

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Percutaneous catheter drainage is highly efficient and safe procedure in liver abscess: Single centre experience

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Background and Objectives Percutaneous catheter drainage (PCD) is used as rescue modality along with antimicrobial therapy in patients with liver abscesses not responding to medical therapy. Numerous complications have been defined such as biliary communications, subcapsular hematoma, spillage into peritoneal cavity. We did a retrospective analysis to see the adverse events and treatment response in our group of patients.
Methodology Based upon the medical records, total 158 patients have been admitted in our department for liver abscess management from March 2017 to June 2018. Among them 56 patients were selected for analysis based upon the strict inclusion criteria (refractory to medical treatment [nonresponse to I.V. antimicrobial therapy for 4 days] and impending rupture). Epidemiological profile, predisposing factors, etiology, supporting relevant investigations, their subsequent outcome and procedure related complications were analysed.
Results Total 56 patients were included having M: F ratio (2.5:1), mean age (46±18) and poor socioeconomic status (80% patients). Predisposing factors was present in twenty (eight alcoholics and twelve diabetics) of them. Most of the patients (66.2%) had amoebic liver abscess. Solitary abscess (71.42%) and right lobe abscess (85.7%) were predominate in the analysed data. Indication of PCD was impending rupture (7.14%) rest were treatment refractory. Clinical recovery was seen in 1.28±0.70 days (mean) and complete disappearance of liquefied content in 4.64±2.03 days (mean). Procedure related complications were seen in 3 patients (two had external biliary fistula through abscess cavity and one had peritoneal contamination). Endoscopic biliary stenting was done in both the patients and peritoneal catheter drainage was done in third patient. Follow up data (ultrasound study at 1 month) showed residual abscess (<55.2 mL) in six patients (n=56) without any symptoms.
Conclusion PCD is highly efficient and very safe procedure in patients with liver abscess which are either treatment refractory or with impending rupture.

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Spectrum, manifestation and management of hepato-pulmonary syndrome in 200 consecutive living related pediatric liver transplantation

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Background Liver transplantation (LT) is challenging in hepatopulmonary syndrome (HPS). Preoperative pO2 <50 mmHg and MAA scan showing >20% shunting are believed to predict mortality post-LT. There is scarcity of data on LT in severe HPS with occasional reports of use of nitric oxide.
Aim To study profile, impact and outcome of HPS in pediatric-LT. To study use of inhaled nitric oxide (iNO) for refractory hypoxemia post-LT.
Methods Retrospective analysis. Age <18 years. Study period: 2010-mid 2017. HPS severity graded by 2 methods: pO2 room air (mild: >80 mmHg, moderate: 60-80 mmHg, severe: 50-60 mmHg, very severe <50 mmHg) and CE-ECHO (some shunt: few bubbles, significant shunt: dense opacification). iNO used for refractory postoperative hypoxemia as per institutionally developed protocol.
Results Twenty-three of 200 had HPS. Mean age: 6.5 years. By oxygenation criteria, 30.8 had severe/very severe HPS. By CE-ECHO 12(52.2%) had significant and 11(47.8%) had some shunt. MAA scan shunt-fraction was 21.1-73%. Patients with very severe HPS (n=6) had higher LOS (p=0.031) and duration of oxygen requirement (p=0.001) compared to rest HPS patients. Four of these 6 patients had-pO2 <45 mmHg: this appeared to-be predictor of stormy postoperative course. One-out-of these 4 died-on 7th postoperative-day due-to intracranial-hemorrhage (ICH). Remaining 3 had refractory postoperative hypoxemia, prolonged-LOS and hospital stay. iNO was used in all 3 cases successfully (mean duration of iNO:26.3days). Incidence of hepatic artery thrombosis in HPS-group was 17.3% compared to 3.1% in non-HPS group (3.1%; p=0.786). PV-thrombosis occurred in 1 (4.3%) in HPS group. ICH occurred in 2, both had pO2 <45 mmHg. One died on POD7 and other recovered with intact neurological outcome. One-year survival of HPS-group was 95.6% which was similar to non HPS group (94.4%, p=0.88).
Conclusion Pediatric LT in HPS, especially if severe is challenging. This is the largest series of LT in HPS children published in literature. With good supportive care, outcomes of HPS and non-

HPS patients are comparable. pO2 <45 mm Hg, predicts a difficult postoperative course, rather than mortality. iNO is a successful strategy to overcome refractory postoperative hypoxemia.

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Comparison of Health-related quality of life (HRQOL) in treatment success versus treatment failure group in HCV patients post directly acting antivirals

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Introduction and Aims Health-related quality of life (HRQOL) in HCV infected patients is poor and it can be attributed to various hepatic and extrahepatic manifestations resulting due to viral replication. Sustained virological response (SVR) results in improvement in HRQOL. However, in treatment failure cases there is no improvement in HRQOL. The present study was aimed to compare HRQOL in treatment failure versus treatment success cases post directly acting antivirals (DAA) therapy.
Methods Four hundred and sixty recently diagnosed chronic hepatitis C patients without any evidence of cirrhosis who received DAAs for 12 weeks were analyzed retrospectively. HRQOL was measured using the SF-36 questionnaire before initiation and after completion of therapy. Patients were classified in treatment success (SVR achieved, n=400) and treatment failure (SVR not achieved, n= 60).
Results Both groups had similar comparable HRQOL in all 8 domains measured by SF-36 questionnaire before initiation of therapy. Post-therapy, treatment failure group showed a significantly poor quality of life in all 8 domains.
Conclusion Improvement in HRQOL in HCV cases is related to the treatment outcome. Elimination of virus as measured by SVR is associated with significant improvements in HRQOL.

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Efficacy and safety of saroglitazar in diabetic as well as non-diabetic non-alcoholic fatty liver disease patients: 6 months follow up

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Background Non-alcoholic fatty liver disease (NAFLD) is one of the most common liver diseases in the world. Until today, there is no established or approved treatment for NAFLD. Efficacy and tolerability of Saroglitazar, a dual peroxisome proliferator-activated receptors (PPAR) α/γ agonist, is being analyzed for treatment of NAFLD in diabetic as well as non-diabetic subjects in this study.
Methods This is a single centre, single arm, prospective, open label study of Saroglitazar. Obese patients having dyslipidemia with or without type 2 diabetes who had sonographic evidence (fibroscan) of NAFLD were enrolled. Patients with other concomitant liver disease were excluded from the study. All the patients received Saroglitazar 4 mg/day. Patients with diabetes were on standard oral antidiabetic therapy. The changes in laboratory parameters from baseline to 6 months follow up, were statistically evaluated.
Results Ten Table 1 Comparison of HRQOL in treatment success vs treatment failure groupspatients with average age of 39.7 years with mean BMI of 28.8 kg/m2 were included in the study. In this study, 70% patients were male and 30% were female. Eighty percent of subjects were non-diabetic and 20% were diabetic. The baseline aspartate aminotransferase (AST), alanine aminotransferase (ALT) and triglycerides (TG) values were 81.5 IU/dL, 81.6 IU/dL and 343.3 mg/dL, respectively. There was no serious adverse event observed and Saroglitazar was well tolerated by all the patients. The mean reduction at 6 months follow up in the patients compared to baseline in the parameters like AST (50.31%), ALT (48.77%) and TG (59.71%) was highly significant (p<0.001).
Conclusion Saroglitazar has shown promising results in both diabetic and non-diabetic NAFLD patients in terms of reduction in both liver enzymes and triglycerides at 6 months follow up in this study.

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Bile cast nephropathy in pediatric liver diseases - Does it exist?

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Introduction Pediatric liver diseases differ from those of adults in term of etiology and outcome. Aim of the present study was to analyze the kidneys of pediatric patients with acute liver failure (ALF), acute-on-chronic liver failure (ACLF) and chronic liver failure (CLF) for evidence of bile related injury and bile cast nephropathy.
Methods In a retrospective medical autopsy study, morphological analysis of kidneys was done after taking informed consent from the first relatives. Renal tubules were looked for presence of bile cast nephropathy and tubulopathic changes without bile cast nephropathy. Assessment was also done for evidence for acute tubular necrosis and osmotic nephropathy.
Results Of 14 patients (males 9, mean age 6.7 years [6 mo–16 years]) 3 had died of ALF, 8 ACLF and 3 CLF. Serum creatinine > 0.8 mg/dL was present in 3 (100%) patients with ALF, 2 (25%) with ACLF and none with CLF. Mean bilirubin was 23.2, 14 and 5 mg/dL in three groups of patients. Etiology of ALF was DILI in two and Wilson's disease in one patient. Chronic liver disease in ACLF were Indian childhood cirrhosis in 3 (37.5%), cryptogenic 2 (25%), and galactosemia, Wilson's disease and autoimmune hepatitis in one (12.5%) each. Acute insults in ACLF were infections in two (25%) and unknown in other patients. Etiology of cirrhosis in CLF was cryptogenic in 2 (66.6%) and Budd-Chiari syndrome in 1 (33.3%) patient. Renal morphology revealed bile staining of proximal renal tubular cells suggestive of tubulopathic changes without bile cast nephropathy in 4 (50%) patients with ACLF and 2 (66.6%) with ALF. Changes of osmotic nephropathy were present in 3 (100%) patients with ALF.
Conclusion Bile cast nephropathy is not seen in pediatric patients with ALF, ACLF and CLF. Patients with ALF and ACLF show tubulopathic changes without bile cast nephropathy.

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A case report of essential thrombocythemia in a female patient with EHPVO who underwent splenectomy misdiagnosed initially as reactive thrombocytosis

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Introduction Essential thrombocythemia (ET) is a myeloproliferative disorder and characterized by an increased platelet count, megakaryocytic hyperplasia, and a hemorrhagic or thrombotic tendency. ET usually occurs with bimodal peaks of between ages 50 and 70 yr and a separate peak among young females. A Janus kinase 2 (JAK2) enzyme mutation,

JAK2V617F is present in about 50% of patients. The platelet count can be 1,000,000/mm^3 but may be as low as 450,000/mm^3. Asymptomatic patients require no therapy. Aspirin is usually effective for microvascular events (ocular migraine, erythromelalgia and transient ischemic attacks). Some patients with extreme thrombocytosis require more aggressive treatment to control the platelet count; and such measures include hydroxyurea, anagrelide, interferon alfa-2b, or plateletpheresis.
Case report The patient is 50-year-old female, who is a known case of extrahepatic portal vein obstruction (EHPVO) with bleeding fundal varices, spleenomegaly with hyperspleenism. As indicated she underwent spleenectomy with devascularization. Seven days after surgery her platelet count raised to 3,00,000/mm^3 in routine investigations, followed by progressive increase up to 8 lacks after 1 month. Initially it was labelled as reactive thrombocytosis postsplenectomy. As the thrombocytosis persisted for 2 month and progressed further to 12 lacks, work up for myeloproliferative disorder is done with JAK2V617F mutation which is positive and bone marrow biopsy which has given the picture of essential thrombocythemia. Patient was treated with Asprin 75 mg once a day and Hydroxyurea 500 mg once a day for 4 weeks following which platelet count decreased to 5 lacks, then to 3 lacks after 6 weeks and then to 2.1 lacks after 8 weeks of treatment. Now patient is on maintenance with aspirin and hydroxyurea and patient did not have any features of thromosis or bleeding during this course

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Prevalence and risk factors of non-alcoholic fatty liver disease in patients mono-infected with human immunodeficiency virus

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Introduction Diseases unrelated to human immunodeficiency virus (HIV) are becoming more frequent in people living with HIV-AIDS.
Aim of this study was to analyse the prevalence and risk factors of non-alcoholic-fatty liver disease (NAFLD) in HIV mono-infected patients.
Methods Consecutive adult patients with HIV (stage I-III as per WHO) without significant alcohol intake were included after an informed consent. Study had approval of Institute's Ethics Committee. Patients co-infected with HBV or HCV, other liver disease, any malignancy and HIV stage IV were excluded. Assessment was done with ultrasound abdomen (USG), controlled attenuation parameter (CAP), serum ALT, non-invasive fibrosis markers and liver stiffness measurement (LSM) on Fibroscan. Host metabolic and HIV related risk factors were studied.
Results Of 187 patients screened over one year, 100 patients (males 65, mean age 36.1±10.3 yrs) meeting criteria were included. Prevalence of NAFLD on USG and CAP was 63% and 60% respectively. Severity of hepatic steatosis on CAP was S1 (215 to ≤251 dB/m) in 26 (43.3%), S2 (252 to296 dB/m) in 23 (38.3%) and S3 (>296 dB/m) in 11 (18.3%) patients. Fourteen (23.3%) patients had abnormal ALT (>40 IU/L) and significant hepatic fibrosis (LSM >7 kPa) was in 7 (11.6%) of 60 patients with hepatic steatosis. Hepatic steatosis patients had significantly higher overweight (14 [23.3%] vs. 6 [15%], p=0.003), obesity (19 [31.6%] vs. 3 [7.5%], p=0.003), central obesity (14[23.3%] vs. 0%, p=0.001) and metabolic syndrome (8 [13.3%] vs. 1 [2.5%], p=0.003) in comparison to without hepatic steatosis. There was no significant difference in respect to other metabolic risk factors, duration of HIV infection, duration and type of ART, CD4 count and stage of HIV-AIDS.
Conclusion NAFLD is common in patients mono-infected with HIV; majority of them have mild disease without significant necro-inflammation and hepatic fibrosis. Absence of HIV related factors and low prevalence of metabolic risk factors point towards an unknown mechanism of NAFLD.

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A case control study of post-endoscopic variceal ligation bleeding ulcer (PEBU) in severe liver disease

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Introduction The post-endoscopic variceal ligation (EVL) bleeding ulcer is associated with varied outcomes. The management of post EVL ulcer bleeding is currently based on the local technical expertise and the underlying liver disease status.
Methods Retrospective analysis of a prospectively collected data of post EVL ulcer bleed in a tertiary care liver disease center of India. The primary outcome being the five day survival and secondary outcome being six weeks survival.
Results Over the study period (January 2014 to March 2017) 3854 sessions of EVL bands took place, 127 patients (3.3 %) presented with post EVL ulcer bleed (hematemesis or melena). We classified post EVL ulcers based on their endoscopic appearance into Type A- ulcer with active spurting, Type B- ulcer with ooze, Type C- ulcer base with visible vessel or clot and Type D– clean or pigmented base. There were 23 (18%), 33 (26%), 46 (36.2%) and 25 (19.8%) patients in Type A, Type B, Type C and Type D respectively. Forty-two patients died and the distribution was 17 (40.5%), 13 (31%), 8 (19%) and 4 (9.5%) in Type A, B, C and D respectively. On univariate analysis there was no correlation to HVPG, TIPS procedure, size of varices, number of bands applied. The MELD score and the esophageal mucosal appearance (neovascularisation and scarring) had a positive and negative correlation to the outcome. After adjusting for MELD the mortality was best predicted by type A ulcer with a p value of 0.024, OR (8.95) and CI (1.34-59.72).
Conclusions Post EVL ulcer bleeding incidence was 3.3% in our large cohort of patients who underwent EVL for esophageal varices. Stratifying these patients into various types based upon new classification helps in predicting outcomes independent of MELD score, but it requires further validation.

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To find out prevalence of minimal hepatic encephalopathy in patients with cirrhosis of liver who came for regular follow up without any neurological symptoms

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Background Minimal hepatic encephalopathy (MHE) is suggestive of earliest stage of hepatic encephalopathy (HE). MHE diagnosis requires specially designed psychometric tests and is associated with increased risk of developing overt HE and mortality. However, MHE is frequently missed during regular visits to OPD as majority of patients and their care takers do not recognise subtle symptoms. Hence we aimed this study to find out prevalence of MHE in patients who came to hospital for regular check-up and also to find out factors contributing to MHE.
Methods Consecutive patients with liver cirrhosis between age group of 18-65 years presented to Liver Clinic from 1/11/2015 to 30/12/2016 and fulfilled inclusion and exclusion criteria were enrolled after obtaining informed consent. MHE was diagnosed by calculating PHES score (score of <-4 was considered as MHE). All patients with MHE were treated with rifaximine and lactulose. Patients were evaluated at end of 1 month for MHE and further followed up to 6 months for development of overt HE.
Results A total of 102 patients males 79.4%, female 20.6% with a mean age of 49.77 years were enrolled. Prevalence of MHE was found in

34.31%. Overt HE at 6 months follow up was seen in 73.33% in MHE patients and 18.86% without MHE. 60% patients who had MHE in CTP-B class, developed overt HE on follow up over 6 months while 76.47% patients who had MHE in CTP-C class developed overt HE on follow up. Patients with CTP-B and without MHE, 19.23% developed overt HE while in CTP-C class without MHE, 27.27% developed overt HE on follow up.
Conclusions 1. There is high prevalence (34.31%) of MHE in cirrhotic patients. 2. Presence of MHE predicts overt HE on follow up in majority (73.3%).3. Higher MELD score (>15) and poor liver function (CTP >6) predicts higher chances of MHE

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Degree of hepatic and systemic hemodynamic alterations predicts development of acute kidney injury and mortality in patients with cirrhosis - A prospective cohort study

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Background and Aim There is limited data in cirrhotics on the correlation of altered portal, systemic and pulmonary hemodynamics and development, progression and severity of acute kidney injury (AKI) and the impact of hemodynamic response to beta-blockers (BB).
Methods Consecutive cohort of cirrhotics (n=3493) without AKI, who underwent a hemodynamic assessment at baseline as part of clinical evaluation, were prospectively followed for the development/ resolution of AKI.
Results Cirrhotics aged 50±12 years, 79% male, mean hepatic venous pressure gradient (HVPG) 15.6±6.1 mmHg were followed for a median of 369 (61-790) days. Patients who developed AKI than those who did not, were significantly more vasodilated; higher median cardiac index (4.3[3.2-5.1] vs. 3.3 [2.9-3.9] L/min/m2; p<0.001]), lower systemic vascular resistance index (SVRI) (869 [1324-2232] vs. 2094 [1570-2689] dynes/cm/m2; p<0.001]), pulmonary vascular resistance index (89 [53-141] vs. 9.4 [58-147] dynes/cm/m2; p=0.001]), higher HVPG (17 [13-21] vs. 15 [11-19]; p=0.001]), lower eGFR (6138-96) vs. 87 (67-114) ml/min/m2; p<0.001), higher MELD (17.2±9.1 vs. 12.6±5.6; p<0.001) and CTP scores (9.5±1.7 vs. 8±1.9; p<0.001). Higher HVPG (3.1), lower SVRI (0.23, 0.1-0.5) and eGFR (0.08,0.05-0.16) and higher CTP score (1.5,1.4-1.6) predicted AKI development. Of the 1344 patients who received BB (Carvedilol-79%, propranolol 21%, second HVPG in 781), 43.4% were responders (>20% reduction or ≤12 mmHg) showing greater resolution (p<0.001) and lower degree of AKI (p<0.001). High HVPG (HR 4.2) and MELD score (HR 1.1) independently predicted mortality. A significant increase (p<0.05) was noted for both AKI development (HR) (1 vs. 1.4 *vs* 1.8 vs. 3.4) and mortality (1 vs. 1.4 vs. 1.9 vs. 2.7) on stratification of patients based on HVPG (<12 vs. 12.1-16 vs. 16.1-22 vs. >22 mm of Hg).
Conclusions High portal pressure, severe systemic and pulmonary vasodilatation, lower renal-reserve and severity of liver disease determine the risk of AKI development and mortality in cirrhosis. BB therapy, especially in responders, reduces degree of AKI and helps in its resolution. Stratifying patients with high portal pressure for additional pharmacologic intervention could enable prevention of AKI.

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Ruptured hepatocellular carcinoma- A study from tertiary care centre

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Introduction Hepatocellular carcinoma (HCC) is third most common cause of cancer related deaths worldwide. Eighty percent of patients with HCC have chronic liver disease (CLD).Ten percent of deaths in patients with HCC are due to rupture. Transarterial embolization (TAE) and surgical resection serve as management options for ruptured HCC.
Methodology Retrospective study of 14 patients from October 2014 to April 2018. Diagnosis of HCC rupture was based on symptoms coupled with findings of hemorrhagic ascites and CT abdominal angiogram. Patients suspected with HCC rupture were taken up for emergency TAE. Post embolization angiogram was done to confirm hemostasis. Patients were followed up over a period of 3month.
Results Study included 14 male patients, of which 13 had CLD. One patient who didn't have CLD was HBsAg positive. Mean age was 64.8 yrs. Etiology of CLD was ETOH in 61.6% and NASH in 38.4%. Most patients were in CHILD B (71.4%). Average MELD score was 17.2. Number of patients in BCLC stage A, B, C and D were 21.4%, 42.8%, 35.7% and 0% respectively. Most common symptoms were pain abdomen (78.6%) and abdomen distension (71.4%). Two patients presented with shock. Fifty percent of patients had single lesion and rest had multiple lesion. Size of lesion was <3 cm in 35.7% of patients and >3cm in 64.2%. Most lesions were localized to right lobe (71.4%). 57.1% of lesions were of exophytic morphology. Mean ICU stay was 3.8 days after procedure. TAE with glue embolization was done in 11 (78.6%) patients, 3 (21.4%) patients underwent coiling. All patients achieved hemostasis. Thee months survival was 50%.
Conclusions In our study most common presentations were pain abdomen and abdominal distension. Incidence of rupture was more in lesions greater than 3cm and confined to right lobe. Exophytic lesions were commonly associated with rupture. TAE is effective in achieving hemostasis with 3month survival of 50%.
Limitations Small number of subjects and retrospective study

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Cysteinylation of albumin leads to reduced antioxidant activity in Non-alcoholic fatty liver disease patients

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Oxidative stress is postulated to play an important role in liver disease progression. The degree of oxidized cysteine (Cys) 34 in human serum albumin (HSA) is correlated with oxidative stress related to pathological conditions and modulates its physiological functions. We analyzed purified plasma albumin from 46 biopsy-proven NAFLD patients and 21 matched healthy blood donors. The albumin modifications were analyzed by liquid chromatography coupled with electrospray ionization time-of-flight mass spectrometer (ESI-TOF/MS). Relative % abundance of unmodified (intact) and modified isoforms of albumin were compared between NAFLD and controls. In-vitro ROS generation and antioxidant activity was measured by mean fluorescence (MFI) of Dihydrorhodamine (DHR) by flow cytometry in presence of purified albumin of controls and NALFD patients. Three most prominent isoforms of albumin were observed in the deconvoluted ESI spectrum with molecular masses of 66,438±2.8, 66,559±4.8 and 66,603±6 Da in controls and NAFLD patients represents intact, cysteinylated and glycated isoforms of albumin respectively. Unmodified albumin was the predominant peak with 100% relative abundance in healthy with calculated theoretical mass (66,438 Da, 542aa). In contrast, the relative abundance of modified form with addition of +119Da (cysteinylation) of albumin was predominant (100%) in NAFLD. Cysteinylated isoform of albumin (cys-Alb) was significantly higher in NAFLD patients than controls (100% vs. 52% [p<0.01]). Circular dichroism (CD) spectrum showed clear structural alterations in purified albumin from NAFLD patients as

compared to controls. Further, albumin antioxidant activity was measured by removal of ROS productions in-vitro. Significant differences were observed in mean fluorescence intensity of DHR in presence of purified albumin from controls and patients (51.5±5.8% vs. 60.3 ±13.8%, $p<0.001$) showed reduced antioxidant activity of albumin in NAFLD patients. Our results clearly showed that sustained oxidative stress and reduced antioxidant activity is reflected by high levels of cysteinylated albumin in NAFLD patients.

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Study of cardiac dysfunction in cirrhotics

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Introduction Liver cirrhosis is associated with a wide range of cardiovascular abnormalities. The prevalence of cirrhotic cardiomyopathy remains unknown at present. Features include structural, histological, electrophysiological, systolic and diastolic dysfunction. Due to limited number of human studies, management of cirrhotic cardiomyopathy remains empirical and treatment is mainly supportive. The aim of this study was to study cardiac abnormalities in specific reference to corrected QT interval in Cirrhotic patients.
Methods It is a prospective, observational study. Patients included were recruited from the Department of Medical Gastroenterology, Sri Ramachandra Medical College and Research Institute. Patients above 18 years with cirrhosis due to any etiology were enrolled from September 2016 to August 2018. Investigations included hemogram, LFT, RFT, serum electrolytes, prothrombin time, INR, ascitic fluid analysis, viral markers, electrocardiography and echocardiography. QTc interval >440 msec and E/A ratio less than 1 were considered diagnostic of cirrhotic cardiomyopathy. Patients were followed up to 6 months from date of presentation. Statistical analysis was done using SPSS software. Univariate and multivariate analysis were done with Chi-square test or Fischer's exact test. P value of <0.05 was found to be significant.
Results Child-Turcotte-Pugh score (CTP), ascites, patient outcome, MELD score and male gender significantly influenced cirrhotic cardiomyopathy, QTc interval and E/A ratio. Higher QTc interval significantly reduced the E/A ratio. Ejection fraction was less than 60% and presence of esophageal varices was seen with decrease in E/A ratio ($p<0.05$).
Conclusion Severity of cirrhosis correlates with the presence of cirrhotic cardiomyopathy and is associated with poor outcome. Ascites, males, and elevated levels of serum bilirubin, serum albumin and INR are significant features in cases with cirrhotic cardiomyopathy. It is very important to examine heart to most of cirrhotic hepatic patients for early detection or any ECG changes.

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Unusual presentation of autoimmune hepatitis with systemic lupus erythematosus

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Background Diagnosis of autoimmune hepatitis is based on combination of biochemical, immunological, and histological features. The presentation can be identical to many other causes of liver disease, hence they need to be excluded. We are presenting a case of a 57-year-old female who presented with fatigue and abdominal distension. An usual finding of hepatomegaly with liver span of 23 cm posed a diagnostic dilemma. A diagnois of autoimmune hepatitis in background of systemic lupus erythematosus (SLE) was established and confirmed by the response to treatment.
Introduction The patient had history of type 2 diabetes mellitus, hypothyroidism and glomerulonephritis (biopsy not done due to solitary kidney) 10 year back. She presented with decreased appetite and fatigue of 2 months duration along with shortness of breath and abdominal distension. On evaluation, she was found to have pleural effusion and ascites, deranged liver functions and high titer of ANA and anti-dsDNA however, other markers associated with autoimmune hepatitis were negative. The viral markers and screen for hemochromatosis and Wilson's disease were negative. there was no radiological or biochemical evidence of tuberculosis. Liver biopsy demonstrated inflammation. Immunosuppressive therapy in the form of prednisolone and azathioprine was started resulting in normalization of liver function and improvement in symptoms.
Conclusion The diagnosis of autoimmune hepatitis coexisting with SLE was confirmed. The episode of glomerulonephritis occurred 10 year back was probably related to same disease and had resolved within a coarse of oral steroids only. This was important component of history since it prompted search for an autoimmune etiology which could be missed due to absence of typical features of lupus such as rash and polyarthralgia.

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Bacteriological profile and antibiogram of ascitic fluid in cirrhotics in Government General Hospital, Kurnool, Andhra Pradesh

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Introduction Spontaneous bacterial peritonitis (SBP) in cirrhotic patients is associated with high mortality if treated inappropriately. This study was undertaken to address the microbiological profile and sensitivity patterns to guide the SBP treatment which is a growing concern with injudicious use of antibiotics.
Methods This is a prospective observational study in which all cirrhotic patients with ascites admitted to the Department of Gastroenterology, Kurnool General Hospital, Andhra Pradesh from January 2017 to June 2018 were included. Ascitic fluid was collected aseptically at bed side for cell count in EDTA vacutainer and for culture in Bactec culture bottles. Antimicrobial sensitivity testing done in culture positive cases by disc diffusion method. Suspected cases of SBP were started on cefotaxime. Statistical analysis was done using Micro Soft excel.
Results Out of 120 cases of ascitic fluid samples analyzed 38 cases (31.6%) were having SBP with PMN count >250 cells /mm3. Among these, 16 cases (42.1%) were culture positive. E. coli in 9 cases (56.2 %), klebsiella in 3 cases (18.7%), psudomonas in 2 cases (12.5 %) and proteus, Staphylococcus species in one case each (6.2%). SBP required change of empirical antibiotic in 4 cases (25%) after culture results. 78 % cases of E. coli, 66% of klebsiella, and all proteus, staphylococcus species grown are sensitive to third generation cephalosporins, ciprofloxacin, and amikacin. one case (50%) of pseudomonas which was resistant to ciprofloxacin, cefotaxime and Two cases (22%) of E.coli, one case (33%) of klebsiella which were ESBL strains treated with imipenam. 33% of E. coli cases were resistant to ciprofloxacin. All cases were sensitive to carbapenams group of antibiotics. Six cases (15.7%) of SBP were asymptomatic at presentation.
Conclusion About one third of cirrhotic patients with ascites were diagnosed to have SBP. There is a rising trend of resistant organisms to empirical antibiotic cefotaxime with one quarter of SBP patients requiring change of antibiotics. Hence routine ascitic fluid analysis for SBP including culture and sensitivity will guide further appropriate antibiotic therapy.

BILIARY TRACT

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Bile duct injury after laparoscopic cholecystectomy: New classification and Novel approach for the management in emergency situations

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Methods From October 2010 to May 2018, we managed a total 207 patients of mean age 51 (range 30-74) years with cholecystectomy induced bile duct injury. Intraoperative cases included. Twenty-two injuries recognized at operation. Rest transferred -7th postoperative day average. Our proposed new classification: Type I: Cystic stump blow out. Type II: Partial CBD injury. Type III: a. Segment loss of CBD <2 cm. b. CBD/CHD >2 cm extending up to hilum. c. Hilar injury with separate sectoral ducts. T d. Any of above with ligation of right hepatic artery. Type IV: Isolated sectoral duct injury. All Type 1 injury- ERC, papillotomy and stenting. Of 119- 108 had drains, 11 had bilioma with pigtail.
Type II and III - All patients operated, lavage done, CBD explored, complete diversion of bile done. Feeding jejunostomy in only initial 16 patients. Diversion was done using plastic stents used in ERC. Routinely 2 stents were placed-one in each right and left duct. Then planned hepaticojejunostomy was done after three months on average. ERC was done prior to HJ to assess the stricture and patients segregated to surgery or multiple biliary stents.
Average time for hepaticojejunostomy -day 62. Out of 86 type II and III - 47 (54.6 %) required HJ, 39 (45.3%) managed with ERC and multiple stenting. One patient lost to follow up. Mortality-2. Reasons- sepsis, multiorgan failure and one with liver failure due to clipped portal vein.
Conclusions Type I CBD injuries- Respond well to ERC and stenting. Type II onwards injuries- Always drain first, lavage, CBD exploration and placement of stents in both ducts in emergency. Follow up with ERC and multiple stents is strictures not too tight or hepaticojejunostomy if tight strictures after three months on an average.

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Spectrum of common bile duct strictures-A tertiary centre experience

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Introduction Bile duct stricture is a challenging clinical condition that requires a coordinated multidisciplinary approach involving gastroenterologists, radiologists, and surgical specialists. Bile duct strictures can cause life threatening complications such as ascending cholangitis, liver abscess and septicemia. Early intervention can help the clinicians to treat accurately and thereby improving the quality of life and survival rate of these patients.
Methods This retrospective study was done in RGGGH- MMC, Chennai through 2 years from May 2016 to May 2018. All patients with obstructive jaundice subjected to ERCP were included.
Results Total number of patients were 256 patients. Male and female were 60% (153/256) and 40% (103/256) respectively. Out of 256 patients, malignant stricture was found in 72.6% (186/256) and benign strictures in 27.3% (70/256). Out of 186 malignant strictures, the most common malignancy was pancreatic cancer (27.95%), followed by Hilar cholangiocarcinoma (26.88%), distal cholangiocarcinoma (23.12%), gallbladder malignancy (13.97%) and ampullary malignancy (8.06%). One hundred and forty patients were non-operable and all underwent ERCP and biliary stenting with double pigtail plastic stent. Remaining 24.73% patients underwent definite surgical procedure with preoperative ERCP and biliary stenting. Out of 70 benign strictures, the most common cause was chronic calcific pancreatitis (54.5%), post cholecystectomy with iatrogenic bile duct injury (21.4%), choledocholithiasis (11.4%), EHPVO with portal biliopathy (8.5%), AIDS cholangiopathy (2.8%), primary sclerosing cholangitis (1.4%). All these patients underwent ERCP and Biliary stenting with double pigtail stent.
Conclusion Obstructive jaundice was decreased in majority of patients who underwent palliative stenting. Few malignant stricture patients were in operable stage and were subjected to surgery. Remaining of them was put on self-expanding metallic biliary stenting. All benign stricture cases were managed with double pigtail plastic stenting which showed significant improvement in bilirubin levels. Early diagnosis and intervention is needed to provide definitive therapy in more number of patients there by improving the quality of life and survival rates in these patients.

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Bile culture and antibiotic sensitivity in patients with biliary obstruction - A retrospective study from a tertiary hospital in south India

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Introduction Bactibilia may result in biliary infection following obstruction to biliary system. The aim of the study was to analyze the frequency of bile culture positivity, type of flora and its antibiotic sensitivity in biliary obstruction.
Methods It was a retrospective record-based study between January 2016 and December 2017 including patients with biliary obstruction, who had their bile aspirated during endoscopic retrograde cholangiopancreatography (ERCP). Demographic characteristics including age, gender, comorbidities, and details regarding indications for ERCP, presence of cholangitis, complete blood count, renal and liver function, bile culture and sensitivity were recorded.
Results A total of 127 patients were included (mean age: 53.6+14.3 years with male preponderance [59%]). Malignancy accounted for about half of ERCP (56.7%). Bile culture was positive in 59 (46.5%) patients. Escherichia coli was the most common organism isolated in 38 (65.5%) followed by Klebsiella in 9 (15.5%) and enterobacter in five patients (8.6%). Other organisms grown in culture were: pseudomonas, enterococcus, staphylococcus, and acinetobacter. Acute cholangitis was noted in 67 patients (52.8%). Malignant biliary obstruction more often presented with cholangitis (59.7%) than benign causes (43.6%), the difference however did not attain statistical significance (p=0.0768). Bile culture positivity was observed frequently in those with cholangitis (68.7%) and was statistically significant (p<0.0001). However, such a difference was not observed in different etiologies of biliary obstruction. Most of the organisms were sensitive to amikacin (86.4%) or gentamycin (74.6%). Nearly-two third of them were resistant to ciprofloxacin (64.4%).
Conclusion The frequency of bile culture positivity in biliary obstruction was 46.5%. Escherichia coli was the most common organism isolated. The etiology of biliary obstruction did neither influence the frequency nor the type of biliary colonization. Aminoglycosides would be a reasonable empirical antibiotic of choice in the setting of cholangitis in our region.

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A study of role of therapeutic endoscopic retrograde cholangiopancreatography in choledocholithiasis

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Introduction Endoscopic retrograde cholangiopancreatography (ERCP) used to be a diagnostic and therapeutic modality for choledocholithiasis. With the advent of MRCP which is non-invasive, the diagnosis of choledocholithiasis has become much easier, but still ERCP is a modality that can not only diagnose but also treat it in single procedure, thus providing diagnostic and therapeutic advantage.
Aims To study the role of therapeutic ERCP in choledocholithiasis and to study the outcome of patients with choledocholiathiasis.
Methods Total 50 patients admitted to tertiary care hospital were taken up for the study from January 2017 to October 2017. Age more than 18 years and investigations suggesting choledocholithiasis were included in study. Preoperatively patients were evaluated with ultrasound abdomen and/or CECT abdomen, were subjected to ERCP procedure. Postoperatively patients were assessed, and complications were documented.
Results Choledocholithasis was seen in 31 to 70 years with M:F ratio (1:1.2). Symptomatology was pain in abdomen (96 %) followed by jaundice (80 %). Bilirubin was normal in 7 (14%) of the patients. ERCP was successful in diagnosing all cases of CBD stones. Successful complete clearance of CBD with balloon was achieved in 76%, clearance achieved in 9 (18%) cases after repeat ERCP and 3 (6%) were referred for surgery. <12 mm calculus had 100 % retrieval rate. 12-18 mm calculus had 80% success rate. One patient with >18 mm calculus was referred for surgery. Procedure related complication noted in 12 % cases with maximum rate of pancreatitis in 8 % cases.
Conclusion ERCP with balloon extraction is a good endoscopic therapy for choledocholithisis till 18 mm calculus size up to 94 % cases in resource poor settings.
Limitations of study Cholangioscopy, laser and mechanical lithotripsy were not available.

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A study of factors contributing to plastic stent occlusion in benign and malignant biliary obstruction

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Introduction When plastic stents are chosen to maintain bile duct patency in benign and malignant biliary obstruction, stent occlusion with consequent bile stasis and cholangitis constitutes one of the major late complications. In addition to microbial colonization and duodenal reflux of food constituents (e.g. fibers), several other factors like stent size, duration of stent stay, etiology of biliary disease and use of UDCA have been suggested to be involved in the occlusion of these endoprostheses.
Method This observational cross-sectional study, conducted from January 2017 to January 2018, included 50 patients who required stent removal. Stent removal was decided on a scheduled basis up to 3 months after placement or if clinical signs and symptoms of stent clogging such as cholangitis, recurrent jaundice or biliary colic with deranged liver function tests developed. Stents which migrated, or which required removal within 10 days or after 6 months were excluded from study.
Results Male:Female ratio was 1.17:1 in this study. Thirty-nine had benign disease, commonest being choledocholithiasis (26/39), 11 had malignant disease, commonest being carcinoma head of pancreas (4/11). 15/50 presented with cholangitis (8/11 in malignant vs. 3/32 in benign). The mean stent patency in benign diseases was 94.71±56.57 days vs. 75.63 ±30.57 days in malignant disease (p=0.422). The mean duration of stent patency in patients with UDCA intake) was higher than without UDCA intake (125.38 vs. 78.97 days) (p<0.05). Polymicrobial growth was more common in patients with longer stent stay.
Conclusion Malignant diseases were more likely to present with cholangitis and clinical features of stent blockage. Use of UDCA significantly prolonged the duration of stent stay. Polymicrobial growth was more common in patients with longer duration of stent stay. There is no difference in microbial spectrum in blocked and patents stents.

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Spectrum of micro-organisms isolated from plastic biliary stents and their resistance pattern in patients with benign and malignant biliary obstruction

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Introduction When plastic stents are chosen to maintain bile duct patency in benign and malignant biliary obstruction, stent occlusion with consequent bile stasis and cholangitis constitutes the major late complication. The elimination of the anti-microbial barrier of Sphincter of Oddi and low pressure in common bile duct due to endoscopic sphincterotomy and endoprosthesis insertion leads to duodenal reflux, allowing bacterial colonization and biofilm formation, resulting in stent occlusion.
Method This observational cross-sectional study, conducted from Jannuary 2017 to January 2018, included 50 patients who required stent removal. Stent removal was decided on a scheduled basis up to 3 months after placement or if clinical signs and symptoms of stent clogging such as cholangitis, recurrent jaundice or biliary colic with deranged liver function tests developed. Stents which migrated, or which required removal within 10 days or after 6 months were excluded from study. Stent washings were sent for culture immediately.
Results Male:Female ratio was 1.17:1 in this study. 15/50 had cholangitis. Thirty-nine had benign disease, commonest being choledocholithiasis (26/39). Eleven had malignant disease, commonest being carcinoma head of pancreas (4/11). E coli (70%), P mirabilis (26%) and K pneumonia (20%) were commonest organisms isolated. Polymicrobial growth was more common in patients with longer stent stay (113 vs. 84 days). 4/15 cholangitis patients had identical microorganisms isolated from blood culture with same antibiotic sensitivity pattern. All isolated organisms were highly resistant to Fluoroquinolones. Many of them were sensitive to Aminoglycosides, Cotrimoxazole and Cephalosporins.
Conclusion E coli, P mirabilis, K pneumoniae and Enterobacter were common organisms isolated; hence, antimicrobial therapy should be directed against them in cholangitis. Polymicrobial growth is more common in patients with longer stent stay. Prevalence of ESBLs is on the rise. Aminoglycosides and cotrimoxazole should be considered due to resurgence of sensitivity to these antibiotics.

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Liver hydatid cyst in urban referral centre – When do we need biliary stenting?

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Background Hydatidosis, a zoonotic infection very common in developing countries. Mostly single organ involvement. Liver represents (50% to

70%) and lungs (10% to 30%). Rupture into the biliary tree is the commonest complication (up to 25% of cases) and can be associated with biliary obstruction by daughter cysts.
Methods Data from October 2010 to March 2018 for liver cysts analyzed. Total liver cysts – 67- operated, for hydatid cysts: 50 management-cystectomy- *non-radical* alternative. Cyst de-roofing and cyst content evacuation without removal of the priciest, plus or minus omentoplasty and endoscopic retrograde cholangiography (ERC). Preoperatively-albendazole to all. Not given - patients with cholangitis due to internal rupture of cyst contents. None of the patient in our series was of type CE 1 (WHO classification).
Results Biliary communication preoperative-27 (54%), ERC-18 (66.7%) postoperatively. Cholangitis and jaundice preoperatively-4, ERC biliary communication on table-12 (24%). Distance from hilum: ERC group 1.66 cm vs. 4.35 cm non-ERC Size of cyst - (10.79 cm vs. 9 cm), alkaline phosphatase (103.88 vs. 62.13, normal- up to 80), bilirubin (1.54 vs. 0.75) - statistically insignificant. ERC group - hospital stay - 9.22 vs. 3.2 days – non-ERC combined liver spleen hydatid cyst- 1, mortality 1 – average follow up - 3 months to 8 yrs. Fluid collection – 1- PCD.
Conclusions Cystectomy - a non-radical alternative of hydatid disease is practical and feasible approach. Preoperative ERC if raised bilirubin, alkaline phosphatase and cholangitis. Post Op ERC: biliary communication during surgery, Bile leak to the hilum – An important predictor for the need of postoperative ERC in our series. However larger studies are needed to reciprocate the same findings. Morbidities higher- internal rupture cases.

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Microbiology of bile in extrahepatic biliary obstruction: Are malignant obstructions sterile?

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Introduction It has been traditionally believed that malignant biliary obstructions are sterile. We cultured the bile of 163 continuous ERCPs to compare the culture positivity of biliary obstructions.
Methods We collected and analyzed the bile culture for patients undergoing ERCP at our center. The patients were categorized into benign and malignant subgroups based on their etiology of biliary obstruction. Bile culture was done using the bile collected during the ERCP keep aseptic precautions. Culture positivity was compared amongst patients of biliary and malignant obstruction on the basis of the spectrum of organisms and their antibiotics sensitivity.
Results A total of 163 patients underwent ERCP during the study period. Benign obstruction was present in 115 patients (70.6%) and 48 patients (29.4%) had malignant obstruction. The common etiologies of obstruction were choledocholithiasis (n=70), post liver transplant anastomotic strictures (n=21) and carcinoma gallbladder (n=29). Bile culture was done during the ERCP keeping aseptic precautions. Of all the patients, 63.8% (n=104) had a positive biliary culture with mono and poly-microbial growth pattern noted in 77.9% and 22.1% respectively. Culture positivity was more common in the benign group as compared to the malignant group (69.6% vs. 50.0%: p= 0.02). The bacteriology of the bile was similar amongst the benign and malignant groups. E coli was the predominant bacteria in total, benign and malignant groups (65.4%, 67.5% and 58.3% respectively) followed by Klebsiella in the total and benign group (24.0% and 28.8%) and Enterococcus and Pseudomonas in the malignant group (12.5% each). Aciinetobacter was seen in a small percentage of cases.
Conclusion Malignant biliary obstruction has a lesser incidence of growth and the bacterial spectrum was different. Although E coli was the commonest organism in both groups, Enterococcus and pseudomonas were common in the malignant subgroup which may have therapeutic implications.

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Intraoperative endoscopic retrograde cholangiography in patients with gallstone disease – Our experience

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Introduction Intraoperative endoscopic retrograde cholangiography (IO-ERC) is an underutilized approach which has multiple advantages. In patients with necrotic gallbladder (GB), intermediate risk for common bile duct (CBD) stone with contradictory radiological and clinical findings where intraoperative cholangiogram revealed CBD stones, we present data of intraoperative ERCs done in our hospital over last four years.
Methods This was a retrospective study from March 2014 till June 2018. Patients who underwent ERC in operation theatre (OT) for gallstone diseases were included in the study. ERC was done in OT after completion of laparoscopic cholecystectomy mostly in supine position with the side viewing endoscope for cannulating the papilla. We evaluated indications, technical success and complications of intraoperative ERC.
Results Fourteen patients were included in the study. The indications were necrotic GB with difficult stump closure (n=7), dilated CBD detected intraoperatively (n=3), two patients with CBD and GB stones chose to have laparoscopic cholecystectomy and ERC under single anaesthesia, and one each for Mirizzi syndrome and failed preoperative ERC. Technical success was achieved in 100%, with one patient requiring a rendezvous procedure. In all except one patient, ERCP was done in supine position. None of the patients had any complications.
Conclusion IO-ERC has advantages of combining two procedures under a single anesthesia with good success rate and without increased rate of complications. In patients with gangrenous/necrotic GB, IO-ERC is an excellent approach to minimize postoperative morbidity. It may be best indicated as an alternative to surgical CBD exploration in those with failed preoperative ERC.

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Bacterial spectrum and antibiotic sensitivity pattern in bile cultures from endoscopic retrograde cholangiography patients

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Introduction Temporal shifts have been known to occur in antibiotic sensitivity patterns of organisms causing cholangitis. This study was conducted to study the common microorganisms cultured from bile during endoscopic retrograde cholangiopancreatography (ERCP) and their local sensitivity pattern.
Methods This was a prospective observational study conducted between January 2016 and November 2017. Patients undergoing ERCP were included in the study. Bile aspirated aseptically during ERCP was cultured, bacteria were identified, and antimicrobial susceptibility testing was performed.
Results One hundred patients (48% males, mean age 53.53±14.65 years) were included. Sixty-six patients had growth in bile culture, out of which 9 patients had dual growth (total of 75 microbial growths). The maximum growths amongst all microorganisms were of Escherichia coli (40.9%) and Pseudomonas aeruginosa (40.9%). With regard to bacterobilia, there

was no significant difference between patients with cholangitis and without cholangitis (61.36% vs. 69.64%, p=0.288), patients who had underwent previous ERCP with stenting and those who had not undergone the same previously (60% vs. 67%, p=0.301), patients who were empirically administered antibiotics before intervention and not administered (67.92% vs. 63.83%, p=0.599). Growth rates were significantly higher in patients with non-malignant causes of biliary obstruction versus those with malignant causes (70.76% vs. 57.14%, p=0.03). Polymixins had the highest sensitivity to cultured bacteria followed by aminoglycosides and Imipenem.
Conclusion Gram negative bacteria like Escherichia coli and Pseudomonas aeruginosa were the most common isolates from bile. Empirical antibiotic therapy in patients with cholangitis should be based on local sensitivity patterns.

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Predicting failure during endoscopic retrograde cholangiopancreatography: Is there a better way? – A single centre study

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Introduction Endoscopic retrograde cholangiopancreatography (ERCP) is frequently used for the treatment of hepatic, biliary tract, and pancreatic disorders and in the diagnosis of certain selected patients. However, failure during cannulation necessitates other interventions.
Aims and Objectives The aim of this study was to establish parameters that can be used to predict failure during ERCP.
Methods A total of 783 ERCP procedures performed on 722 patients, between January 2016 and May 2018, were retrospectively evaluated and analysed.
Results Cannulation was possible in 68.4% patients. For each one-year increase in age, the cannulation failure rate increased by 1.31-fold (p=0.03). A history of previous hepatic biliary tract surgery caused the cannulation failure rate to increase by 0.67-fold (p<0.001). A tumor infiltrating the ampulla, malignant gastric outlet obstruction, and benign gastric outlet obstruction due to peptic ulcer disease increased the failure rate by 92 -, 48-, and 3.47-fold, respectively (p<0.001)
Conclusion Patient gender and duodenal diverticula do not influence the success of cannulation during ERCP. Advanced age, benign or malignant obstruction of the gastrointestinal system, and duodenal ulcers decrease the cannulation success rate. Endoscopists who had at least 5 years of experience had better cannulation rates (statistically significant differences were detected among them).

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Profile of hilar biliary stricture at a tertiary care hospital in North India

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Background and Objective Biliary strictures at hepatic hilum are not uncommon. Studies about hilar biliary stricture (HBS) are infrequent from India. We retrospectively assessed the profile of HBS in patients attending a tertiary care centre of north India.
Methods During a period from July 2017 to July 2018, consecutive patients referred/presenting for ERCP in the department of gastroenterology, IMS, BHU were studied. A total of 236 patients were found to have HBS. Clinical examination and other relevant laboratory investigations were done and tumor markers were sought when required. The strictures and their nature were diagnosed on MRI/MRCP and CECT. ERCP aided in diagnosis albeit it was used primarily for therapeutic purposes. FNAC/Brush cytology were used as ancillary investigation (when indicated).
Results Of the 236 patients, 114 (48.3%) were males and 122 (51.7%) were females. Mean age was 56±8.5 years. The most common presentations were fatigability (100%), progressive jaundice (96%), pruritus (78%) and pain abdomen (57%). Malignancy accounted for majority of cases of HBS (n=182;77.1%) and benign biliary strictures (BBF) accounted for the remaining (n=54;22.9%). Carcinoma gallbladder (CaGB) was the most frequent cause of HBS (n=148; 62.7%), and of these 4.6% (n=11) were postcholecystectomy recurrences. Hilar cholangiocarcinoma accounted for 14.4% (n=34) cases. Postcholecystectomy strictures were the second most common cause of HBS (n=43; 18.2%). Hydatid cyst enucleation and splenectomy (involving the left hepatic duct) accounted for 2.5% (n=6) and 0.5% (n=1) cases respectively. Mirrizi's syndrome and dominant stricture in PSC involving left hepatic ducts were found in two patients (0.84%) each.
Conclusions CaGB, post-surgical BBS and hilar cholangiocarcinoma remain the commoner cause of HBS. Rarely splenectomy may also complicate into HBS. Physicians need appraisal.

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Microbial analysis of gallstones and gallbladder tissue by MALDI-TOF in patients with symptomatic gallstones

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Introduction Mucosa-associated bacteria (MAB) may play a role in the pathogenesis of chronic cholecystitis and GBC in patients with GS. Prevalence and nature of MAB a high incidence area for GBC is not known. We determine the prevalence and nature of bacteria on the gallbladder (GB) mucosal surface and on the gallstone (GS) surface among patients undergoing cholecystectomy.
Methods A prospective study was performed among patients undergoing cholecystectomy (94-symptomatic GS, 2 each of Whipple surgery, pediatric cholecystectomy; pediatric choledochol cyst) from April, 2017-April, 2018. Clinical and demographic profile was recorded. Immediately after surgery 1 GS and 1 cm 2 GB tissue was inoculated in two separate Robertson cooked meat (RCM) media; cultured on blood; MacConkey agar plates. The nature of bacterial species was identified using MALDI-TOF.
Results The mean age of the study subjects was;13.67; and 81% were females. Of the 94 cases with GS 69 (73%) of GB mucosal samples were culture +ve and 38 (40%) of GS were culture +ve. Both (GB tissue; GS) were culture positive in 35 (37%) of the patients while both were culture negative in 16 (17%). Similar organisms were found in 17 (18%) and different were found in 14 (15%). Among the patients who were culture positive (n=69) in GB tissue 43 (62%) were Gm-ve and 26 (38%) were Gm+ve. A similar profile was seen in GS. The commonest Gm-ve were E. coli, P. aeruginosa, P. moselli, K. pneumoniae; Gm+ve were M. luteus. S. hominis, S. hemolyticus, E. faecium, C. striatum in GS and GB tissue. While the GB sample obtained from Whipple surgery; pediatric surgery were found sterile.
Conclusion There is high prevalence of asymptomatic bacterial infection in the GB mucosal surface; the GS surface among adult patients with

symptomatic GS undergoing routine cholecystectomy. The predominant organisms were Gm-ve in nature.

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Endoscopic management of biliary strictures – 10 years' experience

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Introduction It is important for gastroenterologists to be familiar with causes of biliary strictures and correlate with patient's history, symptoms, and laboratory values to formulate an accurate differential diagnosis and management strategy. In our study we aim to find common causes and anatomy of biliary strictures.
Methods In this retrospective study, 506 patients with obstructive jaundice and biliary obstruction admitted in department of gastroenterology, Gandhi Hospital, who underwent ERCP, from March 2008-March 2018 were included. Data regarding causes of strictures and ERCP findings were analyzed.
Results Of 506 patients, 216 (42.7%) were women and 290 (57.3%) were men with mean age 51 years (14-84). Benign etiology was found in 179 (35.3%), malignant 305 (60.2%) and indeterminate 22 (4.3%) cases. Malignant causes being periampullary growth 134 (44%), cholangiocarcinoma 112 (36.7%), carcinoma pancreas 40 (13%), gallbladder carcinoma 14 (4.5%) and liver metastasis 3 (1%) with metastasis from colon, breast and mandibular cancer. Benign causes include chronic pancreatitis 65 (36.3%), benign distal CBD strictures 51 (28.4%), postcholecystectomy injury 26 (14.5%), PSC 8 (4.4%), portal biliopathy 4 (2.2%), mid CBD stricture 4 (2.2%), recurrent cholangitis 6 (3.3%), post traumatic 2(1%), mirizzi syndrome 2 (1%), pancreatic divisum 1 and tuberculosis 1. Site of obstruction was Distal CBD 355 (70%), proximal CBD 32 (6.3%), Mid CBD 30 (5.6%), CHD 68 (13.4%), hepatic ducts 43 (8.4%) and hilar 31 (6.1%). Choledocholithiasis was present in 27 (8.8%) of malignant strictures. Biliary drainage with stent placement was done in 414 (82%), SEMS was placed in 6 and rest of patients were referred for surgery or PTBD.
Conclusion Malignant biliary strictures are more common than benign strictures. Distal CBD is the most common site of biliary strictures and Mid CBD strictures are least common. Chronic pancreatitis is most common benign cause and periampullary growth in malignant strictures. Biliary obstructions can be managed by stent placement in most of the patients with minimal complications. SEMS can be used for palliative management of non resectable malignant strictures.

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Early experience with endobiliary radiofrequency ablation (Endo-RFA) in unresectable malignant hilar biliary obstruction

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Introduction Sustained relief of biliary obstruction in patients suffering from malignant biliary obstruction improves quality of life and may prolong survival. Endoscopically applied radiofrequency ablation (RFA) induces coagulative necrosis of tissue within malignant biliary strictures, retarding tumor growth, which can significantly prolong stent patency and may improve patient survival.
Methods Patients with unresectable malignant extrahepatic hilar biliary obstruction who needed palliation for biliary tract obstruction were included. All patients underwent complete baseline evaluation including assessment of performance status and TNM staging. RF energy was applied to stricture using the HabibTM-Endo-RFA 8F catheter (8-10W*120 sec), which delivers RF energy over a length of 2.5 cm. The stricture was treated at one or two levels followed by placement of plastic stent(s). Cholangiography with stricture evaluation was done at 2 weeks after index procedure with stent exchange and repeat endo-RFA if stricture persisted.
Results Ten patients (mean age 51.5±10.9; 3 males, 7 females) of hilar block with cholangiocarcinoma (CC, 6) and gallbladder cancer (GBC, 4) were included (Bismuth-Corlette type II in 5, type III in 3 and type IV in 2). Total ERC sessions were 24, with mean of 2.4 (1-8), while total endo-RFA sessions were 14, with mean of 1.4 (1-4). Median duration of follow up is 7.1 months. During follow up, 6 (GBC-4, CC-2) out of 10 patients died. Median survival with GBC was 6 months (range 2-8 months) while with CC was 8.6 months (range 2-15 months). Four patients are still alive, with mean follow up duration of 8.1 months (range 6-12 months). Most common adverse event was abdominal pain (9 out of 10 patients). Complications included cholangitis in 2 and minor hemobilia in 1 patient and were managed conservatively. All 4 surviving patient have cholangiocarcinoma.
Conclusion Endo-RFA is safe and may improve survival in patients with hilar malignant extrahepatic biliary obstruction, particularly in those with cholangiocarcinoma.

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Prevalence of gallbladder dysmotility among patients with gallstones

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Introduction Gallbladder (GB) stasis is an important cofactor in the pathogenesis of gallstones (GS) and gallbladder cancer. The prevalence and predictors of GB dysmotility among patients with GS in a high incidence area for GBC like North India is not known. We studied relationship of gallbladder dysmotility to symptom profile and number of gallstones.
Methods Patients with GS were prospectively evaluated for clinical and demographic profile from 2015 to 2018. Ultrasonography assessment for number of stones and to exclude associated malignancy/polyp was done. Gallbladder ejection fraction (GBEF) was assessed using ultrasound after ingestion of standard fatty meal at 30 minutes and 60 minutes. GBEF of ≤40% was considered as evidence for GB stasis. Relationship of GB stasis and GBEF to stone status and biliary symptom status was assessed.
Results Patients with GS (n=148) were studied (mean age 43.06±1.77; 70% F). Ultrasound showed multiple GS in 120 (81%) cases. Those with symptomatic gallstones were 121 (82%) while rests were asymptomatic. It was found that 91 patients (61%) had static GB. Peak GBEF was more often attained at 60 minutes rather than that at 30 minutes. Among those with symptomatic GS, higher biliary symptom score was associated with lower GBEF at 30 minutes (r= -0.257; p=0.003). Prevalence of GB stasis was similar among symptomatic (61%) and asymptomatic GS (61%). Patients with multiple GS had lower GBEF as compared to those with single stone at 3 0 min (29.67[IQR-37.08] vs. 34.16 [IQR-20.42]; p=0.37) as well as 60min (30.39 [27.37] vs. 33.73 [35.87]; p=0.038). Patients with multiple GS more often had static GB compared to those with single GS (77/120 [64%] vs. 14/28 [50%]; p=0.198).

Conclusions Patients with GS have high prevalence of GB stasis irrespective of whether they are symptomatic or asymptomatic. Those with symptomatic gallstone, multiple gallstones and those with higher symptom scores had lower GBEF.

PANCREAS

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Correlation between sulfur amino acids and oxidative stress in chronic pancreatitis patients

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Background Sulfur amino acids (SAAs) being an important antioxidant could affect pancreatic function. In this study, we investigated the relationship between blood SAAs and antioxidant levels.
Methods One hundred and seventy-five chronic pancreatitis (CP) patients and 113 healthy normal controls were prospectively studied. Disease characteristics and imaging features were recorded. Plasma SAAs were estimated using HPLC. Erythrocyte reduced glutathione, glutathione peroxidase, superoxide dismutase, plasma vitamin C, erythrocyte thiobarbituric acid reactive substance (TBARS), urinary inorganic sulphate and creatinine were estimated by spectrophotometry.
Results Multivariate regression analysis shows plasma methionine and erythrocyte TBARS were inversely correlated whereas plasma cysteine and erythrocyte glutathione levels were directly correlated. Plasma cysteine and vitamin C levels were significantly lower whereas TBARS was higher in CP patients with atrophy as compared to patients without atrophy. A significant positive correlation was observed between urinary inorganic sulfate/creatinine ratio and BMI.
Conclusion Deficiency of SAAs was associated with increased oxidative stress in CP patients. Possible benefit of supplementation of SAAs needs to be elucidated.

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A retrospective analysis to assess the importance of doing a biliary sphincterotomy as a method to increase and simplify cannulation success rate of the main pancreatic duct

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Methods We studied our data of all cases (1206) for pancreatic endoscopic retrograde cholangiopancreatography (ERCP) from October 2008 to May 2018 in our tertiary care centre. All cases were done by a single operator. All cases where main pancreatic duct (MPD) could not be cannulated in three attempts, or MPD not cannulated directly in 10 minutes or common bile duct (CBD) cannulated first were studied. When direct MPD cannulation failed we attempted to cannulate the CBD first or when CBD was first cannulated during an MPD cannulation, we did a biliary sphincterotomy wide enough to separate the biliary and pancreatic orifices and then cannulated the MPD with a cannula and a glide wire.
Findings Number of ERP: 1206, successful direct MPD cannulation: 982 (81.4%), difficult cannulation: 224 (18.6%), CBD cannulated first: 199 out of 224 (88.9%), biliary sphincterotomy done: 199 (100%), successful MPD cannulation after biliary sphincterotomy: 185 (92.9%), failed MPD cannulation after biliary sphincterotomy: 14 (7.03%), pancreas divisum found: 10 out of 14 failed cannulations (71.4%), failed MPD cannulation overall: 25 out of 1206 (2.07%).
Conclusion If direct MPD cannulation is difficult, cannulating the CBD first and doing a biliary sphincterotomy improves the MPD cannulation success rate significantly. Increase success from 81.4% to 92.9%. Of those cases with failed MPD cannulation after biliary sphincterotomy, 71.4% cases had pancreas divisum which was not detected on magnetic resonance cholangiopancreatography (MRCP) or prior imaging. Those who could not be cannulated at all were subjected with either endoscopic ultrasound (EUS)-guided drainage or surgery.

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Pancreaticopleural fistula knife versus scope : A tertiary center experience

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Pancreaticopleural fistula is a rare complication of acute, recurrent, and chronic pancreatitis. Pancreaticopleural fistula has been recognized as a clinical entity since case reports were published in late 1960s. Since that time, pancreaticopleural fistulae and pancreatic ascites have been termed as internal pancreatic fistulae which share common pathogenesis which includes the disruption of main pancreatic duct, resulting in leakage of pancreatic fluid. This rare entity may be seen in patients with acute and chronic pancreatitis or may follow traumatic and surgical disruption of the pancreatic duct.
It is characterized by massive pleural effusion and has a tendency to recur following pleural tapping, ICD insertion in pleural space. While conservative management with pancreatic duct stenting and inhibition of pancreatic secretion with octreotide may achieve closure of fistula in most cases. Surgery rarely require in Persistent symptomatic cases of chronic Fistula with underlying damaged pancreatic duct or parenchyma.
Methods Ten patients with pancreaticopleural fistula (PPF) treated at a tertiary referral center at Madras Medical College has been analyzed for various presentation, treatment modalities and outcomes.
Results Among ten patients with PPF five patients had right sided pleural effusion. Three had left side effusion, two patient had bilateral effusion. Five patients managed conservative measures, five patients treated by endoscopic retrograde cholangiopancreatography (ERCP). All patients treated successfully without surgery.
Conclusion ERCP and stent placement have revolutionized the concept of nonsurgical management in PPF. The principal aim of the treatment with ERCP is to achieve drainage of ducts and to reduce intra ductal pressure, which will reduce morbidity and mortality in comparison with surgery.

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Natural course of asymptomatic walled off pancreatic necrosis: A long-term prospective follow up study

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Background There is paucity of data on the natural course of necrosis (WON) as well consequences of conservative management of these patients.
Objective To study the natural course as well as clinical outcome of conservative management in patients with asymptomatic WON.
Methods Retrospective analysis of prospectively maintained data base of patients with acute necrotising pancreatitis (ANP) seen over last 3 years

was done to identify patients with asymptomatic WON who presented to us 4 to 6 weeks after an acute episode and were on regular follow up.
Results Forty-three patients (37 M; mean age: 38.2±10.4 years) with asymptomatic WON were studied. Nine (4.7%) patients had multiple WON and the size of WON ranged from 5 to 16 cms (mean 8.2±2.2 cms). The WON were located in head, body and tail in 5 (11%), 34 (79%) and 4 (10%) patients respectively. Thirty of 43 patients (70%) patients did not experience any complications during the expectant management period ranging from 3 weeks to 32 months with 13 (30%) patients having resolution of WON within a mean period of 6.2±3.4 months. Of remaining 17 patients with uneventful course during follow up, the WON decreased in size in 11 patients and increased in size in 6 patients. Thirteen of 43 patients (30%) became symptomatic or developed complication within a mean follow up of 3.2±1.3 months. The complications observed were refractory pain (n=7), infection (n=4), spontaneous rupture into gastrointestinal tract in 5 patients (stomach in 3, duodenum in 1 and colon in 1 patient respectively) and bleeding from splenic artery pseudoaneursym in 1 patient. None of the patients succumbed to the illness.
Conclusions Majority of patients with asymptomatic WON have an uneventful clinical course with it spontaneously resolving in one third patients within 6 months. However, one third of patients will develop complications that require interventional treatment for management.

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Clinical profile of management of symptomatic pseudocyst by endotherapy, surgery and radiological interventions – A tertiary care experience

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Introduction Pancreatic pseudocysts are fluid collections in the pancreatic tissue or adjacent pancreatic space. Surgery is favored, however; less invasive methods like endotherapy and radiological interventions have comparable success rates.
Methods Patients diagnosed with pancreatic pseudocyst of duration more than 4 weeks between January 2016 and June 2018 based on the revised Atlanta Classification were included in the study. Of the total of 115 cases (male 92 and female 23), 42% underwent endotherapy, 19% underwent surgery and 36% were treated by radiological interventions. The main symptoms for which pseudocyst was drained include persisting abdominal pain (72%), jaundice (22%) and intestinal obstruction (6%). In endoscopic therapy, PD stenting was done in 77% of patients. In 23% of patients, stenting could not be done due to failed PD cannulation.
Results Fifty percent patients had pseudocysts in HOP, 14% in tail of pancreas, 8% in body and tail, and 19% in body of pancreas. Of the cases treated by endoscopic approach, 61% were pseudocyst associated with chronic pancreatitis, 11% acute pancreatitis, 5% blunt trauma, 9% RAP and 5% pancreas divisum cases. With surgical approach, 80% were chronic pancreatitis, 12% acute pancreatitis and 8% due to blunt trauma. In radiological interventions, 64% were infected pancreatic pseudocysts and 35% were large symptomatic pseudocysts. Eighty-four percent of surgical cases underwent cystogastrostomy, 4% cystoduodenostomy and 12% distal pancreatectomy with splenectomy. Symptom improvement with endoscopy was comparable with surgical interventions and least with radiological drainage. The complication rate and mean hospital stay were least with endoscopic drainage. Surgery required the least reintervention
Conclusion Only symptomatic pseudocyst needs to be treated. Endoscopic approach is less invasive and associated with less hospital stay and complications. Radiological drainage is especially useful in infected pancreatic pseudocyst but carries a complication of pancreatocutaneous fistula.

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Hyperamylasemia and lipasemia in diabetic ketoacidosis

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Introduction Serum amylase and lipase estimations are standard tests to diagnose acute pancreatitis (AP). However, there are rare conditions which may lead to significant elevation of these two parameters. We here report a case of diabetic ketoacidosis (DKA) with hyperamylasemia and lipasemia without AP.
Case report A 18-years-old girl was hospitalized with pain abdomen, vomiting and loose stools of one day duration. She had persistent mild diffuse abdominal pain without any radiation, aggravating or relieving factors. She had several bouts of vomiting bringing out food particles without any blood. On examination at the time of admission, she was hemodynamically stable. Per abdominal examination revealed mild epigastric guarding. Investigations revealed neutrophlic leukocytosis (TLC–44,800/cmm, N 93%). Urine examination revealed glycosuria, ketonuria (++++). Random blood glucose was 723 mg/dL, HbA1c 5.8%. Her ABG at the time of admission revealed pH 7.1 and serum bicarbonate was 8.9 mmol/L. CRP was 22 mg/L. USS abdomen. Serum amylase was 401 U/L, lipase was 413 U/L. Repeat serum amylase and lipase next day was 283mg/dL and 946 mg/dL respectively. A CECT abdomen revealed a normal pancreas.
Discussion Serum amylase and lipase are used for diagnosis of AP. Other causes of hyperamylasemia and lipasemia are rare. The source of elevated enzymes in DKA without AP remains unclear. Search for alternative causes of hyperlipasemia is essential because such levels may be erroneously interpreted as indicative of AP. In conclusion, significant but nonspecific elevations of amylase and lipase can be seen in DKA. Hence, when DKA is diagnosed, raised amylase/lipase should not be assumed to be due to the DKA only and imaging studies for AP should be undertaken.

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Spectrum of pancreatico-biliary malignancy in South India–A tertiary centre experience

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Introduction Early detection of pancreatico-biliary malignancy can help clinicians to treat accurately and thus will improve quality of life of patient and particularly survival rates. The present study aimed at knowing the spectrum of pancreatico-biliary malignancy and treatment of them in a tertiary centre in south India.
Methods Consecutive patients of pancreatico-biliary malignancy admitted to the Institute of Medical Gastroenterology, Madras Medical College between November 2016 to May 2018 were included in the study.
Results Total number of patients were 186 with M:F ratio of 1.3:1 and mean age of presentation was 61.73 years. Out of 186 patients, most common malignancy was pancreatic cancer (27.95%), hilar cholangiocarcinoma (26.88%), distal cholangiocarcinoma (23.12%), gallbladder malignancy (13.97%) and ampullary malignancy (8.06%). Definitive

surgery was done in 24.73% (46/186) of patients. Preoperative ERCP and biliary stenting with plastic stent was done in 60.87% (28/46) of them. Among 140 non-operable patients, ERCP and biliary stenting with a double pig tail plastic stent was successful in 91.43% (128/140).Remaining 8.57% (12/140) underwent PTBD. Obstructive jaundice decreased in majority of them and 17.19% (22/128) underwent repeat ERCP and biliary stenting. Palliation with uncovered self-expanding metal stent (SEMS) was successfully done in 19 of overall nonoperable patients.

Conclusion Majority of patients with pancreatico-biliary malignancy were over the age of 55 years and received palliative stenting . Quality of life significantly improved after stenting and reduction of jaundice. Minority of patients who were in operable stage were subjected to surgery. Pancreatic malignancy was the most common malignancy followed by hilarcholangiocarcinoma. Awareness and early diagnosis is needed to provide definitive therapy in more number of patients

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Acute pancreatitis and pregnancy: A 10 year single center experience

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Introduction Acute pancreatitis is a rare event during pregnancy. This study examines the epidemiology and treatment outcomes of pregnant patients with acute pancreatitis.

Methods In this retrospective study from a tertiary hospital in South India, we analyzed the epidemiology, course of hospital stay and clinical outcome of all pregnant patients who got admitted with a diagnosis of acute pancreatitis during the time period from May 2006 – June 2016.

Results During the 10 year study period, 14 pregnant patients were admitted with acute pancreatitis. One patient had two episodes during the same pregnancy and two other patients presented with pancreatitis in two consecutive pregnancies. The mean age of patients was 27+/- 4 years. Eleven out of 14 patients were primigravida. Out of 17 pancreatitis episodes studied, 1 (6%), 5 (29%), 11 (65 %) episodes occurred in the 1st, 2nd and 3rd trimesters, respectively. 11 (64 %) were mild, 3 (18%) moderately severe and 3 (18%) severe pancreatitis. Cause of pancreatitis was determined to be due to biliary cause in 4 (29%) patients, hypercalcemia in 3 (21%), and idiopathic in 7 patients (50%). Five patients were lost to follow up after discharge in well condition. There was no maternal mortality. Of nine deliveries, four were normal term deliveries, three pre-term and two were stillborn. Two patients underwent LSCS. Two patients developed pseudocysts which were conservatively managed and one developed distal bile duct rupture which warranted surgical management. Out of four biliary pancreatitis, only one underwent ERCP and stone clearance. Three (21%) patients out of 14 had underlying chronic pancreatitis and four (28%) patients had recurrent acute pancreatitis.

Conclusion The incidence of pancreatitis in pregnancy is extremely low. It was most commonly seen in primigravida during the third trimester. Although there was no maternal mortality, fetal complications, in terms of intrauterine death and preterm birth, are causes for concern.

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Comparison of various prognostic scores in assessing severity and prognosis of acute pancreatitis

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Introduction For assessing the severity of acute pancreatitis, a number of multi-factorial scoring systems have been developed, some of which include Ranson's score, APACHE II score, MCTSI. The present study is intended to compare the predictive value of these prognostic scoring systems in assessing severity and prognosis of AP.

Methods This is a single-center prospective observational study, conducted in patients admitted with acute pancreatitis in Medical Gastroenterology Department, Nizam's Institute of Medical Sciences, Hyderabad. Prognostic scores like Ranson's score, APACHE-II, mCTSI scores were calculated on admission based on various clinical, laboratory parameters and radiological features.

Results A total of 61 patients were enrolled, of which 15, 24 and 22 had mild, moderately severe and severe pancreatitis respectively; 9 patients with severe pancreatitis died during the index admission. This study had predominant male patients (70.5%). Mean age was 35.64± 10.1 years; alcohol was the most common etiology (63.94%). AUROC for APACHE II score, Ranson' score, MCTSI, CRP in predicting the severity were 0.948, 0.939, 0.841, 0.791 respectively. Sensitivity and specificity for prediction of severity for APACHE II, Ranson's, MCTSI and CRP were 86.36% and 82.05%, 90.9% and 79.48%, 90.9% and 64.10%, 63.63% and 74.3% respectively. AUROC for APACHE II score (cut-off 12), Ranson score (cut-off 5), MCTSI (cut-off 8), CRP (cut-off 28 mg/L) in predicting the mortality were 0.929, 0.899, 0.804, 0.786 respectively. Sensitivity and specificity in prediction of mortality for APACHE II score (88.9% and 78.84%), Ranson score (88.9% and 61.5%), MCTSI (100% and 61.29%), CRP (66.67% and 69.23%).

Conclusion APACHE II and Ranson's scores have comparable predictive value and are superior AUROC to MCTSI and CRP with regard to prediction of severity and mortality.

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Prospective study of D-dimer, antithrombin III and routine coagulation parameters in predicting severity and mortality of acute pancreatitis

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Introduction One of the pathophysiological aspects of acute pancreatitis (AP) is derangements in coagulation profile. We intended to study the predictive value of coagulation parameters, natural anticoagulants in AP and compare them with established severity scores.

Methods It is a single-center, prospective analytical study of patients admitted with acute pancreatitis between January 2017 and January 2018 at Nizam's Institute of Medical Sciences, Hyderabad. Platelet count, PT, APTT, TT, fibrinogen, anti-thrombin -III, protein C, D-dimer were measured on admission and 72 hours later; prognostic scores were calculated at admission.

Results Sixty-one patients were enrolled, 15 had mild, 24 had moderately severe and 22 patients had severe pancreatitis. Mean PT, fibrinogen, D-dimer (on day 0, 3) were significantly higher whereas platelet count, protein C, ATIII (day 0, 3) were significantly lower among severe acute pancreatitis (SAP) and non-survivors. In predicting severity, protein C, AT III on day 3 were superior (AUROC 0.886, 0.877), followed by ATIII on day 0 (0.843). On comparison with other severity scores, protein C, ATIII on day 3 had superior AUROC, higher predictive value than CRP (AUROC 0.791), mCTSI (AUROC 0.841); and were comparable to Ranson's score (AUROC 0.939) and APACHE II (AUROC 0.948). In predicting mortality, D-dimer on day 0 had superior AUROC (0.881), higher predictive value as compared to the other coagulation parameters. It was comparable to Ranson score (AUROC 0.899) and APACHE II score (AUROC 0.929) in assessing severity.

Conclusion Protein C and AT III on day 3 at cut-off ≤72% and ≤82% were better predictors of severity. D-dimer at cut off ≥10 μg/mL at admission was better predictor of mortality.

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Clinical profile of non-alcoholic chronic pancreatitis at tertiary care hospital in South India

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Introduction Chronic pancreatitis is widely prevalent in India. Prevalence of chronic pancreatitis in Southern India is 114-200 cases per 100,000 population. Alcohol is the most common cause of chronic pancreatitis worldwide. Still in a large proportion of patients with chronic pancreatitis no etiology can be identified. We studied clinical profile of non-alcoholic chronic pancreatitis patients admitted to a tertiary care centre in South India.
Methods This is a retrospective observational study. Between July 2017 to June 2018, 82 patients of chronic pancreatitis were admitted to Department of Gastroenterology in Nizam's Institute of Medical Sciences, Hyderabad. Data was collected from institute database and analyzed.
Results Twenty-six of 82 (32%) patients with chronic pancreatitis were non-alcoholic. Male: Female ratio was 1.16:1. Median age was 35 years (17 to 77 years) as compared to 42 years (22 to 80 years) in alcoholic. Median duration of symptoms was 19.5 months (3 days to 12 months). Pain was most common symptom present in 23 patients (88.46%). Diabetes was present in 7 patients (27%) as compared to 15% in alcoholic chronic pancreatitis. Exocrine pancreatic dysfunction was uncommon, steatorrhea being present in only 3 patients (11%). Hyperparathyroidism and hypertriglyceridemia were found in 1 patient each. Pancreas divisum was found in 2 patients and annular pancreas in 1 patient. Pancreatic calcification was most common radiological finding noted in 65% (n=17) of patients. Atrophy, dilated PD, PD calculi and pseudocyst was noted in 58%, 61%, 23% and 23 % respectively.
Conclusion Non-alcoholic chronic pancreatitis occurs with approximately equal frequency in both sexes, occurring at younger age than alcoholic. Steatorrhea is uncommon. Diabetes is more common as compared to alcoholic chronic pancreatitis. Calcification, atrophy and dilated PD are common radiological findings.

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Which approach is better for pancreatic necrosectomy in WON– Comparing our own data

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Background Comparison of data of management of WON over last 8 years with different modalities.
Methods Patients with acute pancreatitis between October 2010 to March 2018: 1980 Necrotizing pancreatitis: 608 (30.7%); Walled of necrosis: 283 (46.5%); procedures : open surgery, endoscopic transgastric: minimal access necrosectomy (MAN): sessions open surgery: 1 in 46 of 53 (86.8%), repeat: 7 of 48 (14.5%). Sessions MAN: 58 of 61 (95.1%), sessions endoscopy: average 4 time : session 1 - 25 min (plastic stents), 15 min (metal stents). Session 2 and 3 - 20 min. Total follow up 8 years.
Results Bleeding: 3 – endoscopy; 1- open surgery; 1 – MAN; endoscopic : surgery; rest 4: angioembolization; mortality : 1; wound infections- 44 vs. 9 - open and MAN; intestinal fistulae 4 vs. 1 - open and MAN. Pulmonary complications: 26, 8 and 3 - open, MAN and endoscopy ICU stay- MAN 3.57 vs. 8.14 open vs. 2.04 endoscopy. After ICU stay:11.33 vs. 12.7 vs. 11.8 - open vs. MAN vs. endoscopy mortality- (0.6%) endoscopy vs. 3 (5.35%) in MAN vs. 12 (25%) open. Incisional hernia: 8 vs. 3-open vs. MAN timing of endoscopy: 45 th day (32–75), MAN -34 th day (24 to 50) and open -33rd (18 to 40).
Conclusions Later the necrosectomy better outcomes. Endoscopic necrosectomy – up to 50% necrosis better outcomes. MAN >50% necrosis. Fistula-open >MAN > endoscoopy bleeding: open > endoscopy endoscopy: not early sepsis: open and MAN. Pulmonary complications, ICU and mortality: more in open and MAN mortality in endoscopy: 1. sepsis.

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Pancreatico pleural fistula-Case series in a tertiary center

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Introduction Pancreaticopleural-fistula (PPF) is a rare complication of severe acute pancreatitis, where-in pancreatic-secretions drain into pleural cavity. It occurs after disruption of posterior-wall of pancreatic-duct. It accounts for <1% of pleural effusions. Prevalence is estimated to be 0.4% in patients with pancreatitis, there is an increasing incidence of PPF. We aim to report presentation and various therapeutic modalities in management.
Methods A total of 14 cases admitted with PPF during 2016-2018 period at Gandhi Hospital, a tertiary referral centre in Hyderabad were included in study. All patients with pancreatic type of pain and dyspnea were evaluated clinically/chest X-ray for pleural effusion. PPF is diagnosed on the basis of pleural fluid amylase >1000IU/L. Serum-amylase, USG-abdomen, CECT abdomen were done. All patients were treated with somatostatin-analogues, thoracocentesis initially. Unresponsive patients were treated with endotherapy [ERCP]. ICD-drainage and surgical management were considered in patients who failed conservative and endoscopic treatment.
Results Of 14 patients, males:13 [92%], females:1 [7%]. Mean age was 33.9 yr [16-50 yr age]. Main etiological factor found to be ethanol-12 [85%], connective tissue disorder-1 [7%], pancreatic divisum-1 [7%]. Mean serum amylase was 675 IU/L (89-1650 IU/L), Pleural fluid amylase being 25559 IU/L, lowest being 895 IU/L. CECT-abdomen demonstrated fistulous communication with pleural-cavity in 3 (21%), calcifications noted in 6 (42%), pseudocyst in 7 (50%), left pleural-effusion in 12 (85%), right pleural effusion in 2 (15%), ascites in 3 (21%). ERCP was successful in 9 (64%), demonstrated duct leak in 7 (78%) (Head:4 [44%], Body:1 [11%], Tail:3 [33%]). No leak demonstrated in 2 (22%). Stricture noted in 4 (44%) (Head:3 [33%], Body:1 [11%]). MPD appeared irregular in 4 (44%), normal in 2 (22%), dilated in 1 (10%). PD-cannulation cannot be achieved in 4 (28%) in view of papillary stenosis. Distal-CBD stricture noted in 1 (11%). PD-stenting was done in 6 (66%).Thoracocentesis alone sufficient in 4 (28%), ICD-drainage done in 8 (56%). Surgical management was done for 3 who did not respond to conservative and endoscopic treatment. Five (35%) patients responded to conservative management with octreotide, NJ, Thoracocentesis. All patients followed weekly for 3 months and monthly for 6 months.
Conclusion PPF is not uncommon. Alcohol found to be the main etiological factor (85%). Pleural fluid-amylase found to be diagnostic. Conservative management treated 35%, ERCP with stenting in 42% and surgery in 22%. Early endotherapy with PD-stenting+/-sphincterotomy is an effective option in combination with medical

management in closure of fistula. We encountered no mortality in-our study.

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Factors affecting outcome after percutaneous catheter drainage of fluid collection in patients with acute pancreatitis

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Introduction Percutaneous catheter drainage is effective initial step of step-up approach for management of acute pancreatitis (AP). The objective of this study was to identify factors associated with successful outcome after PCD.
Methods This was a prospective observational study between July 2016 - November 2017. A total of 101 consecutive AP were recruited. Step up approach of management was followed, initially all patients received medical management and subsequently 51 patients requiring PCD were enrolled in the study. We evaluated the association between success of PCD drainage (i.e. survival without necrosectomy) and various factors. Baseline parameters (demography, CTSI, aetiology, % necrosis, APACHE II, CRP and IAP, morphologic characteristics on computed tomography), characteristics of collection before PCD (nature of collection, volume, site, solid component), PCD parameters (initial size, maximum size, number and duration of drainage) and factors after PCD insertion (fall in CRP, fall in IAP, reduction in volume of collection).
Results Out of 101 patients of AP, 51patients required PCD drainage. The success rate of PCD in our study was 66.66 % (34/51) and 4 patients required additional surgical necrosectomy after PCD. Overall mortality rate in our study was 29.4 % (15/51, including 2 deaths after necrosectomy). PCD alone improved organ failure in 72.54% patients. Of all the parameters evaluated, initial PCD size (p=0.011) and >50% volume reduction in collection after PCD insertion (p=0.000) were positive predictors of PCD success. Total volume of collection more than 750 CC before PCD was probably a negative predictor of PCD outcome (p=0.05).
Conclusion Larger size of the first PCD and more than 50% reduction of collection after PCD were positive predictors of PCD success. Total volume of collection more than 750 CC before PCD is probably a negative predictor of PCD outcome.

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An observation on the use of point of care ultrasound (POCUS) to guide fluid resuscitation in acute pancreatitis patients within first 72 hours of onset of pain

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Background Intravenous fluid resuscitation plays a critical role in the management of early acute pancreatitis. Central venous pressure (CVP) measurement as a guide to estimation of intravascular volume is the standard of care however, point of care ultrasound (POCUS) is an emerging non-invasive alternative for intravascular volume estimation. Inferior vena cava (IVC) diameter, collapsibility index (CI) in spontaneously breathing patients and distensibilty index (DI) in mechanically ventilated patients of acute pancreatitis can be measured along with the CVP and mean arterial pressure (MAP) in order to guide fluid therapy. We aim to determine if CVP correlated with distensibility index of IVC in mechanically ventilated patients and collapsibility index in spontaneously breathing patients undergoing POCUS guided fluid resuscitation.
Methods Prospective observational study comprising of 33 patient's acute pancreatitis were evaluated between January 2016 to September 2017 and POCUS directed fluid resuscitation was carried out with regular monitoring of IVC parameters, CVP, MAP and various clinical and biochemical parameters on a 6th hourly basis.
Results After adequate POCUS directed fluid resuscitation there was a significant increase in CVP (p=0.0002) and MAP (p=0.0004) in spontaneously breathing patients and MAP (p= 0.0001) and CVP (p=0.0118) in mechanically ventilated patients. There was a negative correlation between CI, MAP, CVP (R= -0.8, p=0.04) in spontaneously breathing patients, however there was no correlation between DI, MAP, and CVP in mechanically ventilated patients (R= -0.252, p=0.06).
Conclusion Collapsibility index and IVC diameters are novel non-invasive methods to guide fluid therapy in spontaneously breathing patients of acute pancreatitis, however in mechanically ventilated patients CVP and distensibility indices and IVC diameter showed no correlation, making it unreliable as an accurate marker of intravascular fluid status in mechanically ventilated patients of acute pancreatitis.

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Acute necrotizing pancreatitis as the first presentation of undiagnosed primary hyperparathyroidism

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Introduction Primary hyperparathyroidism is a recognised, but rare cause of acute pancreatitis. The pathophysiology of hypercalcemia-induced acute pancreatitis is not well known, but when this combination occurs, pancreatitis is likely to be severe and the degree of hypercalcemia may play an important role in this association. Therefore, the cause of hypercalcemia should be identified early. Surgical resection of the parathyroid adenoma is the ultimate therapy.
Case Report We report two cases of acute pancreatitis caused by hypercalcemia due to pHPT that was not known previously. The cause of hyperparathyroidism was a benign parathyroid adenoma. We highlight the drawbacks in delaying the diagnosis of primary hyperparathyroidism in patients with acute pancreatitis as the sole clinical presentation.
Conclusion The role of primary hyperparathyroidism as a causative factor is underestimated when managing patients with acute pancreatitis, and frequently the underlying disease remains undiagnosed for a long time. Proper early diagnosis and management prevent unnecessary morbidity.

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Clinical profile of pancreatitis in a tertiary care center in coastal Eastern Region of India

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Introduction The incidence of pancreatitis is gradually increasing due to faulty life style. Profile of pancreatitis usually differs from region to

region. Therefore, this study was conducted with an aim to unravel the profile of pancreatitis in this part of Coastal Eastern region.
Methods In this open labelled observational cohort study, 88 consecutive admitted cases of pancreatitis in the Gastroenterology Department of IMS and SUM hospital, Bhubaneswar from November 2017 to April 2018 were included and prospectively evaluated.
Results Male outnumbered female in our study (Male: Female-3.8:1). Mean age of presentation was 39.03±14.65 years. Most of the cases (73.86%) were middle classed. 57.95% and 42.04% cases had acute and chronic pancreatitis respectively. None of the chronic pancreatitis case had exocrine or, endocrine insufficiency. 42.04% and 30.68% cases were alcoholic and habitual smoker respectively. Most (62.5%) of the cases had regular outdoor duties. All the cases presented with mild to moderate abdominal pain followed by vomiting in 76.13% cases. Abdominal pain was mostly localized to epigastric region in 52.27% cases followed by periumbilical distribution in 37.5% cases. Typical back radiation of abdominal pain was present in 76.13% cases. Abdominal tenderness could be elicited in 88.63% cases. 27.27%, 23.86%, 19.31%, and 12.5% cases had anorexia, fatigability, fever and jaundice respectively.
Conclusion Mostly the middle classed communities having predominant outdoor duties suffer from pancreatitis in our region and rarely manifest with exocrine or, endocrine insufficiency.

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Analysis of expression of neutrophil CD 64 and monocyte HLA-DR as a predictive marker of sepsis during severe acute pancreatitis (SAP) and its correlation with existing SAP and sepsis markers

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Introduction Major cause of death in severe acute pancreatitis (SAP) is organ failure and sepsis which occurs in 20% patients. Advances in flow cytometry have provided opportunities for identifying such patients earlier. Hence this study was planned to evaluate the role of mHLA DR, nCD64 , severity index (SI) as an early marker for severe acute pancreatitis and sepsis and compare with existing markers
Methods A total of 52 consecutive patients of acute pancreatitis were enrolled. All patients were subjected to investigations as per the study protocol like CBC, CT abdomen, serum procalcitonin, CRP. Severity index on Day 1 and CT severity index (CTSI) was calculated on day 4 of presentation. Determination of cell surface markers was done using flow cytometry for monocytic HLA–DR and neutrophillic CD64.
Severity index was calculated as =MFI of nCD64 x 100, MFI of mHLA-DR, All patients were followed up for 30 days to assess the disease course.
Results Out of 52 patients 15 patients (28.8%) had sepsis over the follow up period. Out of these, 4 patients expired. Age, mHLA DR and severty index significantly associated with early assessment of sepsis while procalcitonin, CTSI, nCD64 did not predict sepsis.
Conclusion Improved methods for early identification of severity in acute pancreatitis are needed. HLA–DR and severity index may predict severity on day one itself which may be helpful in modulating the treatment strategy and predicting outcome.

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Study on success of naso-jejunal tube feeds in patients with acute pancreatitis at tertiary care centre

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Introduction Naso-Jejunal tube (NJ) feeds are used as a treatment modality in both acute and acute on chronic pancreatitis. It is given to those patients presenting with complications of pancreatitis. In this study we evaluate the effect of NJ tube feeds in such patients.
Methods Thirty patients of acute pancreatitis admitted in Department of Gastroenterology, Gandhi Hospital, between 2017 October and 2018 June, who received NJ tube feeds were analyzed. The response in these patients was assessed and those who responded were compared to those who required further surgical interventions.
Results Thirteen patients had acute pancreatitis. Of them, 5 out of 8 patients (62.5 %) with acute fluid collection and only 1 out of 5 patients (20 %) with acute necrotizing collection responded to NJ tube feeds. The remaining 3 patients of acute fluid collection (37.5%) and 4 patients of acute necrotizing collection (80%) failed to respond requiring either, lateral Pancreatico-Jejunostomy and percutaneous drainage or surgical necrosectomy respectively. Among 17 patients with Acute on chronic pancreatitis, 15 had pseudocyst with or without ascites, of which 13 (83 %) responded to NJ tube feeds.1 patient presented with pancreatic ascites and required ERCP with PD stenting. Three patients presented with pancreatico-pleural fistula, of which only 1 (33.3 %) responded to NJ tube feeds,1 required ERCP with PD stenting and another required lateral Pancreatico-Jejunostomy as definitive treatment.
Conclusions NJ tube feeding is most effective in patients with acute on chronic pancreatitis with response seen in 14 of 17 patients (82.3 %). It can also be tried in patients with pancreatico-pleural fistula (response rate 33.3 %). In acute severe pancreatitis the response was reduced to 6 of 13 patients (46.1 %) with 7 (53.9%) requiring surgical management. Response was lower in acute necrotizing pancreatitis (20 %) emphasizing the need for early surgical debridement. Hence endotherapy with NJ tube feeds is effective in reducing mortality and morbidity in most cases of acute pancreatitis, decreasing the need for more aggressive surgical interventions.

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Comparison of severity and outcome of acute pancreatitis in patients of biliary and alcoholic etiologies

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Introduction Acute pancreatitis (AP) is a relatively common disease with incidence of 5–80 per 100,000 members of the population. Gallstones and alcohol account for 70% to 80 % of all AP etiologies. Identification and differentiation of etiologies can affect the specific therapeutic strategies, and eliminating causes of AP prevents further aggravation and recurrence.
Methods Patients of acute pancreatitis admitted to the department of gastroenterology of our institute were included. We compared the severity of AP by revised Atlanta classification in, local complications, severity scores, computed tomography severity index (CTSI), radiographic, and laboratory data between alcoholic and biliary AP. We also evaluated the length of hospital stay and in-hospital mortality in each group.
Results Out of 53 patients of acute pancreatitis 23 were alcoholic and 30 had gallstones. In laboratory parameter ALT levels were significantly (p<0.001) higher in biliary (245.2 ±202.6) cause than alcoholic (105.6 ±99.4) while CRP levels were significantly high in alcoholics then biliary. Incidence of pseudocyst formation was significantly higher in the alcoholic than in the biliary. Among prognostic scoring systems, only CTSI showed significant difference (p<0.001). Severe AP with organ failure

persisting beyond 48 h was observed in 4 patients (17.3%) in the alcohol group and one patient (3.3 %) in the biliary group (p=0.04).
Conclusion More severe forms of AP and local complication, such as pseudocyst formation, are associated with alcoholic AP compared with biliary AP.

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A prospective randomized clinical study to compare efficacy of intravenous ringer lactate or diclofenac suppository or combination of both in prevention of post endoscopic retrograde cholangiopancretography (ERCP) pancreatitits

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Background Acute pancreatitis is a major adverse event post-endoscopic retrograde cholangiopancretography (ERCP), resulting in significant medical cost and patient morbidity. The incidence of post-ERCP pancreatitis (PEP) ranges from 1% to 10% for low-risk individuals to 25% to 30% without prophylaxis for individuals with high-risk factors. The use of an infusion of Ringer's lactate (RL) has shown a benefit in the prevention of acute pancreatitis. In this study we compared effect of rectal diclofenac suppository, RL and combination of both in prevention of PEP.
Aims To study the effect of intravenous ringer lactate or Diclofenac suppository to decrease incidence of PEP. To assess effectiveness of combination of both modalities to decrease incidence of PEP.
Methods Patient fulfilling major high risk criteria (past history of PEP). Pancreatic sphincterotomy, pre-cut sphincterotomy, difficult cannulation (>8 attempts or >10 min for cannulation), sphincter of Oddi dysfunction, pneumatic dilatation of intact sphincter). Minor high risk criteria (female with age <50 years, normal bilirubin levels, dye injection in pancrease, pancretic brush cytology, >3 times PD cannulation) for PEP during ERCP was given either RL (1 Litre) or diclofenac (100 mg) suppository or combination of both (RL+ Diclofenac) immediate post procedure. Prophylaxis allotment was done with computer generated random number table. Patients were observed for next 24 hours for development of post ERCP pancreatitis.
Results Out of 60 patients enrolled in study (20 per group), all patients had at least 1 high risk criterion for PEP, and 56% had >1. PEP occurred in 2 patients (10%) in RL+ Diclofenac group, 2 patients (10%) in diclofenac group and 3 (15%) patients in RL group. No statistical difference was found between 3 groups.
Conclusion RL or diclofenac or combination of both are equally effective in prevention of PEP.
Limitations of study On-going study.

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Utility of neutrophil-lymphocyte ratio as an early predictor of severity of acute pancreatitis

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Introduction Inflammation-based metrics like neutrophil-lymphocyte ratio (NLR) and platelet to lymphocyte ratio (PLR) have been used to predict disease severity in various diseases including inflammatory states, cardiovascular disease and malignancy. Acute pancreatitis (AP) has a wide clinical spectrum which ranges from mild disease to a severe systemic inflammatory response with multiple organ failure associated with a poor outcome. This study aims to study the utility of NLR as an early predictor of disease severity that can in turn improve treatment outcome.
Methods This was a retrospective study of patients with AP who were admitted in Amrita Institute of Medical Sciences between January 2016 to July 2017. Relevant demographic data including age, gender, delayed presentation to the hospital, comorbidities and laboratory reports were recorded in pre-designed performas. AP was classified as mild, moderate and severe pancreatitis as per modified Atlanta classification for AP (2012). NLR was then compared between the three groups along with other known indicators of prognosis in AP. Multivariate analysis was then carried out using SPSS v20.
Results A total 95 patients were included with a mean age of 46.6±16.6 years and a male preponderance (69/95 patients, 72.1%). A total of 29 patients (30.5%), 31 patients (32.6%), 35 patients (36.8%) had mild, moderate and severe pancreatitis respectively. On univariate analysis, a delayed presentation to the hospital, serum urea, creatinine, C-reactive protein and mean NLR was found to be significantly associated with severe pancreatitis irrespective of the etiology of AP. On multivariate analysis, mean NLR and serum urea were found to be significant predictors of severity of AP (p value <0.001). A cut-off of 7.41 for mean NLR could predict severe pancreatitis with a sensitivity of 80% and specificity of 77%.
Conclusions NLR >7.41 at admission can reliably predict severe pancreatitis and can potentially be used to anticipate early ICU admission and prognostication of acute pancreatitis.

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Endoscopic management of mediastinal pseudocysts-our experience at Gandhi Hospital

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Introduction Mediastinal pseudocyst and mediastinal extension of pancreatic psuedocyst are rare complications of acute and chronic pancreatitis and pancreatic trauma. Treatment options include conservative management with surgery reserved for refractory or progressive disease. Endoscopic medialities of management include transpapillary pancreatic stent placement and EUS guided transmural internal drainage. We are reporting following two cases of mediastinal pseudocysts managed endoscopically over last 6 months.
Case-I: A 33-year-male, chronic alcohol user presented with pain abdomen and vomiting with history of alcohol intake prior to onset of pain and past history of chronic pancreatitis. His S. amlayse was 191 U/L and S. lipase was 100 U/L. On imaging CT scan showed PD4 mm, intraductal calculi and 12.3 x 4.6 x 3.9 cm hypodense collection anterior to descending aorta. Patient was managed by EUS guided internal drainage of pseudocyst 35 cm from incisors just above GE junction and placement of 4 Frx 6 cm DPT stent. Post procedure complete resolution of cyst was noted and patient discharged in stable condition.
Case –II: A 43-year-old male, chronic alcohol user presented with pain abdomen and breathlessness at admission on evaluation L sided massive pleural effusion was noted. His serum amylase was 128U/L and pleural fluid amylase 895U/L.
Imaging revealed on CT scan, enlarged pancreas head, body with intraductal and parenchymal calcifications. 6.8 X 3.5 X 18 cm pseudocyst in tai of pancreas with P.D communication and mediastinal extension was noted.
ERCP revealed a dilated main pancreatic duct with ductal leak in tail, along with ductal and parenchymal calcifications. Massive pleural effusion was addressed with ICD tube placement. Tail leak with mediastinal

extension was managed successfully by pancreatic duct stenting through transpapillary route using 5 frx 7 cm single pigtall PD stent.
Conclusion Endoscopic management of mediastinal pseudocyst can be associated with lower morbidity, compared to traditional surgical intervention.

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Role of neutrophil-lymphocyte ratio in the prognostication of patients with pancreatic adenocarcinoma

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Introduction Neutrophil lymphocyte ratio (NLR) is an inflammation-based metric that has been shown to have prognostic value, negatively affecting both overall and progression free survival in colorectal cancer, non-small cell lung cancer, cholangiocarcinoma and hepatocellular carcinoma. Although NLR in PDAC has been studied before, they are mainly in surgical patients. Moreover, there is no data from India regarding the role of NLR in the prognostication of PDAC.
Methods This was a retrospective study from Amrita Institute of Medical Sciences where all patients with a diagnosis of PDAC from January 2014 to December 2017 were included. The relevant demographics of the patients including age, gender, comorbidities and mode of presentation were recorded in pre-designed performas. The stage of disease, cancer related complications (gastrointestinal bleed, biliary strictures, gastric outlet obstruction), metastasis and treatment offered (surgery with adjuvant chemotherapy, palliative therapy) were also considered in the final analysis. Mortality at 3 months, 6 months and 1 year; along with survival benefit using Kaplan-Meir curves were computed.
Results A total of 68 patients were included with a mean age of 68.44 ±10.9 years. In univariate analysis, older age, presence of vascular metastasis, patients who underwent Whipple's surgery and those who completed adjuvant chemotherapy had a significant association with outcomes (p value <0.05). Mean NLR was found to be significantly higher in patients who had 3 months, 6 months and 1 year mortality. On multivariate analysis, NLR was found to independently correlate with poor survival irrespective of age, stage of the disease and treatment modality. (Hazard ratio–69, CI 95% 6.9-702). Patients with NLR >6.17 were found to have a significantly poor survival on Kaplan-Meir curves as compared to patients with NLR <6.17 (p value<0.001).
Conclusion NLR (>6.17) at admission is a significant predictor of poor outcome in patients with PDAC irrespective of stage of disease or treatment modality

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Autoimmune pancreatitis presenting as a pancreatic head mass in a 5 year old boy

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Autoimmune pancreatitis (AIP) refers to unique forms of steroid-responsive chronic pancreatitis with two subtypes as described in adults. It is a rare, newly recognized disease and there are only few reports of pediatric patients. A 5-year-old boy presented with 2 months history of epigastric abdominal pain, fever and weight loss. Blood analysis revealed bilirubin 1.4 mg/dL, aspartate aminotransferase 163 U/L (normal 5-40 U/L), alanine aminotransferase 80 U/L (normal 5-45 U/L), with amylase 120 U/L (normal 20-100 U/L). Other fever work up including malarial smears was negative and blood culture sterile. Serum IgG4 was normal at 1.12 g/L (normal 0.013-1.446 g/L). On imaging, USG revealed presence of large ill defined mass of 41 x 38.4 mm involving pancreatic head, no internal vascularity, and dilated pancreatic duct measuring 2.8 mm. MR abdomen revealed an ill-defined T2 heterogeneously hyperintense mass (43 x 43 x 43 mm) showing heterogeneous enhancement and diffusion restriction, arising from head and uncinate process of pancreas causing intrahepatic biliary radical, common biliary and pancreatic duct dilatation. To rule out malignancy an USG guided biopsy from mass was done which demonstrated extensive fibrosis with moderate to dense inflammation with few plasma cells. However, storiform pattern of arrangement and phlebitis was not seen and stain for IgG4 was negative. He was started on oral prednisolone at 2 mg/kg given for 2 weeks followed by tapering doses, and repeat MR scan after 4 weeks revealed more than 50 percent reduction in size of mass. On 3 months follow up he is on 5 mg prednisolone and 50 mg azathioprine and is asymptomatic.

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The etiology clinical profile and treatment outcome of pancreatitis in coastal Eastern India–A single center experience

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Introduction Pancreatitis is a common disease with wide clinical variation and its incidence is increasing. The present study was aimed to assess the etiology clinical profile and their treatment outcome of pancreatitis.
Methods Consecutive patients attending the hospital during last 1 year with diagnosis of pancreatitis as per clinical, biochemical and radiologic criteria were included in the study.
Result The total numbers of patient were 113 with M: F, 4:1.The mean age of the study population was 48.01±13.17. Majority were in age group of 30-50 years. Out of the total 39% were acute 11% were recurrent acute and 50% were chronic pancreatitis. Of acute pancreatitis (21/44) 47.72% were biliary, (17/44) 38.63% were alcoholic (2/44) 4.5% had hypertriglyceredemia, (3/44) 6.87% were groove pancreatitis and (1/44) 2.2% were post ERCP pancreatitis. Ten patients of acute pancreatitis (22.72%) had severe acute pancreatitis with CT severity index of 8 to 10, of them 9% had AKI, 16% had pseudocyst,11% had ascites, needs ICU admission. Two patients need debridement, 1 patient died and rest recovered. Out of 56 chronic pancreatitis (22/56) 39.2% were alcoholic, (30/56) 53.57% were idiopathic. Of them 24/56 (42.85%) had endocrine, 7/56 (12.5%) had exocrine dysfunction 5/56 (8.9%) had mesenteric vein thrombosis and (4/56) 7.14% had pancreatic malignancy. Patients with acute pancreatitis mostly managed conservatively, ERCP done in (12/ 17) of biliary pancreatitis, 2 patients need surgical debridement 1 need endoscopic debridement, one patient died. Patients with chronic pancreatitis also managed conservatively except 10 patients who need ERCP for obstructive jaundice. Three patients need surgery for chronic pain.
Conclusion The incidence of pancreatitis increasing in our part. Alcohol being the most common etiology followed by idiopathic and biliary in the present study. Majority of patients improved conservatively, and few needs endoscopic and surgical intervention.

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Spectrum of acute pancreatitis: Experience of a tertiary care hospital Telangana

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Objectives To evaluate the frequency, age, gender, etiology, mortality and morbidity of patients suffering from acute pancreatitis (AP) and management issues in a tertiary referral centre.
Methods Data analysis of patients with diagnosis of acute pancreatitis admitted to the tertiary care centre in the KIMS hospital, Telangana between March 2017 and April 2018.
Results Total 204 patients enrolled in this study: Male 143 (70%) and female 61 (30%). Majority of male (47.5%) in the age group of 40-60 years and females (49.2%) are >60 years. Most common etiology alcohol (45%) followed by gallstones disease (30%). Total patients of acute severe pancreatitis 74 (36.27%) and death 11. Overall total death 18/204. In severe pancreatitis 22 cases had very high CRP (>25).17 severe pancreatitis developed pseudocyst and 4 require percutaneous drainage, 4 require surgery and 3 require EUS guided cystogastrostomy. Majority of patients received antibiotics during their stay in ICU empirically or for confirmed infections. 43/204 of AP develop AKI and 33 are moderate to severe pancreatitis. AKI and ARDS most commonly encountered complications. On admission to ICU of severe cases, the median APACHE II score 17, the pancreatitis outcome prediction (POP) score 8, and the median CTSI 5. Median lengths of stay in ICU of severe pancreatitis were 12 days. Only 3 out of 74 patients of severe pancreatitis require NJ feed and rest manage with enteral feeding.
Conclusion Acute pancreatitis occurred more in males than females. Alcoholic pancreatitis more common in males, whereas biliary pancreatitis more common in females. APACHE II and POP score are useful prognostic scoring system for predicting the severity of AP within first 24 hours. We observed that improved outcomes when enteral nutrition was started within 48 h in severe pancreatitis. Organ failure more in 1st week and local complications of necrosis and pancreatic fluid collections, including infection more common in the late phase. Mortality and morbidity in this study was low in comparison to other studies.

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Unusual causes of acute pancreatitis

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Introduction Common predisposing factors for acute pancreatitis (AP) include alcohol, gallstones, ERCP, drugs and trauma. Metabolic causes of AP like hypercalcemia, hypertriglyceridemia and diabetes mellitus are infrequent.
Methods We present our experience of acute pancreatitis cases admitted in the Gastroenterology department over one year (August, 2017 to July, 2018) at a tertiary care hospital in Delhi NCR and report few unusual causes of pancreatitis which were observed.
Results A total of 77 cases of AP were admitted comprising 6.5% of total admissions (1173) in the Gastroenterology Department. Alcohol was the most common etiology (28.5%) followed by gallstones (27.2%), idiopathic (27.2%) and ERCP (5%). Other causes included pancreas divisum in 3 patients, hypercalcemia due to primary hyperparathyroidism in 2 patients, drug induced in 2 patients (ACE inhibitor, DPP-4 inhibitor), hypertriglyceridemia, trauma and viral infection in one patient each. Two female patients with primary hyperparathyroidism presented with severe hypercalcemia resulting in AP. Hypercalcemia in both patients was managed initially with bisphosphonates, saline diuresis and calcitonin injections. One patient had severe necrotizing pancreatitis and had Zolendronic acid/pancreatitis induced severe hypocalcemia leading to cardiac arrest. She had a stormy course during hospitalization wherein she was resuscitated after cardiac arrest and had prolonged stay in hospital due to sepsis and hypoxic brain injury. The second patient had Mild AP with Acute on CKD. Both patients subsequently underwent parathyroidectomy before discharge.
A 25-year-old male patient with family history of hypertriglyceridemia presented with mild AP and was found to have increased triglycerides (3917 mg/dL). He was managed conservatively, and fibrates were started.
Conclusion Apart from typical causes like alcohol and gallstones, metabolic causes should be looked for in cases of acute pancreatitis. Metabolic causes may lead to recurrent acute pancreatitis unless there is prompt identification and definitive treatment of underlying cause.

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Seria lung ultrasound in the assessment of volume status and disease severity in acute pancreatitis

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Introduction Pressure-based parameters like central venous pressure have shortcomings for assessing volume status in acute pancreatitis (AP). Transthoracic lung ultrasonography (LUS) has been reported as a non-invasive method for diagnosing alveolar-interstitial syndrome (AIS) in critically ill patients. There is insufficient data on role of LUS in AP.
Objective To prospectively study the serial LUS findings in AP, and correlate them with the amount of intravenous fluid administered and the clinical outcomes.
Methods Adult patients of predicted severe AP who presented within 5 days of pain onset from January 2016 to June 2017 underwent LUS at baseline (LUS1), 24 hours (LUS2) and 48 hours (LUS3). Number of B-lines in anterolateral chest was recorded. B-line score was calculated for-all quadrants (BLS1), all quadrants except lower lateral quadrants (BLS2) and only upper quadrants (BLS3). % change in BLS from LUS1-2 (Delta1-BLS) and LUS1-3 (Delta2-BLS) were calculated. They were followed up till clinical recovery or death.
Results 17/78 eligible patients (11 male, age-mean 36±14 years, range 18-68) underwent LUS. The etiology of AP was: alcohol (n=7), gallstones (n=6) and others (n=4). All had acute lung injury at presentation. Eight patients required radiological ± surgical intervention. Five patients expired. Mean BLS1 on LUS1-3 was 2.8±2.8, 1.8±2.4 and 1.7±2.5, respectively. Patients with moderate lung injury (vs. mild lung injury) had numerically higher but insignificant BLS on LUS1 (BLS1, BLS2, and BLS3-3.8±4.0, 3.6±4.1 and 2.1±1.3 vs. 2.1±1.9, 1.8±1.7 and 1.3±1.4, respectively). Patients who required intervention and who expired had positive Delta2-BLS (vs. no intervention and alive group had negative Delta2-BLS). Delta2-BLS had significant positive correlation with net fluid balance between LUS1-3 (Delta2-BLS1, Delta2-BLS2, and Delta2-BLS3, r=0.61, p=0.010; r=0.593, p=0.015, and r=0.597, p=0.014, respectively).
Conclusions LUS appears to provide important prognostic information in AP. Serial LUS may help in assessment of volume status during fluid resuscitation and predicting severity of lung injury.

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Study of etiology and clinical profile of patients with recurrent acute pancreatitis

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Introduction Recurrent acute pancreatitis is often seen in clinical practice but very few studies have been done on this entity from India. Early diagnosis and etiology-based therapy is the key to optimum patient outcome and prevention of progression to chronic pancreatitis. We aimed to study the etiology and clinical profile of patients with recurrent acute pancreatitis.
Methods All patients diagnosed with recurrent acute pancreatitis between 2016-2018 were included in the study after exclusion of chronic pancreatitis. Diagnostic tests were grouped into phase one (Biochemistry, USG and CT scan) and phase two (MRCP, EUS, IGG4). Comparison was done between idiopathic group and other major groups with known etiology.
Results Total 57 patients were diagnosed with recurrent acute pancreatitis during the study period. Most common etiological factor was alcohol (35%) followed by biliary (28%). No etiology could be identified in almost 30 % of the patients. Severe disease was seen in 32% of patients. High BMI and smoking history were the factors associated with severe disease ($p<0.001$). Complications were seen in 38 % of the patients with mortality of 8.5%. On comparison of idiopathic group with alcohol and biliary group, alcoholic group had more severe disease decade whereas idiopathic group and biliary group had milder disease.
Conclusion Alcohol was the most common etiology and was associated with severe disease most commonly. Bilary disease was the second most common etiology. No etiology could be identified in 29.8 % patients even after advanced investigation.

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D-dimer as a marker of severity in acute pancreatitis- A comparative study

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Background Acute pancreatitis (AP), is an acute inflammatory condition. Severe acute pancreatitis (SAP) a significant problem accounts for >90% of the mortality attributed to AP. Early identification of patients at risk for complications within 24 hours, the so called golden hours or therapeutic window is an important step in improving outcome. Current methods of risk stratification have limitations. They require collection of a large number of parameters and 48 hours to complete, missing a potentially valuable early therapeutic window. There is a need for an ideal prognostic marker that can help to predict severity, clinical course and possible outcome. The aim of this study was to assess the value of the plasma D-DIMER as an early prognostic marker in assessment of severity, complications and outcome in AP.
Methods Fifty patients with AP were admitted and D–Dimer were determined. Bedside index for severity in acute pancreatitis criteria (BISAP) and Ranson's score was used to assess disease severity and mortality. Receiver operator characteristic curves plotted and cut-off value was determined for the variable of interest.
Results D-dimer has the best predictive value for SAP and for mortality with areas under the curve of 0.957 (95% CI) and 0.987 (95% CI) respectively with 1146.5 as optimal cut-off.
Conclusions D–dimer serves as a simple and accurate predictor of severity and mortality in AP with high sensitivity and specificity. Measurement of D-dimer on the admission to the hospital is an accurate method for identifying the patients who will develop organ failure in the further course of AP, although this observation requires confirmation.

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To compare the clinical outcome in patients of infected versus sterile pancreatic necrosis managed with percutaneous catheter drainage

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Objective Studies have shown variable mortality in infected acute pancreatitis (AP). This study was done to know the outcome of patients with infected versus sterile necrosis managed with percutaneous drainage (PCD).
Methods From January 2017 to May 2018, 130 patients of acute pancreatitis (AP) were screened and 53 included in study. Twenty-four patients had confirmed infected pancreatic necrosis (IPN) based on air in collection or FNAC Gram stain/culture positivity, and 29 patients had sterile pancreatic necrosis. Two groups were compared for baseline characteristics and severity scores, CT severity index, persistent organ failure (OF), hospital and ICU stay, PCD characteristics, indications and complications, post-PCD collection reduction, surgery requirement and mortality rates.
Results Among 24 patients of IPN, 13 had gas in collection and 11 had Gram stain/culture positive. Most common organisms isolated were *E.coli* followed by *Klebsiella pneumonia*. Both groups were comparable for baseline clinical characteristics, APACHE II, SIRS, CT severity index, hospital and ICU stay. Baseline serum procalcitonin was significantly high in IPN (3.46 vs. 0.59 ng/mL). Overall OFs were similar in both groups, but persistent cardiovascular failure was common in sterile group (24.1% vs. 0, p value 0.01) and mechanical ventilator requirement was common in infected group then sterile (69.23% vs. 21.05%, p value 0.026). PCD up-gradation and post-PCD organ failure improvement was more in sterile group (p value 0.04). Average number mean cumulative catheter size, total duration of PCD and complications were same among two groups. Surgery was done in 4 patients of IPN, in 1 patient of sterile necrosis (p value 0.1). Mortality was higher in IPN (37.5% vs. 13.8%, p value 0.048).
Conclusion IPN has higher mortality then sterile necrosis in patients managed with PCD. IPN can be suspected with high initial serum procalcitonin.

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The prevalence of vascular complications in patients with chronic pancreatitis

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Introduction Vascular complications such as splenic or portal vein thrombosis and pseudoaneurysm are not uncommon in patients with chronic pancreatitis (CP). The aim of this study is to determine the prevalence of vascular complications in CP.
Methods A retrospective analysis of the prospectively maintained database of patients with CP presenting to pancreas clinic from 2000 to 2018 was performed. A total of 1287 patients with CP were followed up. The presence of vascular thrombosis was identified by ultrasonography or contrast enhanced CT of abdomen. The presence of pseudoaneurysm was identified using CT angiography or digital subtraction angiography.
Results One hundred and fifty-two (152/1287, 11.8%) patients with CP had vascular complications, isolated venous thrombosis in 120, pseudoaneurysm in 15 and both in 17 patients. Amongst 137 patients with venous thrombosis, involvement of splenic vein, portal vein and both were seen in 82 (59.9%), 29 (21.1%) and 26 (19%) patients respectively. Only 42 (30.6%) patients with vascular thrombosis had presence of varices on endoscopy, of which 18 (13.1%) patients had gastrointestinal

bleed and were managed endoscopically. Thirty-two patients had pseudoaneurysm, most commonly in the splenic artery (75%), gastroduodenal artery (18.8%), left gastric artery (3.1%) and 1 patient had pseudoaneurysm in pseudocyst wall. Gastrointestinal bleed was the presenting manifestation in 19 (59.3%) patients with pseudoaneurysm. Amongst 32 patients, 18 (56.2%) underwent angiographic coil or glue embolization, 2 patients underwent surgery, 1 patient underwent endoscopic ultrasound guided glue injection, 2 patients had thrombosed pseudoaneurysm and the follow up data was not available for 9 patients.
Conclusion This is probably the largest series evaluating vascular complications in CP. Venous thrombosis is more common than pseudoaneurysm in patients with CP. Despite the presence of venous thrombosis, varices and variceal bleed are infrequent in patients with CP. Patients with pseudoaneurysms have greater bleeding risk which needs to be tackled more aggressively.

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Changing clinical spectrum of chronic pancreatitis in Northwestern India

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Introduction Prevalence and etiology of chronic pancreatitis varies widely in different geographical regions. The current study was done to study the etiology and clinical spectrum of chronic pancreatitis in north western India.
Methods This is a cross sectional study conducted at SMS Hospital Jaipur, Rajasthan over a period of two years from August 2016 till August 2018. Diagnosis of chronic pancreatitis was made on basis of clinical, biochemical, radiologic investigations. Statistical analysis was performed using SPSS v21.
Results The study included 402 subjects diagnosed as chronic pancreatitis, which included 384 (95.5%) male subjects and 18 (4.5%) female subjects. The median age of the study population was 40 years. The predominant cause of chronic pancreatitis was attributed to ethanol use in 228 (56.7%) subjects. The second most common etiology was idiopathic pancreatitis in 150 (37.3%) subjects. Other etiologies included pancreas divisum in 8 (2%), biliary in 6 (1.5%), hyperparathyroidism in 4 (1%), post-traumatic in 4(1%), celiac in 2 (0.5%). Pain was the predominant presenting complaint requiring analgesics in 372 (92.5%) patients. Exocrine insufficiency in form of passage of greasy/foul smelling stools, night blindness was present in 102 (25.4%) subjects. Diabetes mellitus was present in 116 (28.9%) subjects. The concomitant presence of stigmata suggestive of chronic liver disease was present in 28 (6.97%) subjects. The mean BMI of the study population was 20.54 kg/m2. Sixty (14.9%) had a BMI <18.5 kg/m2. Eight (1.9%) had BMI ≥25 kg/m2. Calcifications were present in plain abdominal X-ray in 80 (19.9%) subjects. Pseudocyst was the most common complication observed in 106 (26.4%) patients. WON was observed in 26 (6.5%) patients. Vascular complications like pseudoaneurysm and portal vein thrombosis was seen in 28 (6.9%) and 44 (10.9%) respectively. Malignancy was detected in 8 (1.99%). Endotherapy was done in 174 (43.3%) with symptomatic relief in 136 (78%) patients.
Conclusions The current study shows changing clinical profile and alcoholic chronic pancreatitis as the predominant subtype in north western India.

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Incidence of post endoscopic retrograde cholangiopancreatography (ERCP) pancreatitis (PEP) in our center

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Introduction Development of pancreatitis is a serious complication of endoscopic retrograde cholangiopancreatography (ERCP) procedure and it results in significant morbidity, occasional mortality. The chance of occurrence of this complication varies from 3 to 15 percent of cases in various studies worldwide. About 5 percent of post ERCP pancreatitis will follow a severe course, requiring prolonged hospitalization.
Aims and Objectives To study the incidence of post ERCP pancreatitis in patients who underwent ERCP for management of obstructive jaundice. To identify the possible risk factors for PEP. To study the course and management of PEP.
Methods Total 384 patients were included . The duration of study is from January 2017 to July 2018. All the patients were subjected to either CT scan abdomen or MRCP before subjecting for therapeutic ERCP for various etiological conditions of obstructive jaundice. After the ERCP, these patients were followed for any development of pancreatitis. Diagnosis of PEP was made according to standard Atlanta classification, which mandates the presence of 2 of the three following features. a. Pain abdomen typical of acute pancreatitis b. 3–fold elevation of amylase/lipase c. Evidence of pancreatic inflammation on abdominal imaging. These patients were further classified into mild moderately severe and severe basing on revised Atlanta classification.
Results Mean age of the patients was 54 years of which males were 256 (67%) and females were 128 (33%). Most common indication for ERCP was choledocolithiasis 212 (46.9%) followed by CBD stricture 54 (11.9%) malignant CBD stricture 35 (7.7%) cholangiocarcinoma 47 (10.3%) pariampullary growth 32 (7.07), pancreatic malignancy 41 (9.09%). PEP developed in 12 (3.125%) patients. Nine patients had mild pancreatitis 2 patients had moderately severe pancreatitis, one patient developed severe pancreatitis. All the patients were managed conservatively, and no mortality was reported in our centre.

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Assessment of quality of life in patients with chronic pancreatitis

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Introduction Chronic pancreatitis (CP) may negatively influence the quality of life (QOL) of patients. QOL becomes an important outcome as an indicator of effective treatment. So, we evaluated the quality of life in patients with CP.
Methods European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire (Core questions 30) and Pancreatic Modification (28 questions) were used to assess QOL in patients with CP. The results of the questionnaire give scores (during the past week) for global health status (GHS) ranging from 1(very poor) to 7 (excellent) but for the five functional and symptom scale ranges from 1 (not at all) to 4 (very much). For nutritional status, body mass index (BMI) was used.
Results A total of 107 diagnosed patients of CP (mean age 31.4± 10.9 yrs; males, 82; alcohol aetiology, 24; diabetes mellitus, 31; steatorrhea, 19; mean duration of symptoms, 3.91±4.9 years; mean BMI 19.5± 3.6 Kg/m2) were included in the study. The GHS score was 4.5±1.6 and the perceptions of functional (physical, role, emotional, cognitive and social) scales ranged from 1.14±0.34 to 1.52±0.6. The pancreatic pain scale was 1.4±0.5. There was no difference in all the domains of QOL between males vs. females or diabetics versus non-diabetics. There was negative weak correlation between BMI and fatigue (r=-0.320, p=0.001).
Conclusion Contemporary quality of life assessment show that GHS was between averages to fair in patients with CP. Diabetes mellitus did not

have an adverse effect on QOL and a better nutritional status translates into less fatigue in patients of CP.

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Vascular changes in acute pancreatitis: A CT based study

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Aim The present study was aimed at defining vascular changes in acute pancreatitis (AP) using contrast enhanced CT angiography (CTA).
Methods In a prospective observational study 50 consecutive patients of AP underwent a contrast enhanced computed tomography (CECT) scan when CT angiography (CTA) was done including arterial, venous, portal venous and delayed phases. Presence and site of necrosis and location of fluid collections were noted. At CTA arterial and venous changes were classified as compression, thrombosis, aneurysm and hemorrhage. Arteries and veins studied were those in and around pancreas. Correlation was made between vascular changes and etiology of AP, presence of necrosis and fluid collections.
Results Of the 50 patients (30 males, age 18-77 years, etiology- gallstones: 24, alcohol: 16, others: 10), 41 (82%) had acute necrotizing pancreatitis (ANP) and 9 (18%) had acute interstitial pancreatitis (AIP). On CECT 7 patients had pancreatic fluid collections, 33 had extra-pancreatic collections and 6 had both. On CTA 24 patients (48%) had vascular changes, 10 only venous, 3 only arterial and 11 both. Fourteen (28%) patients had arterial changes in splenic and pancreatoduodenal artery (6 each), hepatic and left gastric artery (5 each) and others (8). Twenty-one (42%) patients showed venous changes in splenic vein (13), superior mesenteric vein (10) and portal vein (4). Ten patients had venous compression and 21 had partial/complete thrombosis. Vascular changes occurred exclusively in ANP, with only 1/9 of AIP developing venous thrombosis. Vascular changes were significantly ($p<0.05$) more in alcoholic AP than gallstone AP (68.1% vs. 50%) and in those with fluid collections than those without it (57.1% vs. 12.5%).
Conclusion Vascular changes occur frequently in AP with venous changes in 42% patients and arterial in 28%. Patients with ANP, alcohol etiology and fluid collections have the vascular changes more often.

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Pancreatic cystic neoplasms- Our experience at a tertiary centre

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Introduction Pancreatic cystic neoplasms (PCN) are rare comprising <10% of pancreatic neoplasms. But their occurrence has dramatically increased over last few decades due to widespread availability of cross sectional imaging, endosonogram, endoscopic tissue retrieval and HPE
Methods All patients of PCN attending department of gastroenterology from January 2009 to December 2017 were analyzed retrospectively. Clinical features are analyzed along with imaging findings of CT, MRI, EUS along with FNA cytology, CEA, CA19-9 and cyst fluid amylase if available.
Results We report a total of 26 cases of suspected PCNs. Of the 26, 11 cases (42.3%) females and 15 cases (57.7%) males with M:F ratio 3:2. Mean age of presentation was 56+/-7 years, ranging from 24 to 76 years. Around 40% are incidental detected, in the rest 60%, 27% had pain, 20% had mass lesion and other symptoms in the rest. Most frequent location was head (57%). Mean size of the lesion was 35 mm ranging from 11 mm to 94 mm. Benign lesions were 55% and malignant were 32% and around 13% are indeterminate due to lack of histology and equivocal imaging findings and advised close follow up and monitoring. Of the benign lesions 10 cases are mucinous cystadenoma (38.46%), 3 are serous cystadenomas (11.63%) both accounting for 51.97%. Of the malignant cases, 8 are mucinous cystadenocarcinomas (32.76%) and 3 cases serous cystadenocarcinomas (3.84%) accounting to 36.59%. Four cases were indeterminate (15.38%). EUS done in 100% and FNA results were obtained in 19 cases (73.03%); we haven't encountered any significant complications in any of them. About 65.38% cases were referred for surgical management.
Conclusion PCNs are common in middle to elderly age group with M:F ratio in our data 3:2. Indeterminate results were found in significant number of cases (15.38%). Considerable proportion of cases were seen in asymptomatic individuals while abdominal pain and mass are the most common symptoms. Most common benign lesion is mucinous cystadenoma and mucinous cystadenocarcinoma is most common malignant lesion.

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A study of clinical presentation and endoscopic management of biliary tract obstruction in chronic pancreatitis at tertiary care centre

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Background and Aims Biliary tract strictures are a common complication in patients with advanced chronic pancreatitis. Intrapancreatic stricture of the common bile duct may be either a fibrotic inflammatory restriction or compression by a pseudocyst. The aim of present study is to study the clinical presentation, type of stricture, efficacy of endoscopic management of CBD Stricture in chronic pancreatitis.
Methods A total of 21 cases of chronic pancreatitis with obstructive jaundice admitted in the Department of Gastroenterology, Gandhi Hospital, Secunderabad were studied from January 2017 to February 2018. A detailed history, clinically examination, all relevant investigations, endoscopic management and follow up up to 6 months were analyzed.
Results Out of 21 cases studied,15 (71.4%) were males and 6 (28.57%) were females. All were between age of 28 to 80 yrs. Eleven (52.4%) cases had significant alcoholic history, 6 (28.6%) had both alcoholic and smoking history. Mean duration of pancreatic symptoms before the diagnosis of CBD stricture is 5.5 yrs (2 months to 15 yrs). Steatorrhea present in 5 (23.8%) cases, diabetes in 3 (14.3%) cases, cholangitis in 6 (28.57%) cases, portal hypertension in 3 (14.3%) cases. Out of 3 cases presented with portal hyper tension 2 cases had splenic vein thrombosis 1 had portal vein thrombosis. On ERCP according to Caroli and Nora classification Type I stricture present in 13 (62%) cases, Type II in 2 (9.5%) cases, Type III in 0%,Type IV in 2 (9.5%) cases, Type V in 4 (19%) cases. Stones above the stricture present in 2 (9.5%) cases. ERCP was successful in 19 (90.47%) cases, 2 (9.5%) cases had failed cannulation. Two (9.5%) cases had pancreatic pseudocyst, 5 (23.8%) cases had pancreatic head carcinoma. All cases were managed with sphincterotomy and biliary plastic stents, in 2 cases pseudocyst drainage was done. LFT improved in all cases over a mean duration of 4 weeks. All cases were followed up for 6 months. Repeated stenting was done in only 3 (14.3%) cases within 5 months duration. Three cases lost follow up. Two patients died.
Conclusion Type I is most common in CBD stricture in chronic pancreatitis followed by type V. CBD stricture is more common in males. Associated exocrine and endocrine deficiencies are low. Endoscopic management of CBD stricture is highly successful.

ENDOSCOPY

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Placement of atrial septal defect closure device for trachea esophageal fistula in a child: Leanings from the experience

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Objective Atrial septal defect (ASD) closure device has been tried previously for the closure of TOF.1, 2 In this patient we decided to do closure of TOF with ASD closure device till he grows to adulthood as he had 3 failed surgeries and was very high risk for 4th surgery due to repeated infections and nutrition issues.
Methods 3D mapping of trachea esophageal tree was done with the CT scan. The defect was oval in shape with wider mouth in tracheal side then esophageal side. Defect was 3 cm below vocal cords and upper esophageal sphincter. A ASD closure device with waist thickness of 4 mm was chosen. As there was no pusher and sheath available to accommodate the device it was decided to do as a hybrid procedure both cardiologist and endoscopist doing it under endoscopic and fluoroscopic guidance. As device's distal flange is wider and defect was wider on tracheal side, we placed wider end on tracheal side over a guidewire. 20 mmm 16 mm and 12 mm devices were tried. Due to previously undetected tracheomalacia 12 mm device was accommodated but was leading to significant luminal compromise which was confirmed on simultaneous bronchoscopy. Lumen failed to expand consistently due to tracheomalacia despite dilatation with various diameter balloon. Hence after discussion with relatives the device was not released.
Results We had a case where despite technical success we could not release the ASD closure device for tracheoesophageal fistula as there was previous undetected tracheomalacia which was not picked up on CT. Child went well home next day with a plan of possible surgery at a later age.
Conclusions ASD devices can potentially be used for tracheoesophageal fistula as either a bridge to surgery or for palliation of malignancy. Preprocedure detection of tracheomalacia is important to document before attempting the procedure.

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Correction of gastric outlet obstruction due to misplaced stent during transduodenal endoscopic ultrasound guided drainage of gallbladder

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Objective Endoscopic ultrasound *(*EUS*)* guided gallbladder drainage is treatment modality for patients with acalculous cholecystitis and advanced malignancy. A 60-year-old lady was suffering from type 4 cholangiocarcinoma, already had bilateral SEMS in place for obstructive jaundice. She had history of multiple abdominal surgery and had peritoneal spread of malignancy. Hence EUS guided GB drainage was done for palliation of symptoms.
Methods Under general anesthesia procedure was done with proper consent with therapeutic Pentax EUS scope. Gallbladder was grossly distended with thickened wall. She had mild neurological dysfunction also due to sepsis (Tokyo grade 3). Gallbladder was punctured with 19 G EUS needle and tract was dilated with 6F cystotome. A 16 mm x 20 mm FCSEMS (Honto stent, Mitra Medical) was placed. During the last steps scope accidentally fell off the duodenal cap and the stent was deployed at the pylorus. Attempt was made to reposition stent with help of rat tooth forceps and snare but failed. Attempt to push with upper GI scope failed due to larger diameter of stent. Hence stent was gradually pushed with side viewing endoscope. After pushing, mouth of the stent was abutting the medial wall of duodenum. A NJ-tube was placed to anchor the mouth which gradually pushed the stent laterally in next 2 days. Patient was started orally after 2 days and went home on day 3.
Results EUS guided gallbladder drainage is done for palliation in cases of cholecystitis for palliation. We had a case of gastric outlet obstruction due to misplaced stent during GB drainage. Complication was managed by gradually pushing the stent carefully into duodenum and placement of NJ-tube.
Conclusions For accidental misplacement of GB drainage stent at pylorus, pushing the stent with SVE for repositioning followed by anchoring with NJ may be attempted.

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Endoscopic ultrasound imaging and fine needle aspiration of adrenal gland lesion: A tertiary care experience

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Aims and Objectives The objectives of this study were to share our experience in performing endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) to determine the nature of left adrenal lesions in a collective cohort of patient who underwent EUS with or without FNA.
Methods During a period of one year from December 2016 to January 2017, data on consecutive patients who underwent linear EUS with or without EUS-FNA were prospectively collected in gastroenterology department of SMS Hospital, Jaipur. Patient data collected those who came for EUS FNA for other indication but found incidentally adrenal mass.
Results In total, 14 EUS-FNA specimens (from 13 males and 1 female) were obtained from adrenal glands. The mean patient age was 55 years (range, 27–88 years). Adequate cellularity was in all 14 samples. Six of 14 samples (42.85%) were positive for carcinoma, four out of six were CA lung and one was malignant metastasis of CA esophagus and one metastatic adenocarcinoma with undetected primary lesion. All samples diagnosed as metastatic adrenal mass were confirmed on subsequent follow up except one who had not found any primary lesion. Seven out of fourteen were found to have tubercular histology. Five of these seven samples had tubercular involvement from the lung, and two samples had direct tubercular involvement of adrenal gland. In one out of fourteen patients, FNA of adrenal mass noted chronic inflammatory cells. No complications were reported during and after EUS-FNA of adrenal glands.
Conclusions Tubercular involvement of adrenal is common. For confirming the diagnosis of metastatic carcinoma to the adrenal glands linear EUS-FNA biopsy is a highly diagnostic and safe technique. During EUS imaging, screening of adrenal gland should be done in every suspected mass lesion in lung and mediastinum.

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Endoscopic palliation in advanced gastrointestinal malignancies, gastroenterology SKIMS experience

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Background Approximately 40% to 50% of patients with gastrointestinal (GI) tumors are not candidates for curative surgery because of locally advanced tumors or metastatic disease. In the course of the disease most of these patients will require palliative treatment because of obstruction, fistula, jaundice, itching, pain or hemorrhage. Various endoscopic and surgical procedures can be offered to these patients. However, the potential risk of each treatment must be balanced carefully with the expected benefits and the prognosis of the individual patient. Consequently, endoscopic have been increasingly used for palliation in recent years.
Methods We share an overview on endoscopic palliation of GI tumors on the basis of our own experience. In this study, we highlight specific GI malignancies (i.e. esophageal, gastric, pancreatic, biliary and colon) and how the application of minimally invasive techniques has benefitted patients. We retrospectively screened the records of patients with advanced GI malignancies taken for palliative stenting in our department from 2012 to 2017.
Results A total of 560 patients were included in the study. Two hundred and fifty (44%) females and 310 (56%) were males. Most of patients 266 (48%) were in the age group 40-60 years. Three hundred and sixty-nine (66%) were from rural background. Four hundred and thirty-four (77%) deployed stents were metallic (SEMS) rest were plastic. Esophageal carcinoma, hilar cholangiocarcinoma, distal cholangiocarinoma, gallbladder, pancreas, antral and colonic constituted 169 (30%), 114 (21%), 109 (19.5%), 72 (13%), 75 (13.5%), 22 (4%), and 2 (0.4%) respectively. Chest pain (22, 12%), tumor ingrowth (15, 9%), cough (13, 8%), stent migration (3, 1.5%) were experienced in esophageal group. Cholangitis (24, 6.5%), pancreatitis (26, 7%), tumor in growth (19, 5%) and stent migration (11, 3%) were experienced in biliary group.
Conclusions In advanced GI malignancies endoscopic palliation is an effective and minimally invasive modality of treatment.

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To assess the anesthetic approach in per oral endoscopic myotomy

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Aim To assess the anaesthetic approach in Per Oral Endoscopic Myotomy (POEM)
Methods Preoperative measures: Patients-nil orally 12 hours prior. Third generation antibiotics and IV fluids started.
Investigations: CBC, creatinine, PT, HIV, HBsAg, electrolytes, ECG, chest radiograph and 2D echocardiography. Asthmatic patients–nebulized. Induction and intraoperative: General anesthesia-endotracheal intubation and positive pressure ventilation. Ready for Selliks manoeuvre and suctioning oral cavity. Anesthesia-Rapid sequence method. Sedation and induction - (Glycopyrrolate 0.2 mg; Midazolam 0.02 mg/kg; Propofol-1-2 mg/kg; Fentanyl 100 mcg; Succinylcholine 1-2 mg/kg). Atracurium (0.5 mg/kg) for neuromuscular block maintenance by N2O+O2+ Sevoflurane (0.5-2 minimum alveolar concentration). Nitroglycerine infusion and selective beta-blocker – BP maintainance. Mechanical ventilation - pressure control mode. Screen - NIBP, ECG, pulse oximetry and ETCO2. ETCO2- 35-45 mm Hg – adjust respiratory rate and minute ventilation. Peak airway pressure-Potential indicator -elevated intra-abdominal pressure. Below 35 cm of H2O. Tidal volume-Low ventilator rate high.
Observations: Total: 225; Fluid in oral cavity: 30 (13.3%); Aspiration: 3 (1.3%). Antibiotics and supportive management. Significant rise in blood pressure: 41 (18.2%). Directly proportional to CO2 pressures. More initial patients. Improved with very low flow CO2.
High airway pressures: 18 (8%). Between 20 -30 cms of H2O. Airway pressures >40 cms of H2O - capno thorax. Hyperventilated and controlled. Symptomatic capno peritoneum/thorax: 4 (1.8%). Aspirated -18 G Needle ICD - 1. Insignificant capno peritoneum: 115 (51.1%). Noted on 24 hours Gastrograffin study. No management needed. Postoperative pain: 158 (70.2%). Tramadol and Paracetamol - immediate and 8 hourly for 24 hours.
Conclusions For induction - Initial ventilation before intubation – never. Prepare for managing aspiration. Aggressive BP monitoring. Use NTG and beta blockers. Low tidal volume and high ventilatory rate - eliminate ET CO2. Observe ET CO2 and CO2 related complications clinically. Immediate management. Analgesics important postop.

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Endoscopic ultrasound guided dilatation of strictured bilio-enteric anastomoses

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Background Treatment of strictured bilio-enteric anastomosis (BEA) may be required in 3% to 5% patients. Percutaneous, endoscopic (overtube assisted enteroscopy [OAE] or endoscopic ultrasound [EUS] guided) or surgical approaches are described. Percutaneous and surgical approaches have high morbidity whereas OAE guided endoscopic approach has poor success rates. This study reports results of patients treated by EUS guided dilatation of BEA strictures.
Methods Retrospective analysis of prospectively maintained database of postoperative BEA strictures treated by EUS guided approach from 2012 – 2017. All patients underwent EUS guided dilatation / stent placement via transgastric approach. After EUS guided puncture using 19G needle, cholangiogram obtained to demonstrate stricture. Hydrophilic guidewire negotiated across stricture and stricture balloon dilated in one/two sessions. SEMS additionally placed for malignant strictures.
Results N=9; mean age 54.11 years (32-73); 7 males. Reason for BEA–cholecystectomy related injury–5, post Whipple's–4. Presentation–obstructive jaundice–9; recurrent cholangitis–3. Only stricture dilatation–5, additional SEMS–4 (confirmed malignancy recurrence). Bougie, balloon or cystotome used for dilatation. All SEMS–single session therapy. Stricture dilatation–1 session in 1 patient, 2 sessions in 3 and 4 sessions in 1. Transhepatic naso-biliary drain between dilatation sessions in 2. Outcomes–technical and clinical success–100%; bilirubin improved from 5.1 (0.5-13.98) (pre) to 3.2 (0.7-10.5) (post); Sr. ALP–938.2 (251-2368) (pre) to 663.7 (122-2192) (post). Mean hospital stay 9.5 days (6-14). Adverse events–2 (sepsis–1; biliary leak with lesser sac collection-1, drained endoscopically); 30-day mortality–1 (11%) (sepsis). At 1-month follow up, liver parameters improved in all. Subsequent follow up–repeat dilatation in one after 14 months.
Conclusions EUS guided antegrade dilatation/stenting of post-BEA strictures is safe and effective. Technique requires comparison with other modalities.

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Endoscopic snare papillectomy for ampullary tumors - Single center experience

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Background Ampullary tumors may be adenoma, adenoca or others. Whipple's procedure is recommended treatment. Endoscopic snare papillectomy (ESP) is minimally invasive option.
Methods Patients with localized ampullary tumors treated by ESP during 10-year period (2007-2017) identified from prospectively maintained database. All underwent pre-ESP endoscopic ultrasonography (EUS) to confirm localized disease. Exclusions–tumor infiltration into pancreas, duodenal wall, distal bile duct. Endoscopic and EUS appearance adequate to plan ESP; pre ESP histology not mandatory. Enbloc ESP using diathermy snare followed by biliary and pancreatic stent placement; removed at 4 weeks with biopsies to look for residual tumor. Patients with final histology–adenocarcinoma counselled for close follow up or surgical resection. Those with benign histology followed up. Follow up at 3, 6, 12, 18, 24 months, yearly thereafter.
Results N=63. Mean age:59.2 years (33-72) adenoma (AA), 66.8 years (46-88)- adenocarcinoma (AC). Males–36. Mean size 20.3 mm (5–52). Adverse events: 6–post ESP bleed–3 (2–endotherapy, 1–angio-embolization), biliary stenosis–2 (ERCP stenting), fatal pancreatitis after biopsy–1. Final histology: AC-29, AA-27, neuroendocrine tumor (NET)–3, chronic inflammation–4. Base involved in 6 –surgery. Follow up available-49, mean duration– 22.4 months (1–88). Recurrence in 5–2/13 in AC (surgery–1, palliative stenting–1) and 3/25 in AA. After correcting values for patients lost to follow up, 11/22, AC and 20/25 AA disease free during follow up. All recurrences around one-year (10.5-14 months). 35/62 patients (56%) remained disease free during follow up.
Conclusions Results in this carefully selected cohort suggest that ESP may be curative for >50% patients with ampullary tumors. Curative resection may be achieved for 4/5 adenomas and every other localized adenocarcinoma.

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A prospective analysis of all EUS guided biopsies having granuloma to identify a definitive cause

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Aim A prospective analysis of all EUS guided biopsies having granuloma to identify a definitive cause. Do we need expensive tests when we find granulomas in Indian subcontinent or are we justified in giving an antitubercular treatment to them?
Method All mediastinal and abdominal lymphadenopathy from September 2016 to May 2018. Six passes using 22G Aquire needle. First two - Cytology, Next Two - Core biopsy collected in saline for Gene Xpert and SOS AFB Culture Last Two - Core biopsy for HPE and SOS Immunohistochemistry. Inclusion citeria: Cases with granuloma on cytology - subjected to Gene Xpert and AFB Culture. Exclusion: Cytology showing lymphoma or malignancy.
Findings No of cases of lymphadenopathy: EUS guided FNA from September 2016 to May 2018–54; Granulomatous lymphadenitis–40 (74.1%); Non granulomatous–14 (25.9%);Gene Xpert : 38/4 – 95.1%%; TB culture : 35/40–87.5%; Positive for gene Xpert or TB culture or both:24/40–60%. *Out of 24 positives* Gene Xpert positive:14/22 (63.6%). Not Done-1 Culture positive:14/21 (66.7%). Not done-2 Xpert negative but positive on culture: 8 cases (33.3%) TB culture - correlated with presence of caseation in smears and/or biopsies - 14/24 positive cases (58.3%); Positive on Xpert or culture with non-caseating granuloma on cytology and histology – 10 (41.6%); Granulomatous lymphadenitis - negative on culture and Xpert evaluated clinically – 16; Raised ACE levels-1 (6.25 %)–Sarcoidosis Empirical ATT–15 (93.8 %); Responded to ATT–15 (100%).
Conclusions Granulomatous lymphadenitis is major cause lymphadenopathy in India. Definitive diagnosis of tuberculosis- only 60% all tests put together 93.8% cases with TB not confirmed-responded to ATT. Sarcoidosis–rare ATT trial–imperative to get a final diagnosis. But justified to give ATT when granuloma seen in lymphnodes. Culture is essential to avoid drug resistance. Expensive tests can be avoided in poor patients.

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Per oral endoscopic myotomy–"penetrating vessels" simple method to identify gastroesophageal junction

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Background and Aim Per oral endoscopic myotomy (PEOM) is an emerging technique for management of patients with achalasia cardia. POEM involves creation of a sub mucosal tunnel and performing a distal myotomy. One of the challenges in this procedure is the identification of the gastroesophageal junction and determining the tunnel length. Penetrating vessels of the left gastric artery are present at the level of GEJ. The present study was done with an aim to evaluate penetrating vessels as a reliable marker of GEJ.
Methods All the patients who underwent POEM procedure between September 2016 to February 2018 were included in this study. In our institution the esophageal submucosal tunnel and myotomy is done preferentially in posterior wall of esophagus or in the 5 'clock position. Once the penetrating vessels were identified the tunnel was extended for 3 cm more or till a second set of "penetrating vessels" noted. The scale on the endoscope was used to measure the length of the myotomy.
Results Of the patient 51 who underwent myotomy during this time in the institution "penetrating vessels" were identified in 49 (96.1%) the patients. Eight (15.7%) patients had bleeding during the procedure 4 (7.8%) had the bleeding at the gastroesophageal junction.
Conclusion The penetrating vessels at GEJ are a simple and reliable method to identify the GEJ while doing POEM using the posterior approach. The vessels also pose a challenge as a narrow dissection space at GEJ increases risk of bleeding from these vessels.

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High-frequency miniprobes and 3-dimensional EUS for evaluation of oesophageal strictures of unknown etiology

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Background Patients presenting with dysphagia with computed tomography (CT) demonstrating thickened esophageal wall and endoscopy revealing stricture with normal mucosa and endoscopic biopsies being negative for malignancy are a difficult diagnostic dilemma.
Objective To prospectively evaluate the utility of high frequency miniprobe and 3-D EUS for evaluation of esophageal strictures of unknown etiology.

Methods Over a period of 3 years, 19 patients (14 males; mean age:58.911.6years) with dysphagia and computed tomography (CT) demonstrating thickened esophageal wall were studied. A final diagnosis was based on definitive cytopathology, surgical pathology or clinical follow up for more than 6 months.
Results The etiology of esophageal stricture was benign in 10 patients (peptic:2, tubercular:2, drug induced:2, idiopathic:1, post-pancreatitis:1, post-surgical:1 and IgG4 related sclerosing esophagitis: 1) and malignant in 9 patients (squamous cell carcinoma: 5 and adenocarcinoma 4). The esophageal stricture was located in upper, mid and lower esophagus in 1, 9 and 9 patients respectively. The high-frequency 3-dimensional (3D) EUS could be successfully performed over a guide wire using catheter probe without doing dilatation in all patients. The esophageal wall stratification was lost in all patients with malignant stricture but was lost in 3/10 (30%) patients with benign strictures (p=0.03). The mean esophageal wall thickness was 11.7 mm and this was significantly greater than that in benign strictures (7.1 mm; p=0.0005). The loss of wall stratification on EUS had a sensitivity, specificity, NPV and PPV of 100%, 70%, 100% and 75% respectively for diagnosis of malignancy. Also, wall thickness of ≥9 mm had a sensitivity, specificity, and accuracy of 78%, 80%, and 79% respectively for diagnosis of malignancy.
Conclusion High frequency mini-probe provides important diagnostic information in esophageal strictures of unknown etiology with thicker esophageal walls and loss of wall stratification being more common in malignant strictures.

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Endoscopic ultrasound guided treatment of external pancreatic fistulae with disconnected pancreatic duct

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Background External pancreatic fistulae (EPF) developing in the setting of disconnected pancreatic duct syndrome (DPDS) are associated with significant morbidity and are a therapeutic challenge.
Objective To describe the safety and efficacy of an endoscopic ultrasound (EUS) guided drainage technique for resolving EPF in the setting of DPDS.
Methods Over a period of 4 years, 8 patients (6 males; mean age:35.5 years) with EPF and DPDS were studied. These patients underwent EUS guided management of refractory EPF.
Results All 8 patients had acute necrotising pancreatitis (ANP) in the past and EPF developed post PCD (n=6) or post-surgical necrosectomy (n=2). The etiology of ANP was alcohol in 6 and gallstone diseases in 2 patients. All patients had refractory EPF with daily output of >100 ml/day with mean duration of EPF being 21.8 weeks. All patients had been given subcutaneous octreotide for at least 2 weeks. All patients underwent successful EUS guided internalisation of the EPF by EUS guided transmural puncture of the upstream pancreatic duct (n=2), fistula tract (n=1), or the collection created by slight withdrawal of the percutaneous drain (PCD) (n=3) and/or injection of distilled water through the PCD (n=2). All punctures were done through the stomach and following stents were placed: 7Fr 5 cm and 10 Fr 3 cm double pigtail stent in 4 and 2 patients respectively and 5 Fr 9 cm straight stent in 2 patients. Following, transmural stent placement the EPF healed in all the patients within 2 weeks and there has been no recurrence in any of these 8 successfully treated patients over a follow up period of 23.812.8 weeks.
Conclusion The management of refractory EPFs in the setting of DPDS is challenging and difficult. EUS guided transmural drainage is a safe and effective minimally invasive treatment modality for treating these complex EPF's

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Clinical profile of patients with corrosive poisoning: Single tertiary referral centre experience

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Introduction Corrosive poisoning is one of the most challenging clinical scenarios with potentially life-threatening presentations and long-term morbidity. Acid by means of coagulation necrosis affects stomach mainly. Alkali produces liquifactive necrosis mainly in esophagus. The objective is to study the clinical profile, morbidity and various treatment modalities used in patients presenting with corrosive poisoning.
Methods All patients undergoing endoscopy for corrosive poisoning from July 2016-2018 were included in the study. Grades of corrosive injury were analyzed with modified Zargar et al. grading. Upper GI scopy was done after 6 hours of exposure up to 5 days of ingestion and repeat scopy done after 6 weeks of ingestion. Patients with hemodynamic compromise were not taken up for scopy.
Results As in developing countries, acid poisoning was common when compared with alkali poisoning. Two hundred and forty corrosive poisoning were there, out of which 140 were acid. Most common age group was 2nd and 3rd decade. Alarmingly 10 pregnant patients were there in the lot. Suicidal ingestions were having grade 2a, 2b, 3a, 3b. Oropharyngeal injury didn't correlate with the grade of injury. Eighty percent of patients with grade 2b and above injuries developed complex strictures. In esophagus, strictures were equally distributed among upper, middle and lower part. In stomach, pylorus and antral strictures were there in 8 patients. Refractory and recurrent strictures contributed to 28 and 8 percent respectively. Coloplasty was done in 10 cases, feeding jejunostomy in 13, gastrectomy in 5, and gastrojejunostomy in 5 of corrosive poisonings.
Conclusion Grades above 2b injury lead to stricture formation. Unlike other studies, esophageal stricture was uniformly distributed among upper, middle and lower part. Stomach stricture was mainly localized to antrum and pylorus.

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Endoscopic ampullectomy - A single centre experience

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Aim To analyze the results of endoscopic ampullectomies done in our department.
Methods A retrospective analysis of case records of ampullectomies done during the period of April 2013 to March 2018 were carried out.
Results A total of 12 case records were found. Male: Female ratio was 7:5. Mean age was 42 yrs. Seven cases were detected incidentally during routine endoscopy. Three cases had recurrent pancreatitis and two cases had obstructive jaundice. Preampullectomy histology was adenoma with mild to moderate dysplasia. Contrast-enhanced computed tomography (CECT) abdomen and endoscopic ultrasound was done in all cases. Snare polypectomy was done in all cases. Pancreatic duct stenting was carried out in 10 cases after ampullectomy. Complete removal was possible in 10 cases. Residual adenomas of two cases were removed on follow up with routine biopsy. None of the cases had evidence of malignancy on histological examination. One case had mild pancreatitis. There was no significant bleeding or perforation. Cases were followed up for a period of 3 months to 5 yr period. (Mean duration-28 months). There was no recurrence.

Conclusion Endoscopic ampullectomy is an effective method of nonsurgical management of ampullary adenoma.

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Spectrum of endoscopic findings in patients with *Helicobacter pylori* infection

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Introduction Helicobacter pylori infection has myriad presentations such as normal mucosa, gastritis, gastric ulcers, duodenal ulcers, atrophic gastritis, gastric carcinomas and lymphoma. The present study is undertaken to assess the spectrum of endoscopic manifestations in patients tested positive for *H pylori*.
Methods The present retrospective study was done in a tertiary care centre between January 2018 and June 2018. Patients who underwent upper gastrointestinal endoscopy for dyspeptic symptoms and tested positive for *Helicobacter pylori* (rapid urease test/histopathology) were analyzed.
Results A total of 213 patients were tested positive for *Helicobacter pylori*. Antral erosions was the commonest finding in 58 (27.23%), followed by duodenal ulcers in 48 (22.53%), antral ulcers in 32 (15.02%), fundal gastritis in 23 (10.8%), pangastritis in 20 (9.38%), atrophic gastritis in 18 (8.45%), normal study in 12 (5.63%), mucosal nodularity in 2 (0.94%) patients. Both antral and duodenal ulcers were seen in 10 (4.69%) and erosions with ulcers were seen in 20 (9.39%) patients.
Conclusion Antral erosions is the most common endoscopic finding in patients with *Helicobacter pylori* infection. In cases of high clinical suspicion, testing for *Helicobacter pylori* should be tested even if mucosa appears normal.

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Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) in mediastinal lymphadenopathy

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Background EUS-guided fine needle aspiration (EUS-FNA) has significantly expanded the diagnostic capability of GI EUS. EUS-FNA technology is also helpful in the diagnosis of non-GI disorders. The recognition of EUS-guided fine needle aspiration as accurate and safe has provided a new technique for evaluation of mediastinal masses.
Methods Twenty-four patients (10 men, 14 women; mean age 33 years, range 13-75 years) with mediastinal lymphadenopathy of unknown etiology underwent EUS-FNA at Department of Gastroenterology TNMC Mumbai from period of July 2107 to July 2018. Presenting symptoms included following: dysphagia 5; dry cough 6; fever 5; hemoptysis 1; abdominal distension 1; chest pain 2; weight loss 2; dyspnea 2. Mediastinum was evaluated with linear echoendoscope (EUM-20, Olympus America, Inc., Melville, N.Y.). EUS-FNA was performed with adjustable length needle Wilson-Cook 22-gauge pro-core needle. EUS-FNA aspirates were sent for cytopathological evaluation.
Results Average lymph node size was 3.8 cm (maximum size 8 cm and minimum size 2.1 cm). In 20 of 24 patients hypoechoic heterogenous conglomerated lesions were seen while in 3 patients it were discrete lesions while in 1 patient it was predominantly cystic lesion. Final FNA findings were granulomatous lymphadenitis suggestive of tuberculosis in 15/24 patients (62.5%), malignant cells in 3/24 patients, Reactive lymphadenitis in 1/24 patients (4.1%), lymphoma 1/24 (4.1%) patients, bronchogenic cyst 1/24 patients (4.1%), leiomyoma 1/24 patients (4.1%), inconclusive in 2/24 patients (8.2%). EUS-FNA established a tissue diagnosis in 22 of 24 patients, with success rate of 92%. Patient tolerance of procedure was excellent and three shots of insertion of needle into the lesion were made without any complications.
Conclusion Accurate tissue diagnosis of mediastinal lymphadenopathy is possible with EUS-FNA obviating the need for CT guided biopsy/laparoscopy/thoracoscopy/or mediastinoscopy

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Prospective evaluation of outcomes of endoscopic ultrasound-guided biliary drainage

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There is a paucity of literature of EUS guided biliary drainage in India, hence this prospective observational study was done.
Aims A prospective evaluation of outcomes (success rate and complication rate) of patients undergoing endoscopic ultrasound guided biliary drainage (EUS-BD).
Methods A prospective observational study of EUS guided biliary drainage carried out from June 2017 to May 2018 at a tertiary care hospital. Patients undergoing EUS-BD due to failed ERCP and more than 18 years of age were included in study. Patients who refused to participate were excluded. EUS was performed using a therapeutic linear array echoendoscope under general anesthesia. EUS-guided rendezvous technique (EUS-RV) or EUS guided Antegrade Technique attempted in patients with an endoscopically accessible ampulla followed by the transluminal technique for a failed rendezvous attempt. As for transluminal biliary drainage, EUS-guided hepaticogastrostomy (EUS-HGS) was performed in patients with proximal biliary obstruction, surgically altered anatomy, or duodenal obstruction, while EUS-guided choledochoduodenostomy (EUS-CDS) was reserved for patients with middle or distal biliary obstruction. Prophylactic broad-spectrum antibiotics was administered intravenously to all patients prior to the procedure and after the procedure.
Results Total 25 patients included in this study. Male patients-16, female patients-9. EUS guided HGS-2 patients, EUS RV-9 patients, EUS guided antegrade-12 patients, CDS- none, procedure failed in 2 patients who underwent PTBD. Success rate–92%. The mean procedure time-was 39.92 min (95% CI 37.82 to 42.02), plastic stents in 5 patients and metallic stents in 18 patients. Complications - cholangitis-2 patients, bleeding-1 patient, balloon temponade stopped the bleeding and cholangitis responded to antibiotics. Most common indication was Ca pancreas.
Conclusion EUS guided biliary drainage is an effective method with success rate of 92% and complication rate of 12 %. Complications were treated effectively.

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Precut papillotomy for biliary access reduces the risk of post-ERCP pancreatitis: A randomized study in coastal Odisha

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Introduction Endoscopic retrograde cholangiopancreatography (ERCP) is a widely used procedure for the diagnosis and treatment of pancreatobiliary disease with post-ERCP pancreatitis (PEP) is the most common complication. Pre-cut papillotomy increases the technical success rate of biliary cannulation thereby reduces the rate of repeated attempts of cannulation. The primary aim of the study was to assess the incidence of PEP in pre-cut papilotomy for biliary access compared with the standard cannulation technique without pre-cut.
Methods This prospective randomized study was performed at the Department of Gastroenterology, S C B Medical College and Hospital, Cuttack. From January 2017 to June 2018, patients were prospectively randomized into two groups: cannulation with pre-cut papillotomy (Group I) and cannulation with standard technique without pre-cut (Group II). PEP was defined as the onset of upper abdominal pain associated with an elevation in serum pancreatic enzymes of at least three times the normal level at more than 24 hours after the procedure.
Results Out of 320 patients, 57.15% were males and 42.85% were females with mean age 44.37±17.395 years. Group I and Group II had 158 and 162 patients respectively. The successful cannulation rates were 98.9% and 76.5% respectively (p=0.0002). PEP developed in 8 of the 158 patients (5.06%) in Group I and 19 of the 162 (11.73%) in Group II (odds ratio [OR] 0.35; 95% confidence interval [CI] 0.16-0.78). Pancreatitis rate was lower with pre-cut papillotomy than with standard technique without pre-cut (p<0.05).
Conclusion Pre-cut papillotomy is an effective technique and significantly reduces the incidence of PEP as compared to standard cannulation technique.

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Comparison of diagnostic yield of single needle pass and multiple needle passes in endoscopic ultrasound guided fine needle aspiration cytology (EUS-FNA) in solid lesions and lymph nodes

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Background Endoscopic ultrasound guided fine needle aspiration (EUS-FNA) is an indispensable tool for acquisition of tissue in patients with gastrointestinal lesions and lymph-nodes. Increasing the number of needle passes is considered to increase the diagnostic yield. However, it increases the bloodiness of aspirate, compromising the diagnostic yield and predisposing the patient to complications. We aimed to compare the diagnostic yield of EUS-FNA by single needle pass versus multiple needle passes in solid gastrointestinal lesions and lymph nodes.
Methods Patients who underwent EUS-FNA at our centre for solid gastrointestinal lesions and lymph nodes between January to March 2018 were included. Patients were randomized to single or multiple needle passes by random allocation. The indication, clinical, investigation and the final diagnosis details were recorded on a uniform structured data form.
Results Thirty-three patients have been included in the study. Twelve patients had mediastinal or mesenteric lymph nodes and 21 patients had other solid lesions. Pancreatic (n=8) and lung (n=6) masses were the most common solid lesions. Gastric lesions, gallbladder and splenic masses accounted for rest of the cases. Fourteen patients underwent single needle pass and 19 patients underwent multiple needle passes. Overall diagnostic yield in single needle pass (71%) and multiple needle pass (78%) was not different significantly. Among patients who underwent single needle pass, diagnostic yield was better in lymph nodes (87%) than other solid lesions (50%). Among patients who underwent multiple needle passes, diagnostic yield was equal in lymph nodes and other solid lesions.
Conclusion Diagnostic yield of single vs. multiple needle passes in EUS-FNA were not different. Single needle pass may be better for lymph nodes than other solid lesions. If these promising data are confirmed by other investigators, consideration should be given to incorporating only single needle pass into routine clinical practice thus decreasing the risk of bleeding and other complications.

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Fully covered self expanding metallic stents (FC-SEMS) for benign gastric outlet obstruction (GOO): An optimistic therapeutic advance

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Introduction First line therapy for benign gastric outlet obstruction (GOO) has evolved from surgical management to endoscopic balloon dilatation (EBD) which though effective but needs multiple sessions. There is no study on fully covered self-expanding metallic stents (FC-SEMS). We aimed to evaluate efficacy and safety of a newly designed FC-SEMS for treating benign GOO.
Methods We prospectively enrolled treatment naive adult patients with benign GOO. Evaluation included clinical assessment; barium meal UGI, CECT abdomen, UGI endoscopy, EUS (in selected cases). Niti-S fully covered pyloroduodenal SEMS was deployed endoscopically. Technical success, clinical success, end of treatment response (ETR) (at 4 weeks) and sustained treatment response (STR) (at weeks 4 and 8 post SEMS removal) were noted.
Results Twenty-three patients were treated with FC-SEMS. 65.2% were males. Median age was 30 (19-65) years. Etiology included peptic (14[60.9%]), tuberculosis (6[26.1%]) and corrosive (3[13%]). Site of stricture was proximal duodenum in 16 (69.6%) and pylorus in 7 (30.4%). Median stricture length was 2 (1.5-4) cm. Technical success was achieved in all. Clinical response rates at days 3 and 7 were 78.3% and 91.3%, respectively. Only complication was stent migration (5 patients), two of whom had continued improvement of symptoms while rest 3 opted for surgery. ETR was achieved in 20 (86.9%) patients. Predictors of SEMS migration were stricture caliber (more than 1mm), stricture length (less than 2 cm) and stent length (more than 6 cm). Median weight gain was 3[1-11]kg at end of 4 weeks. STR-4 and STR-8 were both 90%. Patients with tubercular strictures had 100% ETR and STR.
Conclusion Essence of this first prospective study on FC-SEMS in benign GOO is high and rapid clinical response rates. Impressive ETR and remarkable STR with low rates of complications make FC-SMS a truly promising therapeutic tool worthy of future RCTs.

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Replacing the percutaneous endoscopic gastrostomy with a low profile gastrostomy tube: is it always straightforward?

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Introduction Percutaneous endoscopic gastrostomy (PEG) is a common procedure employed for patients with swallowing disorders with a functioning gastrointestinal tract. Replacement of PEG with a conventional PEG tube by 'pull technique' is considered relatively straightforward.

Low profile or button PEG is more acceptable to some patients and obviates the need of endoscopy for its replacement; it is less explored in terms of its success and outcomes.
Methods Records of all the patients, who underwent PEG replacement with a low profile PEG for past three years were reviewed. Complications and other relevant details were recorded. Patients in whom conventional PEG was placed were excluded.
Results Twenty-four low profile PEG tubes were placed in 17 patients; (male 13 [76.5%]; age median [range] 67 [25-85] years). Two patients developed complications in form of perforation peritonitis and skin induration. None of the patients had fatal complication.
Conclusion Although PEG exchange with low profile PEG is considered safe, it has potential complications occasionally life threatening, utmost care is required to recognize and treat them early.

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Efficacy and safety of EUS-FNA in the diagnosis of isolated abdominal tubercular lymphadenitis

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Introduction and Aim The diagnosis of intra-abdominal lymphadenopathy is difficult, when the primary lesion has not been identified. Many times ultrasonography and CT are difficult and used to have low yield of tissue for cytological examination. We aimed to evaluate the efficacy and safety of EUS-FNA in patients with enlarged intra-abdominal lymph nodes of unknown etiology.
Methods A retrospective analysis of 8 patients with isolated abdominal lymphadenpopathy, where US/CT were documented to be difficult and risky, underwent EUS- FNA for diagnosis of the primary pathology. The different locations of the enlarged lymph nodes were peri-gastric, celiac axis, peri-pancreatic and peri-portal. 22 G needle used for the FNA and the median number of passes was 3. The procedures were performed without the presence of onsite Pathologist. All the samples were adequate for cytological examination. The diagnosis was granulomatous lymphadenitis in all, two samples were positive for acid fast bacillus. None of the patient had any complication related to the procedure.
Conclusion EUS-FNA was found to be highly accurate and safe in diagnosing patients with isolated intra-abdominal lymphadenopathy.

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Impact of endoscopic ultrasound: Case series of first one year at a tertiary care hospital

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Background Endoscopic ultrasound (EUS) is important for evaluation of benign and malignant gastrointestinal disorders. EUS can provide imaging as-well-as tissue sampling for diagnosis. EUS is considered better than MRCP for some conditions like idiopathic pancreatitis and biliary stones. We report 5 interesting cases showing impact of EUS in clinical practice.
Method One hundred and twenty-eight patients underwent EUS between March-2017 till June-2018 at Max Super Specialty Hospital, Vaishali.
Case Reports
Case 1: 22-year-female presented with recurrent severe abdominal pain. S amylase and lipase were normal. LFT showed >10x raised aminotransferases. USG-abdomen revealed GB stone with dilated CBD. MRCP revealed no CBD stone. EUS showed dilated CBD with stone. ERCP confirmed CBD stone.
Case 2: 55-year-old woman diagnosed carcinoma-cervix, underwent total-abdominal-hysterectomy and later radiotherapy. Follow up PET-CT at 1-yr detected a large mediastinal lymph-node. EUS–FNA lymph-node revealed AFB positive granulomas.
Case-3: 12-year-male with h/o fever, weight-loss and loss of appetite. CT-abdomen showed multiple abdominal lymph-nodes. EUS–FNA revealed AFB positive necrotizing granulomatous lymph-node.
Case-4: 41-year-old male, with history of acute necrotizing pancreatitis with acute fluid collection in lesser sac three-weeks back. Present CECT (abdomen) shows large symptomatic pseudocyst in body and tail of pancreas. EUS-guided-cystogastrostomy drainage was done.
Case-5: 73-year-old female with progressive mechanical dysphagia and weight loss for six months. UGI endoscopy revealed external compression in lower esophagus. CT-scan showed a large paraesophageal mass. EUS–FNA revealed AFB positive granulomatous lesion.
Conclusion EUS is indicated for bilio-pancreatic diseases and EUS-FNA/FNB is useful for diagnosing of mediastinal and abdominal lymph-nodes. EUS has big impact on clinical practice.

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Pattern and characteristics of lymphadenopathy in inflammatory bowel disease patients

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Introduction In inflammatory bowel disease (IBD), there are growing evidence suggests an increased risk of lymphadenopathy (LAD) specially associated with use of immunosuppressant (e.g. azathioprine) and tumor necrosis factor-α blockers. Some population-based studies suggest that IBD itself does not increase the risk of lymphadenopathy but relative risk of lymphoma increases with thiopurines treatment. Data related to the pattern and characteristics of lymphadenopathy in patients with IBD are still scarce.
Methods Single centre, prospective, observational study. All patients with diagnosed with IBD (old and new both) irrespective of ongoing treatment, above 18 years of age, having significant lymphadenopathy (>1 cm) on any imaging like CAT/MRI are subjected to EUS-FNA using Olympus GF-UCT180 linear echoendoscope with 19G standard needle for acquisition of sample. Patients with INR>1.5, platelets <50000 were excluded. SPSS software Version 24.0 was used for statistical analysis. *P*-value <0.05 was considered statistically significant.
Result The lymph nodes characteristics were evaluated prospectively in 25 patients with IBD (10 UC [active 2 and 8 inactive]) 15 Crohn`s (10 active, 5 inactive). There are 20 males and mean age is 45 years (range 20-60 years). When all 25 cases were analyzed, 2 lesions (8%) were considered as malignant, 10 lesions (40%) as benign and 13 (52%) remained undiagnosed (inflammatory). There is no significant difference in lymph nodes characteristics including locations, dimension and attenuation between active or inactive disease and between UC and Crohn's (p>0.05).
Conclusions Inflammation may result in the development of lymphadenopathy in IBD but physician should be aware of other possibilities to facilitate prompt diagnosis and treatment.

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Prevalence of neuroendocrine tumors (NET's) in patients undergoing elective polypectomies in a tertiary referral hospital in the state of Telangana, Department of Gastroenterology and Hepatology, Continental Hospitals, Hyderabad

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Introduction Gastrointestinal tract is the commonest site for neuroendocrine tumors which manifest mainly as carcinoids. They are rare neoplasms that are derived from neuroendocrine cells interspersed within the gastrointestinal system and throughout the body.
Objective To study the Prevalence of neuroendocrine tumors in patients undergoing elective polypectomies in a tertiary referral hospital in the state of Telangana, Department of Gastroenterology and Hepatology, Continental Hospitals, Hyderabad.
Methods This prospective study between June 2017 and July 2018 included patients who underwent polypectomies with Histopathological examination for polyps in the GI tract diagnosed on a previous endoscopy/colonoscopy. Diagnosis of neuroendocrine tumors was made on histopathological examination and confirmed with immunohistochemistry marker studies with chromogranin-A, synaptophysin, NSE, CD- 56 and Ki-67.
Results A Total of 1280 upper GI endoscopies and 824 colonoscopies were performed. 425 polypectomies were performed and sent for HPE of which 24% (n=102) were positive for neuroendocrine tumor. The commonest site was stomach 36 (35.3%), followed by duodenum 24 (23.5%), rectum 16 (15.6%), cecum 10 (9.8%), left colon 8 (7.8%), right colon 8 (7.8%). Only 1 (0.98%) patient presented with carcinoid syndrome. Immunohistochemistry marker studies with chromogranin-A, synaptophysin, NSE, CD- 56 and Ki-67were done for all patients for confirmation with at least 1 marker positive for each patient.
Conclusion 1. There are limited studies analyzing the prevalence of NETs in GI polyps, hence our study highlights this importance. 2. Prevalence of neuroendocrine tumors in polyps in our study was 24%. 3. NETs were detected in even small polyps measuring 2 x 2 mm.

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Prevalence of *Helicobacter pylori* infection in patients undergoing upper gastrointestinal endoscopy in a tertiary referral hospital in the state of Telangana, Department of Gastroenterology and Hepatology, Continental Hospitals, Hyderabad

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Introduction Helicobacter pylori is a common cause of dyspeptic symptoms in the Indian Subcontinent.
Objective To study the prevalence of *Helicobacter pylori* associated gastritis in patients undergoing UGI endoscopy for dyspeptic symptoms in a tertiary referral hospital in the state of Telangana, Department of Gastroenterology and Hepatology, Continental Hospitals, Hyderabad.
Methods This prospective study between June 2017 and July 2018 included patients presenting with symptoms of dyspepsia and were subjected to upper gastrointestinal endoscopy using Olympus Evis Exera-III, CV-190 series endoscope and investigated for *Helicobacter pylori* infection through rapid urease test of the biopsy specimen. Diagnosis of *H pylori* infection was made if test results were positive.
Results A total of 1280 upper GI endoscopies were performed. Male: female ratio was 1.05:1. Age range-3 to 85, mean age: 35 years. 72.7% patients were Indians (n=930) and 27.3 % (n=350) were international patients mainly from Middle East and Africa. *H pylori* infection was diagnosed by RUT (rapid urease test) in 93.1% (1192/1280) of the patients screened. The most commonly recognized presenting symptoms were pain abdomen: 993 (77.6%), abdominal bloating: 1125 (87.9%), belchings: 865 (67.5%), abdominal burning sensation: 798 (62.3%), reflux of food: 685 (53.5%), nausea: 376 (29.4%), vomiting: 53 (4.1%), GI bleed: 12 (0.9%).
Conclusion 1. The prevalence of *Helicobacter pylori* infection in our study is 93.1% which is significantly high, even in the urban population which can be attributed to their lifestyle. 2. Studies done previously in the Indian subcontinent show high rates of *Helicobacter pylori* positivity at around 88% to 92%.

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Outcome of acute upper gastrointestinal bleed in patients taking antiplatelet

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Background The use of antiplatelet, even at a low dose for secondary prevention of cardiovascular events, is associated with a small but significant increase in the risk of upper gastrointestinal bleeding (UGIB). Only a few studies have reported on the outcomes in patients with CAD presenting with acute UGIB.
Aims To assess the outcome of upper GI bleed in patients taking antiplatelets and assess the problems associated with upper GI endoscopy in CAD patients.
Method The present study is a cross sectional study including all the patients taking antiplatelet and presenting with upper GI bleed.
Results There were a total of 67 patients of which 51 (75%) were male and 16 (25%) were female patients. Sixty-nine percent (44) and 31% patients were taking single and dual antiplatelet respectively. Most common antiplatelet that was being used was aspirin (49%), followed by combination of clopidogrel and aspirin (32%). Most common endoscopic finding patients was erosive mucosal disease (45%). Peptic ulcer was seen in 21 patients (31%). All the patients with peptic ulcer had Forrest III grade of ulcer on endoscopy. Clinically significant proportion of patients with peptic ulcer were on aspirin whereas there was no correlation between peptic ulcer and patients taking clopidogrel or combination. Twenty-three pecent patient had tachycardia and there were no immediate cardiac complications. Patients with peptic ulcer had a Blatchford score more than 9 whereas those with a score of less than 9 had erosive mucosal disease.
Conclusion Patients on long-term antiplatelets can have peptic ulcer. Patients on antiplatelet with a Blatchoford score of less than 9 can be observed, only to intervene if there is any clinical deterioration. Diagnostic and therapeutic endoscopy is a relatively safe procedure in patients with coronary artery disease.

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Endoscopic treatment of upper gastrointestinal bleeding using hemoseal spray

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Introduction USFDA recently approved use of Hemospray for management of GI bleeding. We report our experience with Haemoseal Spray

(HS, Shaili Endoscopy) for treatment of upper GI bleeding (UGIB). HS is collagen powder that adheres to bleeding surfaces and promotes platelet aggregation.
Methods Retrospective analysis of patients receiving HS during endoscopy in patients with UGIB from January 2013 to June 2018. Patients with UGIB from diffuse/multiple/large lesions not amenable to conventional endotherapy received 5 cc HS spray with manual pump through 2.5 mm catheter. Short bursts of powder were applied until cessation of bleeding and site was observed for 5 minutes. APC/Injection/Clip application was used as required for tackling focal bleeding points. Primary end-point was clinical success defined as control of bleeding over 24 hours. Secondary end-points were recurrent bleeding within 7 days, in-hospital mortality and complications secondary to HS.
Results Thirty-eight patients received HS. The median age was 57 (range 5 to 87) years with 27 male and 11 females. In 24 patients HS was used as monotherapy while it was combined with APC/Injection/Clip application in 14. All patients were kept NPO and received intravenous PPI for 24 hours following the procedure. Indications were esophageal/gastric ulcers or erosions in 22, gastric malignancy in 10, portal hypertensive gastropathy/GAVE in 4 and radiation gastropathy in 2. There were 32 (84%) in-patients, 5 of whom were admitted to ICU. Clinical success was achieved in 32/38 (84%). All 6 non-responders had coagulopathy related to chemotherapy/BMT. Recurrent bleeding within 7 days was observed in 4 patients (gastric malignancy 2, radiation gastropathy 2). In-hospital mortality was seen in 8/38 (21%) and 2/38 (4.8%) were related to active GI bleeding. There was no therapy-related complication.
Conclusion HS may be an effective and safe tool in the endoscopic management of UGIB due to diffuse/multiple/large lesions.

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Endoscopic treatment of lower gastroIntestinal bleeding using Hemoseal spray

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Background USFDA has recently approved use of Collagen spray for management of GI bleeding. We report our experience with Haemoseal Spray (HS, Shaili Endoscopy) for endoscopic treatment of lower GI bleeding (LGIB). HS is a collagen powder that adheres to bleeding surfaces and promotes platelet aggregation.
Methods Retrospective analysis of patients receiving HS during colonoscopy in patients with LGIB from January 2013 to June 2018. Patients with LGIB from diffuse/multiple/large lesions not amenable to conventional endotherapy received 5 cc HS spray with manual pump through 2.5 mm catheter. Short bursts of powder were applied until cessation of bleeding and site was observed for a further 5 minutes. APC/Injection/Clip application was used as required for tackling focal bleeding points. Primary end-point was clinical success defined as control of bleeding over 24 hours. Secondary end-points were recurrent bleeding within 7 days, in-hospital mortality and complications secondary to HS.
Results Twenty patients received treatment with HS. The mean age was 60 (range 19 to 80) and there were 11 males and 9 females. In 11 patients, HS was used as monotherapy while it was combined with APC/Clip application in 9 patients. Indications were benign ulcers in 11, radiation colitis in 5 and malignancy in 4 patients. 14/20 patients were in-patient, including 3 in ICU. Clinical success was achieved in 17/20 (85%). Recurrent bleeding within 7 days was observed in 2 patients (malignancy 1; stercoral rectal ulcer 1). In-hospital mortality was seen in 1(5%) patient and there was no therapy-related complication.
Conclusions HS may be an effective and safe tool in the endoscopic management of LGIB due to diffuse/multiple/large lesions.

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Endoscopic air insufflation induced gastric barotrauma: A report of three patients

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Background We report 3 patients with insufflation induced gastric barotrauma (IGB) during UGI endoscopy (UGIE) for PEG.
Methods Records of patients undergoing UGIE over five years (April 2013 to March 2018) were reviewed. All PEG procedures were performed by 'Pull technique' under conscious sedation by using Olympus GIF H-180 with Olympus Processor EVIS Exera II CV-180 with air setting 'high'.
Results IGB occurred in 3/204 (1.4%) patients undergoing PEG and in none of 14,158 other UGIE procedures. All patients were male with median age 76 (Range 68 to 80) years. Two patients were on Aspirin 75 mg, discontinued one week earlier and two patients were on Apixaban 5-10 mg per day, discontinued 3 days prior to procedure. Platelet count was 1.37 to 2.11 x 105/cu mm and INR 1.1 to 1.24. There was no hiatus hernia and stomach was normal in all the three patients. Fresh blood was noted in the stomach at median of 275 seconds (range 130 to 340) seconds after commencement of endoscopy. At retroflexion, multiple linear and serpiginous mucosal breaks of 1-3 cm with ooze were noted in fundus and lesser curvature of stomach. PEG was abandoned, and stomach deflated with endoscopic suction. There was no hemodynamic compromise. Patients were kept nil by mouth for 24 hours and IV Pantoprazole was started. There was no subsequent hematemesis, melena or drop in hemoglobin. One week later, repeat UGIE in two patients revealed multiple healing linear ulcers of 1 to 3 cm in the fundus and lesser curvature and PEG was performed with cautious inflation.
Conclusion Prolonged air insufflation during therapeutic UGIE may lead to IGB in proximal stomach resulting in self-limiting bleeding.

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Upper gastrointestinal injury in patients of corrosive ingestion in a tertiary care centre in south India

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Introduction Corrosives are a group of chemicals that have the capacity to cause tissue injury on contact by a chemical reaction. They most commonly affect the gastrointestinal tract (GIT), respiratory system and eyes. The estimated prevalence of corrosive poisoning is 2.5% to 5% while the morbidity is above 50% and the mortality is 13%. Eighty percent of corrosive poisoning occurs in children below five years. But, adult exposure has more morbidity and mortality due to significant volume of exposure and possible co-ingestion.
Aim The aim of this study is to collect information about the quantity consumed and to correlate this with the extent and severity of upper GI injury.
Methodology Inclusion criteria: All patients admitted with history of corrosive ingestion who are hemodynamically stable and fit to undergo upper GI endoscopy. Exclusion criteria: Patients not fit to undergo upper GI endoscopy. Procedure: Patients fulfilling inclusion criteria will undergo upper GI endoscopy using a standard gastroscope and the severity of mucosal injury will be graded using the Zargar's classification of corrosive injuries.
Results Out of the 20 patients enrolled 14 were females (70%) and 6 were males (30%). Average age of the patients was 26.6 years (range 16-62 years). 6/20 were Ala poisonings, 5 were phenol poisonings, 2 patients

had consumed acid, 3 patients had consumed toilet cleaning agents, 2 patients had consumed liquid detergents. Average quantity consumed was 60.5 ml. 6/20 had grade 0 injury, 9/20 had grade 1 injury, 3 had grade 2 injury and 2 had grade 3 injury. All except 2 had consumed in diluted forms with a suicidal intent. Both pts who had consumed concentrated forms of corrosive had severe (grade 3) injury. There was a positive correlation between the grade of the injury and the quantity of corrosive consumed with a Pearson correlation coefficient of 0.832.

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A prospective study to correlate between a basic pre-endoscopic scoring system (T-score) and need for doing urgent endoscopy in upper gastrointestinal bleeding patients

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Introduction Upper gastrointestinal bleeding (UGIB) is defined as bleeding from the upper gastrointestinal tract i.e. proximal to the ligament of Trietz. It is one of the most significant causes of morbidity in healthcare settings and has a huge expenditure on healthcare resources. Timely intervention and rapid risk assessment is of paramount importance in patients with upper gastrointestinal bleeding. A clinically sensible and well validated clinical prediction score for upper gastrointestinal hemorrhage has potential to safely reduce the burden of hospitalization and reduce health care cost. Hence, this study was done in order up to attempt to validate a simplified pre-endoscopic score, called the T-score, for clinical evaluation prior to endoscopy to predict the severity of bleeding and the need for urgent endoscopic intervention depending on risk stratification.
Methods A prospective observational study of 111 patients who presented with an upper gastrointestinal bleeding was done over a period of one year. All the patients underwent upper gastrointestinal endoscopy within 12 hours of presentation with upper GI bleed.
Results The endoscopic stigmata of recent hemorrhage were seen more commonly in patients with T1 as compared to T2 and T3and this difference was statistically significant ($p<0.001$). The T-score was similar in accuracy to the Glasgow Blatchford score with respect to occurrence of endoscopic stigmata of recent hemorrhage (AUC 0.744 vs. AUC 0.747, respectively), rebleeding (AUC 0.863 vs. AUC 0.829, respectively), and 30-day mortality (AUC 0.904 vs. AUC 0.919, respectively).
Conclusions T-score is a simplified pre-endoscopic score which is effective in stratifying patients presenting with upper gastrointestinal bleeding into high risk, intermediate and low risk.

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Preliminary data on bariatric endoscopy - Endoscopic sleeve gastroplasty for the treatment of obesity

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Introduction Obesity is a growing pandemic across the world. sleeve gastroplasty (ESG), a minimally invasive bariatric procedure is a novel therapeutic endoscopic restrictive procedure to facilitate weight loss. We hereby report the effectiveness and safety of the ESG technique as a treatment modality for obese subjects.
Methods A prospective study was performed in 11 patients (2 males, 9 females) who were subjected to ESG using the OverStitch (Apollo Endosurgery, Inc., Austin, Texas, US) device. Patients with BMI >30kg/m2 who adequately understood and committed themselves to undergo multidisciplinary follow up for obesity for at least one year were included in the study. Mean age was 40 years (range 24 yr-47 yr) and mean BMI was 42 kg/m2 (range 34 kg/m2-49.6 kg/m2). Patients were evaluated for absolute weight loss, total body weight loss (TBWL), excess body weight loss (EBWL) at 1,2 and 3 months.
Result A median of 5 plications (range 4-6) used to provide a tubular restriction to the gastric cavity. Mean procedure time was 2.5 hr (1.5–4.5 hr). No major complications developed, and the patients were discharged on postoperative day 2 (+2 days). The mean absolute weight loss was 8.7 kg (6.8 kg-11 kg), 10.46 kg (8 kg-13.1 kg) and 11.2 kg (9.1 kg-13.3 kg) at 1month, 2 months and 3 months and Mean % TBWL was 8.6% (6.3%-10.5%), 10% (6.5%-13.3%) and 10.8% (9%-11.36%) at 1, 2 and 3 months respectively. While the EBWL was 18% (13%-28%), 21% (13.5%-34.16%) and 29% (17%-41%) at 1, 2 and 3 months respectively. Mild abdominal pain (40%) was the most common side effect, treated effectively with analgesics. Stitch loosening was noted in 1 patient who underwent resuturing in the 3rd month and continued to loose weight.
Conclusion ESG combined with dietary and behavioral modifications is safe, effective, reproducible procedure for management of obesity. Long term follow up is required to assess sustained effect of this procedure in treatment of obesity.

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Association between alarm signs and symptoms of patients with chronic dyspepsia and endoscopy findings

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Introduction Dyspeptic symptoms are common endoscopy is recommended for dyspeptic patients over the age of 45, or those with certain "alarm" symptoms. We have evaluated the effectiveness of age and alarm symptoms for predicting endoscopic findings.
Aims To assess the association between age, alarm signs and symptoms of dyspepsia and endoscopic findings.
Methods A cross-sectional study of 250 patients who present with alarm symptoms and signs of dyspepsia and dyspeptic patients with age >45 years attending Department of Gastroenterology, MCH, Calicut in the period of 12 months duration
Results Patients with age >45 with new onset dyspepsia were 63 (25.2%) and those with at least one alarm symptom were 187 (74.8%). Main symptoms of dyspepsia were epigastric pain (100%), postprandial and early satiety (37.2%), anorexia (48.8%), anemia (48.8 %), weight loss (42.8%) and persistent vomiting (36%). Out of 250 patients, those with esophagogastroduodenoscopy (EGD) findings were 183. Patients with functional dyspepsia were 60 (24%). Common EGD findings were carcinoma stomach (18.4%), antral gastritis (12.4%), gastric ulcer (12.4%), duodenal ulcer (10.4%). Patients with age >45 with new onset dyspepsia (no alarm symptoms) were 63 (25.2%). Among them twenty three (35.5%) patients had endoscopic findings, the rest (63.5%) were functional dyspepsia. Out of 250 patients, patients with at least one alarm sign and symptom were 187 (85.6 %). Among them, patients with any endoscopic finding were 160 (85.6%). Hemetemesis, dysphagia had PPV and specificity of 100%, while persistent vomiting and melena had PPV and specificity of >90%. Almost all alarm symptoms and signs of dyspepsia had high specificity (>80%) for diagnosing gastric malignancy except for vomiting and loss of weight. Anorexia had high positive predictive value and specificity (>80%).
Conclusion Alarm symptoms like hemetemesis, dysphagia, persistent vomiting and melena has high PPV and specificity. Only anorexia has been found to have a high positive predictive value in predicting gastric

malignancy. A risk-prediction model using combinations of these alarm symptoms may increase the accuracy in predicting organic dyspepsia.

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Prevalence of *Helicobacter pylori* infection among patients with portal hypertension

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Introduction Helicobacter pylori (H. pylori) is a microaerophile Gram-negative bacillus. *H. pylori* lives mainly on the surface of epithelial cells of mucous membranes of the pre-pyloric part of the stomach. This study was done to find out the prevalence of *H. pylori* infection in patients with portal hypertension at Universal College of Medical Sciences Teaching Hospital, a tertiary care center in Lumbini zone of Nepal.
Methods It was a hospital based cross sectional observational study. All the consecutive patients presented with portal hypertension who fulfilled the inclusion criteria were included in the study. The study period was from 1st September 2015 to 31st August 2016.
Results During the study period, 71 patients fulfilled the inclusion criteria of the study. All the data were collected as per predesigned proforma and analyzed statistically. The majority of the patients 21 (29.6%) were between 51-60 years age group. There were more males (78.9%) then females (21.1%). The mean age of study population was 50.85 years with standard deviation of ±12.47. Among the study patients, rapid urease test was positive in 50 (70.4%).The histopathological examination findings showed chronic superficial gastritis without activity and negative for *H. pylori* in 38 (53.52%), chronic superficial gastritis without activity and positive for *H. pylori* in 3 (4.23%), chronic active gastritis and negative for *H. pylori* in 13 (18.3%), chronic active gastritis and positive for *H. pylori* in 15 (15%), normal gastric mucosa in 1 (1.41%) and presence of dilated blood vessels suggestive of portal hypertensive gastropathy in 1 (1.41%).
Conclusion The prevalence of *H. pylori* infection was seen in 50 (70.4%) of the patients.

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Endoscopic ultrasound guided cystogastrostomy without fluoroscopy

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Introduction Endoscopic ultrasound (EUS) guided cystogastrostomy has emerged as the preferred modality of treatment due to high clinical success and better safety profile. It is usually done under fluoroscopic guidance which ensures safety of procedure even though it carries risk of radiation exposure. However, with expertise and in selected patients' procedure can be done without fluoroscopy. The present study aims to assess the technical, clinical success and safety of EUS guided cystogastrostomy without fluoroscopic guidance.
Methods This was a retrospective study. In a six-month period, EUS guided cystogastrostomy patients who underwent procedure without fluoroscopy were retrospectively reviewed.
Results Out of 30 cystogastrostomy patients, 6 underwent EUS guided cystogastrostomy without fluoroscopy. Reason was due to non-availability of fluoroscopy and the need for procedure. Mean age was 33 yrs (range 14-42). Five were male, 1 was female. Etiology was alcohol related pancreatitis (4), traumatic (1) and idiopathic pancreatitis (1). Symptoms were fever/sepsis in 4 and pain abdomen in 2 patients. Four were pseudocysts and 2 were WON (debris 30% to 50%). All were located within access from stomach fundus/proximal body (near body, tail or in lesser sac). On imaging, all had definite wall, ovoid shape. Mean duration of pseudocyst/WON was 8 wks (range 4-12). Pseudocyst/WON size ranged from 4-12 cm (mean 8 cm). All underwent cystogastrostomy in standard manner - 19G needle puncture –guidewire placement into cyst cavity-tract dilatation with balloon–second guidewire through dilator. Two (8 Fr) stents were placed in pseudocysts and each WON had 1 stent (8 Fr) and NBD (7 Fr). Duration of procedure was 45-90 min (mean 65.25 min). There were no serious complications. Symptomatic response was seen in all patients. Four pseudocysts had complete and 2 WON had partial resolution on follow up imaging at 1-2 wks. None needed reintervention.
Conclusions EUS guided cystogastrostomy can be done in selected group (>4 wks, body/tail or lesser sac, ovoid shape) without fluoroscopy with good clinical, technical success and safety profile.

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A rare case of diaphragmatic disease of cecum

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Introduction Gastrointestinal diaphragm-like stricture, also called diaphragm disease, is a relatively rare. Raymond et al. (1983) and Sheers et al. (1989) first described colonic diaphragmatic disease. They have been observed to be associated with long-term use of non-steroidal anti-inflammatory agent. About less then fifty cases diaphragmatic disease of colon have published till date. We report a case of twenty-five-year-old female with cecal diaphragm.
Case report Twenty-five-year old female presented with complaints of chronic intermittent abdominal pain since two years. She noticed cramping pain in right lower quadrant, which usually increased after a meal. She had been using oral diclofenac since last six months. No history of altered bowel habit or fever. Physical examination revealed thin built women with pallor. Abdominal examination and rest of the examination was unremarkable.
Lab investigations showed iron deficiency anemia with hemoglobin 7.6 gm%. Plain radiography and ultrasonography showed no abnormalities. Contrast CT scan of abdomen revealed mildly dilated terminal ileum. Colonoscopy showed thin pliable web like stricture was noted at the cecum. Biopsy of the same showed mild non-specific inflammatory infiltrate, granulation tissue and sub mucosal fibrosis without granulomas, cryptitis or crypt abscess. CT enterography done to rule out small bowel disease was normal.
Diaphragm disease of the colon is a rare condition associated with long-term use of NSAIDs. The exact pathogenesis of NSAID-induced DD remains obscure. This case demonstrates a rare complication of non-steroidal anti-inflammatory agent therapy that should be considered in the differential diagnosis of unexplained abdominal pai

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Esophageal varices in pregnant women – Our experience with endoscopic band ligation

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Introduction In pregnancies with portal hypertension, 30% to 50% suffer from portal hypertension associated complications, mainly variceal bleed

and hepatic failure. The main stay of treatment for variceal bleed remains endoscopic variceal ligation (EVL). Pregnant patients at risk for variceal bleed should receive primary prophylaxis, with either endoscopic variceal ligation or Beta-blockers. In this study we evaluate endoscopic band ligation of esophageal varices in pregnant women with portal hypertension and the safety of prophylactic endoscopic band ligation (EBL).
Methods An open labelled study was carried out which included, 32 pregnant women with portal hypertension and esophageal varices, who underwent endoscopic variceal ligation, between October 2017 to June 2018 in Department of Gastroenterology, Gandhi Hospital, Secunderabad.
Results Out of 32 patients, the cause of esophageal varices secondary to portal hypertension is cirrhosis in 11 (37.5%) (post viral-1, auto immune-3, alcohol-1, no cause – 6), EHPVO in 13 (40.6%), NCPF in 5 (15.6%), portal vein thrombosis in 1 and Budd-Chiari syndrome in 1. Of these Primigravida were 22 (68.7%). Seven (21.8%) cases had Grade 4 and 21 (65.6%) had Grade 3 esophageal varices. Twenty (62.5%) cases underwent EBL in second trimester and 12 in (37.5%) third trimester. Thirteen had few minor complications which responded well to Sucralfate. Eighteen (56.25%) cases had anemia and 16 (50%) had thrombocytopenia. Pre-eclampsia developed in 4 cases. Out of 32 cases of esophageal varices with portal hypertension, 3 had hematemesis, 1 had jaundice and 2 had ascites. Ten (31%) cases delivered vaginally, 13 (40%) underwent LSCS and 9 (28.1%) cases had assisted delivery. None of them developed SBP or hepatic encephalopathy. Maternal mortality in present study is 1 (6.2%) in COL group and not related to esophageal variceal bleed.
Conclusion Endoscopic band ligation of esophageal varices in pregnant women in second and third trimester is safe with few complications and prophylactic EBL along with Beta blockers in-turn prevents variceal bleed and its fatal consequences during third trimester and labor.

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The study of use of self expanding metal stents in gastrointestinal disorders in coastal Eastern India–A single center experience

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Background Endoscopic stenting plays an indispensable role in the management of malignant and benign conditions as well as in all segments of the gastrointestinal tract. In the present study we analyze the profile of patients in whom self-expanding metal and plastic stents are used.
Methods Consecutive patients attending the hospital with inoperable malignancy of the gastrointestinal (GI) tract and for GI leaks and fistulas for which self-expanding stents placement were needed were included in the study. The study period was 2 years.
Result The total numbers of patient undergone self expanding metal stents (SEMS) placement were 108. The mean age of the study population was 64.01±13.17, with age range of 26-98 years and median age of 63 years. Male to female ratio was 3:2. Majority cases (91%) had malignant etiology; only 5 patients had benign etiology. The most common etiology was carcinoma gallbladder (43.85%) followed by cholangiocarcinoma (10.52%), carcinoma head of pancreas in (10.52%) esophageal carcinoma in (10.52%), gastric carcinoma with outlet obstruction in (7%), duodenal malignancy in (7%) cases and colonic malignancy in one cases. Out of benign etiology fully covered SEMS were placed in refractory biliary stricture in two cases, prolong bile leak in one case, corrosive esophageal stricture in one case and tubercular tracheoesophageal fistula in one case. The median duration of survival was 6 months. Fully covered SEMS were placed in seven patients (6 biliary and one malignant GOO), due to tumor in growth after 6 months of initial uncovered SEMS placement.
Conclusion SEMS placement is both a safe and effective technique for inoperable gastrointestinal malignancies and GI leaks, strictures and fistula. Pancreatobiliary malignancies were the most common indication for SEMS placement in our part.

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Intragastric balloon for treatment of obesity: Effective and simple but caution is warranted

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Introduction Obesity is a rapidly emerging health problem. Among treatment options, dietary modification and exercise are difficult to sustain and bariatric surgery is an irreversible intervention. Intragastric balloon (IGB) is a simple and reversible option. Our aim was to assess the tolerability, safety and efficacy of the IGB in obese patients. We included all consenting obese patients (BMI 30 kg/m2) who underwent IGB placement after a trial of exercise and dietary modification in last 2 years. IGB was filled with 500 mL solution of saline and methylene blue. And increased up to 700 mL if there was no weight loss by 4 weeks. Patients were followed up regularly up to IGB removal.
Results Thirteen patients (6 males, median age 38 years [32-67 years]) underwent IGB placement. Average indwelling time was 8.4 months (6 to 12 months). Premature removal was done in 3 patients (aspiration pneumonitis in 1 (67 M, diabetes) and intolerability in 2 patients). One patient developed perforation (managed conservatively) after a year of IGB (liver cirrhosis, weight loss 12 kg). There was no significant weight loss in 2 patients. In remaining 8 patients, pre and post IGB median weight was 93 kg (74-96 kg) and 78 kg (67-84 kg), (p 0.05) and median BMI was 32 (30-38.3) and 28 (25-33), (p 0.05). Percent BMI reduction was 12.5% (p 0.05).
Discussion Conclusion IGB is safe, well tolerated and effective for short-term weight loss (62%, 8/13). Failure to loss weight may be seen in patients with intolerance leading to premature removal (n=2) and in those who are non-compliant with diet and exercise (n=2). Potential complications IGB are aspiration (n=1, premature removal) and perforation which may be seen in patient with co-morbidities (n=1). Perforation occurred in a cirrhotic and he was managed endoscopically.
Conclusion IGB is an simple and effective for weigh loss in obese patients. However counselling and rigorous patient selection may help in minimizing complications and improving results.

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Etiology and outcome of patients with upper gastrointestinal bleeding-Our centre experience

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Introduction Upper gastrointestinal bleeding (UGIB) is a common medical emergency associated with significant morbidity and mortality. The presentation of bleeding depends on the amount and location of bleed. The primary diagnostic test for evaluation of UGIB is endoscopy. The aim was to study clinical, endoscopic profile, and associated mortality in patients presenting with UGIB.

Methods Prospective study conducted from January 2018 to June 2018. It included 120 patients presenting with manifestations of upper gastrointestinal bleed. The clinical and endoscopic profile was analyzed and mortality pattern was studied. Rockall scoring system was used to assess their prognosis.
Results The mean age of patients was 45±15.19. At presentation 75 patients had both hematemesis and melena, 27 patients had only melena and 18 patients had only hematemesis. Shock was detected in 18.7% and severe anemia found in 32.4%. The most common cause of UGIB was portal hypertension related (esophageal and gastric varices) seen in 57.5% of patients, Mallory-Weiss tear was seen in 18.2% patients, gastric erosions in 12.8% patients, peptic ulcer disease was seen in 8.7% cases, gastric malignancy in 2.8% patients. Mortality rates were higher with Rockall score >6.
Conclusions In our study, variceal bleed was the most common cause of UGIB. Factors associated with increased mortality in our study were: hypotension, underlying co-morbidities, prolonged INR, elevated serum creatinine level, re-bleeding during the hospital stay and hemoglobin of <10 g%. Early risk stratification and appropriate management helps to reduce morbidity and mortality.

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Endoscopic profile of upper gastrointestinal foreign bodies in a tertiary care centre

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Introduction Foreign body ingestion is a common clinical problem seen in medical practice. It needs prompt evaluation and appropriate management. The aim of this study is to report the endoscopic profile and outcome of patients reporting with foreign bodies in the gastrointestinal tracts using upper GI endoscopy.
Methods In this single centre, retrospective study, upper GI endoscopic records of all patients from January 2015 to June 2018 were collected and reviewed regarding presence of foreign bodies. The demographic profile, nature of FB ingested, location of the foreign body and success of endoscopic therapy were analyzed.
Results A total number of 42 patients with foreign body in the upper gastrointestinal tract were studied. Out of which 12 were males, 16 females and 14 patients were in pediatric group. Coins (16), fish bone (8) and food bolus (10) constituted the main type of foreign bodies. The rest were ring, iron nail, aluminum foil, dentures and tablets. All the 14 children with foreign body ingestion had swallowed coin. The site of impaction and type of the foreign body is summarized in the following Table. Of the 42 cases, 39 foreign bodies was successfully removed with endoscopy. Out of the remaining, one case of foreign body esophagus (denture) had to be removed surgically by cervical esophagectomy. Other 2 cases of cricopharyngeal fish bone impaction were removed by rigid endoscope. All the cases of food bolus impaction were associated with mechanical obstruction of esophagus. None of the patients had serious complications.
Conclusions Prompt and timely evaluation of a patient with history of foreign body ingestion with an upper GI endoscopy is highly effective in terms of removal of the foreign body and limiting the complications.

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Endoscopic management of inoperable carcinoma of head of pancreas with obstructive jaundice and duodenal stenosis by endoscopic ultrasound guided choledocoduodenostomy and endoscopic enteral stenting

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Introduction We present 3 cases of inoperable carcinoma of head of pancreas presenting with features of obstructive jaundice; duodenal obstruction managed endoscopically.
Methods Case series and review of relevant literature.
Discussion Advanced carcinoma of head of pancreas can cause both biliary and duodenal obstruction. We report 3 cases of inoperable head of pancreas carcinoma with duodenal obstruction and symptoms of obstructive jaundice. Each of the patient underwent successful simultaneous EUS guided celiac plexus neurolysis followed by choledocoduodenostomy for biliary obstruction and endoscopic enteral SEMS (self-expanding metal stenting) for duodenal stenosis in single session. All three patients are symptomatically better thereafter.
Conclusion EUS guided CDS followed by endoscopic enteral stenting (SEMS) represents a single session palliative option for biliary drainage and relieving duodenal obstruction respectively in advanced carcinoma of head of pancreas.

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Diagnostic yield of endoscopic ultrasound guided fine needle aspiration of tubercular lymphadenitis enhanced by combining cytopathology and Gene X-pert MTB/RIF: Initial experience

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Introduction GeneXpert MTB/RIF is a fully-automated diagnostic molecular test which simultaneously detects tuberculosis (TB) and rifampicin (RIF) drug resistance. The purpose of this study is to evaluate the diagnostic yield of combining gene Xpert MTB/RIF and cytology test in tubercular lymphadenitis, where lymphnode tissue obtained by endoscopic ultrasound guided fine needle aspiration (FNAC).
Methodology This was a retrospective analysis of prospectively maintained hospital records of patients with mediastinal and intraabdominal lymphadenopathy who underwent endoscopic ultrasound (EUS)-guided fine needle aspiration (FNA) for a period from March 2017 to May 2018 conducted at a referral tertiary care centre of Northen India and was diagnosed as tuberculosis. The results of endosonographic characteristics (heterogeneous echotexture and coagulation necrosis sign) AFB microscopy, cytology, AFB microscopy Xpert MTB/RIF assay, conventional culture of the lymph nodes were documented.
Result Of 30 patients, 17 (57%) were female. Mean (±SD) and median (Inter-quartile range) age of the patients were 36.04 (±12.52) and 33.5 (25-45) years with range of 21-66 years. Fever and weight loss, dysphagia and recurrent subacute intestinal obstruction were present in 27 (90%), 2 (7%), 1 (3%) patients respectively at time of presentation. Highest sensitivity was observed for Gene xpert (29, 97%) followed by cytology (23, 77%), AFB smears (11, 37%) and conventional culture (4, 13%). Positive tuberculosis cytology (grade I–III) and gene xpert showed overall diagnostic sensitivity of 77% and 97% for tubercular lymphadenitis respectively, which was statistically significant (p value of 0.04).
Conclusion Gene Xpert MTB/RIF test is a useful tool for the detection of Mycobacterium tuberculosis with high sensitivity on EUS guided fine needle aspirate of subcarinal and intraabdominal lymphnodes with superior performance as compared to cytology and smear microscopy.

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Spectrum of upper gastrointestinal bleeding in cirrhosis, A single centre study in South India

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Background/Aims The etiology of upper gastrointestinal bleed in cirrhotics (UGIB) is variable in different geographical regions. Epidemiological data are helpful in knowing the burden of the problem. This study was conducted to know the spectrum, mortality, morbidity, and predictors of outcome in patients with cirrhosis presenting with acute UGIB.
Methods We retrospectively analyzed the data of patients admitted to our hospital between April 2017 and April 2018, with UGIB and cirrhosis and noted the clinical presentation, etiology of bleed, and outcome.
Results A total of 134 patients (112 [83.58 %]) male, 22 (16.41%) female (male: female ratio: 5:1) of UGIB were included in the study. The mean age of the patients was 52.31±15.3 years (range-37-85 years). The most common etiology of UGIB in cirrhotics was variceal related (83.21%) followed by erosive mucosal disease and peptic ulcer related 28 (28.81%). Majority of patients were managed endoscopically. The mean duration of hospital stay was 6.6±5.79 days. Rebleeding was seen in 7 patients but none of them underwent surgery. In hospital, mortality was 2.6%. Age ≥65 years (odds ratio [OR]: 9.5, 95% confidence interval [CI]: 3.108-29.266), serum albumin 2 mg/dL (OR: 4.1, 95% CI: 1.068-8.591) were associated with increased mortality.
Conclusions Cirrhotics may present with non-variceal sources of UGI bleeding though variceal bleeding is still the most common cause of UGIB. Rebleed rate, need for surgery, and mortality due to UGIB are declining. Elderly age (>65), hypoalbuminemia (serum albumin < 3 mg/dL) and renal dysfunction (serum creatinine >2 mg/dL) are important factors associated with increased mortality.

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Diagnostic efficacy of cytopathology in the diagnosis of gastrointestinal malignany in comparison with the histopathology of biopsy specimens

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Introduction Gastrointestinal malignancy is diagnosed based on clinical, imaging and endoscopic techniques; however histopathological sampling is necessary for confirmation of diagnosis before definitive therapy. Cytology evaluation is widely accepted as a cost-effective method that allows rapid interpretation and triaging of material.
Methods This is a retrospective analytical study done in Kasturba Medical College, Mangalore. Data regarding biopsy and cytology of specimens (crush and brush cytology) of GI lumen collected in suspicion of malignancy during UGI scopy and colonoscopy procedures conducted in Gastroenterology department from June 2015 to March 2017 were collected. Analysis of data was done to evaluate the diagnostic efficacy of cytologic techniques and comparison with concurrent biopsy results in the diagnosis of malignancy.
Results Total of 202 samples (195 crush and 7 brushings) were procured during endoscopic procedures for analysis of malignant cytology. The mean age of the patient group was 58.72±13.99 (IQR:52–68) yrs. Male:Female ratio was 1.33. Most common site of procurement of sample was from Upper GI tract (62.56% of crush and all of brushings), while rest were from LGI tract. Crush smears were most commonly taken from esophagus followed by stomach, while all the brushings were taken from esophagus. Brushings were positive in 28.6% of samples, while negative in 57.1% of samples and insufficient in 1case. Brush cytology when compared with histopathology had sensitivity, specificity and accuracy of 66.7%, 100% and 85% respectively. Crush cytology was positive in 68.2% which included those which are suggestive and suspicious of malignancy. Crush cytology yield was comparable to histopathology of biopsy specimen with sensitivity, specificity and accuracy which were found to be 96.4%, 100% and 97.4%respectively.
Conclusion Cytopathology of samples with crush smears and brushings had higher specificity and accuracy in detection of malignancy and can be used as a rapid diagnostic tool in view of faster reporting compared to histopathology. Limitations in cytopathology include insufficient sampling and smears with atypical features.

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Endoscopic management of gastrointesinal fistulas - Our experience at tertiary centre

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Introduction Gastrointestinal (GI) fistula is one of the most complex and challenging complications encountered after surgery, associated with extensive postsurgical morbidity. Conservative treatment reported spontaneous closure rates of 15% to 71% with associated risk of sepsis, electrolyte disturbance, malnutrition. Three cases of enterocutaneous fistulae treated With Endoscopic modalities are reported.
Methods Case 1: Thirty-five-year-old male, operated for Pott's spine with anterior fixation of spine developed left moderate pleural effusion. Inter coastal drainage constituted food particles. CECT chest showed esophageal pleural fistula. Patient was managed conservatively on FJ feeding for 1 month later endoscopy revealed fistulous opening at 35 cm from incisors, 2 cm above GE junction. Fistulous tract demonstrated under fluoroscopy. Cyanoacrylate glue was injected into the fistula. *Case 2*: 17-year-old female presented with intestinal obstruction in 2010; underwent sigmoid colostomy with Hartman's procedure. Subsequently colostomy closure and anastamosis was done. Postoperatively developed feculent discharge from suture site (left iliac fossa) which was managed conservatively; fistulous output decreased but small quantity of discharge persisted for 7 yrs. Colonoscopy showed 2 fistulous openings; at 15 and18 cm from anal verge. Enterocutaneous fistula was demonstrated under flouroscopy. Injection of cyanoacrylate Glue into opening was done. *CASE 3*:26-year-old male underwent ileal resection for perforation and end to end anastamosis, presented with discharge from scar of drain site of surgery for 1 month. Fistulous tract noted in right iliac fossa. 1 mL of glue injected into fistula.
Results Endoscopic management was done in one session, second fistula in case 2 required two sessions. Thus, decreasing time and increasing closure rates.
Conclusion GI fistula after surgery causes morbidity, sepsis and affects quality of life. Endoscopic methods offers closure rates up to 90% with less complications. Endoscopic cyanoacrylate glue injection reported safe, cost effective and less morbidity, with better results after 2-3 sessions.

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Cholangioscopy and laser lithotripsy as rescue treatment for impacted common bile duct stone after failed balloon dilatation and mechanical lithotripsy

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Aim To report the outcome of cholangioscopy and laser lithotripsy for impacted common bile duct (CBD) stone.
Setting Tertiary care centre, at New Delhi, India.
Design Prospective cohort study patient population: Patients with impacted CBD stone after failure of mechanical lithotripsy. Impacted stone was defined as stone/lower CBD ratio >1, and failure to grasp stone with mechanical lithotripter.
Intervention Cholangioscopy with spyglass DS system, followed by laser lithotripsy and clearance of CBD.
Outcome Common bile duct clearance, complications, predictor of failure.
Results Eighteen patients with impacted stone and failed mechanical lithotripsy underwent cholangioscopy and laser lithotripsy. Mean age of the patients was (50.94±18.13 years), mean stone size was (16.3±4.6mm), 6 patients had single stone (33%), 12 patients had multiple stones. Complete clearance was achieved in 15/18 patients (83.33%). In patients with intrahepatic extension of the stone, complete clearance could be achieved in only 25% (one out of four) of patients, compared with 100% of patients with stones limited to CBD (14/14). Two patients developed self-limiting cholangitis after the procedure.
Conclusion Cholangioscopy with laser lithotripsy is effective and safe modality for the clearance of impacted common bile duct stone. Extension in the hepatic duct is associated with the partial clearance.

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An audit of endoscopic post-esophagectomy stricture dilatations in a high volume referral cancer center

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Introduction Anastomotic site strictures can develop after transhiatal (THE) and transthoracic esophagectomies (TTE) performed for esophageal carcinoma. We performed a retrospective review of a prospectively maintained endoscopy database to evaluate our experience at dilatation of these strictures.
Methods Forty-one patients underwent 115 stricture dilatation sessions from January 2013 till December 2017. Demographic data and treatment details (type of surgery and anastomosis, neoadjuvant treatment, time to stricture, number of sessions of dilatation and recurrence of stricture) were noted. Stricture dilatation was performed using Savary-Gilliard® dilators (n=40) except one patient with a coloplasty where CRE dilators were used.
Results Of 41 patients, four (9.8%) underwent THE while 37 (90.2%) underwent TTE. Twenty-four (58.5 %) had a stapled anastomosis and 17 (41.5%) had a hand sewn anastomosis. Four patients had a post-op anastomotic leak. Thirty-eight patients (87.8%) received pre-op chemotherapy. Mean time for development of dysphagia after surgery was 4.5 months for THE and 5.7 months for TTE. Mean sessions required for stricture dilatation was 2.8 (range 2-6) and all strictures could be dilated completely (till 14 mm). Stricture recurrence developed in 13 (31.7%) patients at a mean duration of 7 months (1-36 months), all of whom had undergone TTE. Complete dilatation was achieved in 92% (12/13) of these patients. Mean sessions required for complete re-dilatation were 2.6 (1-5). There were no dilatation related complications. Site of tumour, type of surgery and anastomosis, time to stricture formation, number of sessions for initial dilatation, post-surgery leak or neoadjuvant therapy were not significantly associated with stricture recurrence (p>0.05 for all).
Conclusion Anastomotic strictures are uncommon after esophagectomy. These strictures can be safely dilated using Savary-Gilliard® dilators. Up to a third may develop stricture recurrence which can again be treated successfully with re-dilatation. Refractory strictures are uncommon.

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Assessment of utility of narrow band imaging for the diagnosis of ultrashort segment celiac disease

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Introduction Standard endoscopy (SE) is the routinely used procedure to visualize duodenal mucosal abnormality in celiac disease (CD). But it has low sensitivity in detecting villous abnormality. Endoscopy with NBI is helpful in targeting biopsy instead of taking randomy. NBI has been utilized earlier to assess the villous morphology in CD.
Method We performed a single centered, cross sectional, observational, study. Patients having malabsorption or positive IgA tTG were included. Endoscopic-basement of both D1 and D2 was done with WL and NBI each. The biopsies were taken from D1 and D2 in separate containers.
Results Total 143 patients with suspected CD were included in this study and 110 patients were diagnosed as CD, 15 patients were USCD on histology. We considered histopathology as gold standard for detecting villous atrophy. Endoscopy with NBI detected villous atrophy in 97cases (88.18%) in D1 out of 110 cases who were confirmed having villous atrophy in D1 by histological examination. Endoscopy with NBI was able to detect villous atrophy in 82 cases (87.23%) out of 94 cases which were confirmed as having villous atrophy in D2 by histological examination. In the first part of duodenum, endoscopy with NBI had sensitivity, specificity, PPV, NPV and diagnostic accuracy of 88.18%, 90.91%, 97%, 69.77%, and 88.81% respectively. Similar procedure for second part of duodenum had Sensitivity, specificity, PPV, NPV and diagnostic accuracy of 87.23%, 89.8%,94.25%, 78.5% and 88.11% respectively. Overall accuracy of NBI for the diagnosis of USCD was 88.54%.
Conclusion Endoscopy with NBI can be considered as a reliable method to assess villous atrophy in both first and second part of duodenum. Endoscopy with NBI should be considered as a routine endoscopic procedure to detect villous abnormality of both D1 and D2 in suspected CD.

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Efficacy of endoscopic ultrasound guided drainage of pancreatic fluid collections: Experience from tertiary care centre from Northern India

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Introduction Symptomatic pancreatic fluid collections (PFCs) due to pancreatitis require drainage. Currently minimally invasive endoscopic drainage of pancreatic pseudocyst (PPC) and walled off pancreatic necrosis (WOPN), under EUS-guidance by Seldinger technique by using either double-pigtail (DPT) plastic stents or fully covered short flanged metal stent (NAGI) is the preferred mode of drainage. We evaluated the clinical outcomes, success rate, and adverse events of EUS-guided drainage of pancreatic fluid collection with DPT and NAGI in PPC.
Methods Forty consecutive patients undergoing EUS- guided drainage of PPC were included in the study. EUS evaluation of PPC for size, location, content (debris), wall thickness and collaterals was done. Main outcome measures studied were technical success, clinical efficacy and complications. EUS guided cystogastrostomy with placement of either DPT stents or NAGI with/without ENCD placement was done. Stents were removed after complete resolution of collection. Pancreatogram was done prior to removal of stents for identifying PD leak.

Outcome Forty patients (alcoholic-14, biliary- 17, idiopathic- 8, traumatic-1) were enrolled, including 19 patients in NAGI group and 21 patients in DPT group. ENCD was placed in 7/19 patients in NAGI vs. 17/21 patients in DPT group. Technical success rate (successful deployment of stent) was 100% in both groups. Complete resolution of collection was achieved in 15/19 patients in NAGI vs. 18/21 in DPT group. Two patients each in both groups required additional percutaneous drainage, 2 patients in NAGI group required surgical necrosectomy while 1 patient in DPT group required NAGI placement. Stent migration was seen in 1 patient in each group, Perforation with cystojejunal fistula occurred in 1 patient in NAGI group. 1 patient died after surgical necrosectomy in NAGI group.
Conclusion In PPC, EUS-guided drainage was technically successful in 100% cases. Resolution rates were similar in both DPT plastic stents and metal stent groups.

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Etiological profile of patients presenting with lower gastrointestinal bleeding: A single center experience

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Introduction Lower gastrointestinal bleeding (LGIB) is one of the leading causes for hospital admissions in gastroenterology wards all over the world with significant morbidly and mortality.
Aim of the Study To determine the various etiologies, of LGIB patients posted for colonoscopic examination in our center.
Methods Consecutive patients with complain of lower GI bleeding in endoscopy suite during last one year were taken into study.
Result Total number of patients presented with lower GI bleeding were 119, with M: F 1.8:1. The mean age was 47.03±18.37 with age range of 3 to 95 years. Out of total, majority (35/119) 29.41% had inflammatory bowel disease followed by colon carcinoma (21/119) 17.64%, large colonic polyp with bleeding (17/119) 14.28%, hemorrhoidal bleeding (11/119) 9.24%. Other causes includes intestinal tuberculosis, solitary rectal ulcer, colonic nonspecific ulcers, bleeding from previous anastomotic site, and diverticular bleeding were (6/119) 5.04% each. Other less common causes includes were radiation proctitis, ischaemic colitis, rectal prolapse and bleeding from anal fissure.
Conclusion Incidence of lower GI bleeding is high in our population, most common cause was inflammatory bowel disease followed by colon cancer.

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EUS FNA for abdominal lesions: A retrospective analysis

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Introduction EUS guided FNAC is a standard of care for diagnosing abdominal lesions.
Methods EUS-FNA data was retrospectively analyzed from April 2014 to April 2018.
Results EUS-FNA was performed on186 abdominal masses. Tissue could be obtained in 171 (91.9%) 133 lesions (71.5%) were found to be malignant. The commonest malignancy was that of pancreas 85. Inflammatory cells (16) were the commonest benign lesion (8.6%) followed by tuberculosis (3.22%) and abscesses 5 (3.6%). Out of 106 abdominal lymph nodes studied, FNA was unsuccessful in only 2 (1.8%). Malignancy was the commonest diagnosis and was seen in 43 (40.5%) patients tuberculosis was seen in 39 (36.7%), reactive lymph nodes were seen in 21 (19.81%) and undefined granuloma was seen in 1 (0.94%). Immunohistiochemistry helped in the diagnosis in 8 pancreatic tumors, 1 stomach mass, 2 liver tumors, 1 retroperitoneal mass for diagnosis.
Conclusion EUS-FNA is a effective tool for the diagnosis of abdominal lesions.

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Role of EUS/EBUS FNA in the diagnosis of mediastinal lesions: A retrospective analysis

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Introduction EUS and EBUS guided FNAC is a standard of care for diagnosing mediastinal lesions.
Methods We have retrospectively analyzed the data of EUS and EBUS guided FNAC of 4 years from April 2014 to April 2018.
Results FNA was done in 28 mediastinal masses, inflammatory cells were seen in 4 (14.28%), benign lesions were seen in 3 (10.71%), inadequate material was seen in 5 (17.85%) and malignant lesions were seen in 16 (57.14%). FNA was performed in 296 mediastinal lymph nodes. Inadequate material was seen in 30 (10.13%) tuberculosis were seen in 119 (40.20%). Reactive lymph nodes were seen in 87 (29.39%), malignant lesions were seen in 45 (15.20%) undefined granulomas were seen in 4 (1.35%), fungal spores and pseudo hyphae was seen in 1 (0.34%). IHC was applied in 3 mediastinal lymph nodes, 4 subcarinal nodes for diagnosis. Twenty-eight mediastinal masses were studied (57.14%). inflammatory cells seen in 4 (14.28%).
Conclusion EUS and EBUS FNAC is an effective tool for diagnosing mediastinal lesions.

NUTRITION

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Assessment of percutaneous endoscopic gastrostomy site infection and it's microbiological profile

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Introduction Percutaneous endoscopic gastrostomy (PEG) is used to provide long term enteral access in patients with dysphagia. PEG site infection remains the most common complication following PEG tube placement. The aim of this study was to assess the prevalence and the role of contributory factors in PEG site infection and outline the microbiological profile.
Methods A retrospective study of patients, who underwent PEG placement (20Fr/24Fr) from April 2016 to March 2018 at a tertiary care center in Pune, were included. PEG Insertion was performed using a standard sterile pull-through technique and rigid perioperative care including broad spectrum antibiotics were given. Clinical and microbiological data along with sensitivity pattern were collected from the

hospital electronic medical records. PEG site infection was defined as two of: peristomal erythema, induration, and purulent discharge. The following risk factors were evaluated: age, sex, presence of diabetes and indication for PEG.
Results PEG tube placement was performed in 244 patients (mean age 60.49±20.38; M:F=180:64). The major indications were stroke (68) (27.86%), oropharyngioesophageal malignancy (43) (17.62%) and parkinsonism (34) (13.93%). Peg exchange was done in 41 patients (16.8%). PEG site infection was found in 24 patients (9.83%) for 1 month follow up after PEG placement. Only oropharyngioesophageal malignancy was found to be a significant risk factor for PEG site infection (9/43 (20.93%) vs. 15/201 (7.46%) (p-0.007). Klebsiella was the most common organism identified in culture report.
Conclusions In our study, PEG site infection was seen in nearly 10% of patients. oropharyngioesophageal malignancy was found to be a significant risk factor for PEG site infection. Most common organism for PEG site infection in our institute was Klebsiella. Educating patients on wound care practices and perioperative antibiotics especially in patients with oropharyngioesophageal malignancy could play a significant role in prevention of PEG site infection.

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Percutaneous endoscopic gastrostomy: Retrospective analysis of a 3 year tertiary care experience

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Introduction Since its description in 1980, percutaneous endoscopic gastrostomy (PEG) has become the modality of choice for providing enteral access to patients who require long-term enteral nutrition. This study aimed to evaluate current indications associated with PEG feeding.
Methods We conducted a retrospective analysis of all patients who referred to our Institute of Gastroenterology, Madras Medical College for PEG tube placement over a period of 3 years from August 2015 to July 2018. Medical records of 81 patients referred for PEG tube placement were reviewed to assess indications, technical success and the need for repeat procedures.
Results A total of 81 patients (58 male and 23 female). Average age of patients - 55.05 +/- 6.16 years. The indications for enteral feeding tube placement were malignancy in 39.5% (n=32), of which 87.5% (n=28) patients were suffering of head and neck cancer and 12.5% (n=4) of other malignancy. Central nervous system disorders was the indication in 60.49 % (n=49) of patients. Cerebrovascular accidents (CVA) accounted for 53.2% (n=26), head injury for 32.6% (n=16) and cerebral palsy for 14.2% (n=7). Three patients experienced major complications including hemorrhage, and perforation. There were no deaths related to PEG procedure placement. Oral feeding was resumed in 23% (n=18) of the patients and the tube was removed subsequently after 6 -12 months.
Conclusions Percutaneous endoscopic gastrostomy is a save and minimally invasive endoscopic procedure associated with a low morbidity (9.2%) rate, easy to follow up and to replace when blockage occurs. Over a three-year period we noticed an increase in PEG placement at our department.

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Vitamin D deficiency in Crohn's disease: Prevalence, risk factors and response to oral supplementation

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Introduction Vitamin D may have an effect on the incidence, severity and relapse rates in Crohn's disease. Data on vitamin D absorption in Crohn's patients is limited.
Aims To determine the prevalence, risk factors for vitamin D deficiency and assess the change in vitamin D levels after 8 weeks of oral supplementation in Crohn's disease.
Methods The study cohort included 159 consecutive Crohn's disease patients who attended the inflammatory bowel disease clinic of a tertiary South Indian hospital between November 2017 and May 2018. Seventy patients aged 15-70 years with baseline serum vitamin D <30 ng/ml who consented to participate and review after 2 months of treatment were included. They were given 60,000 IU of vitamin D3 once weekly for 8 weeks. Data on vitamin D usage and compliance was recorded by telephonic interview. At the end of 8 weeks, a repeat serum vitamin D was done. Paired T test was applied to check whether the increase in vitamin D after treatment was significant.
Results Among 159 patients with Crohn's disease, 6 (3.8%) had severe deficiency (<5 ng/ml), 85 (53.5%) deficiency (5-20 ng/ml), 47 (29.6%) insufficiency (20-30 ng/ml) and 21 (13.2%) were normal (>30 ng/ml). Harvey Bradshaw score >7 was significantly associated with vitamin D deficiency (p=0.031). Among 45 patients followed up after 8 weeks of treatment, the mean vitamin D pre-treatment was 13+6.5 ng/ml and post treatment 30.58+11.1 ng/ml. Mean increase in vitamin D after treatment was 17.55+8.9 (p=0.00). There was no significant difference in response to vitamin D therapy with age, sex, duration, extent of involvement or severity of disease.
Conclusions The prevalence of vitamin D deficiency was 57.3% and insufficiency was 29.6%. Vitamin D deficiency is more likely in severe disease. Oral supplementation of vitamin D was adequate to correct deficiency regardless of type or severity of Crohn's disease.

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Normative data of hand grip strength in the general population and it's correlation with other anthropometric variables

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Background and Aims There is lack of normative data of handgrip strength in Indian population. Aim of this was to derive a normative data of hand grip strength across various age.
Methods 4005 healthy individuals accompanying patients to the medical gastroenterology OPD in the age group 16 to 65 years who gave consent for the study were included in this study. The hand grip strength and anthropometric variables including height, weight, BMI, waist circumference, hip circumference, waist hip ratio (WHR), triceps skin fold thickness (TSF) and mid arm circumference (MAC) and mid arm muscle circumference (MAMC) were recorded.
Results Study included 2549 males and 1456 females' individuals. *Mean hand grip* for males was 43.8 kg+12.73 for right hand and 38.7 kg+13.3 for left hand, MAMC was 24.1cm + 3.7, TSF was 17 mm+7, BMI was 23.84 kg/m2+3.05, WHR was 0.93+0.61. Mean hand grip for females was 30.8+10.6 for right hand and 26.4kg+10.44 for left hand, MAMC was 19.83cm+ 3.74, TSF was 22.7 mm+7.16, BMI was 26.21 kg/m2+3.95, WHR was 0.92+0.0.075. In general, grip strength peaked within the 35-45 age group for male and 25-35 age group for female subjects.
Conclusion Normative hand grip data was established on the basis of gender and age groups at ten-year intervals between 16 and 65 years. Right hand grip was stronger than the left hand at all ages. Men were

stronger than women on all hand strength tests and at all ages. There was positive correlation between hand grip and waist circumference, hip circumference, MAC MAMC, height, weight, and inverse correlation between hand grip and age, TSF, BMI and WHR.

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Presence of visceral adiposity fans the flame of mortality amongst sarcopenic patients with liver cirrhosis

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Background Both sarcopenia and obesity are associated with high risk of complications and mortality in patients with liver cirrhosis (LC), however the effect of concurrent sarcopenia and obesity remains unclear. Hence, we aimed to study the effect of sarcopenic obesity on mortality in patients with LC.
Methods In this prospective study, complete data of 306 patients between 2015 to 2016 were collected. Single slice CT images at L3 vertebrae were analyzed and expressed as skeletal muscle index (SMI; skeletal muscle area/height2 in cm2/m2), subcutaneous adipose tissue area (SAT in cm2) and visceral adipose tissue area (VAT in cm2). Obesity was defined based on Asian Indian cut off, as BMI >25Kg/m2. Visceral obesity was defined by CT derived VAT area >100cm2. Sarcopenia was defined according to previously published cut-off of SMI (44.2 in males and 36.1 in females) at 1SD below the mean of healthy adults. Patients having both sarcopenia and visceral obesity were identified as sarcopenic obese. Survival analysis was done using Kaplan-Meier and Cox Proportional hazards regression method.
Results Total of 306 patients with LC[M-62.4%; age-50.9±10.8; CTP-9.1 ±2.6; MELD-16.3±7.9; BMI-26.3±5.0; etiology-alcohol-44.8% NASH-25.5%, others-29.7%; Child A:B:C-20.6%: 34.6%:44.8%], were classified as obese (n-167; 54.7%) and non-obese (n-139;45.3%) based on BMI. Visceral obesity was present in 54.9% (168/306). Sarcopenia was prevalent in 28% (86/306); 34% in males and 18.3% in females. One-year mortality rate was 32% (98/306). Sarcopenic obesity was prevalent in 61.6% (53/86). In all, sarcopenics had significantly increased risk of mortality compared to non sarcopenics (45.3% vs. 26.8%; OR-2.3[1.35-3.8]; p=0.003) Fig1A. One-year mortality rate was comparable between obese sarcopenics and nonobese sarcopenics as defined by BMI (45.8% vs. 45.2%; x2=0.003; p=1.00 (Fig.1B), however the mortality risk was higher in sarcopenic obese (defined by VAT) compared to sarcopenics alone (60.4% vs. 21.2%; OR-5.7 [2.1-15.4]; p<0.001) (Fig.1C).
Conclusion The risk of mortality doubles with sarcopenia. However, the presence of visceral adiposity brings a six-fold, increase in the mortality amongst sarcopenic patients with liver cirrhosis.

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Exclusive enteral nutrition is effective in adults with Crohn's disease: Experience from a tertiary care hospital in India

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Background Although exclusive enteral nutrition (EEN) is effective in inducing clinical remission in children with Crohn's disease (CD), its efficacy in adults remains unclear. We present the efficacy of EEN in adult patients with CD with different phenotypes and severity.
Methods This retrospective study included patients with CD who were given EEN for induction of clinical response. The patients were under follow up at AIIMS, New Delhi, India from October 2017 till July 2018. Details were extracted from prospectively maintained case records for demographics, disease duration, disease phenotype and severity, treatment given, duration of EEN, response to EEN and intolerance to EEN.
Results Twenty-one patients (mean age:32±16 years, 76% males, 7 with fistulising disease and 3 with perianal disease) were given EEN for a median duration of 4 (IQR, 2–4) weeks. Concomitant treatment with immune-suppressants was given in 12 patients (10-steroids alone, 2-steroids followed by infliximab, 1-infliximab alone). Mean CDAI improved significantly at 4 weeks (295±58 vs. 212±63, p<0.01) and 8 weeks (295±58 vs. 199±43, p<0.001) after EEN. Serum albumin and hemoglobin also improved significantly, starting at 2 weeks (hemoglobin-7.6±1.4 g/dL vs. 8.7±1.2 g/dL, p<0.01; albumin-2.4±0.5 g/dL vs. 2.9 ±0.5 g/dL, p<0.01) and persisting over 4 and 8 weeks. On subgroup analysis, patients receiving EEN without concomitant immunesuppressants also showed significant improvement in CDAI at 4 weeks (305±40 vs. 240±60, p<0.05) and serum albumin at 2 (2.5±0.5 g/dL vs. 3.1±0.5 g/dL p<0.05) and 4 weeks (3.3±0.5 g/dL, p<0.05). No significant difference in EEN response was observed with respect to different disease behaviour. Only 1 patient had intolerance to EEN.
Conclusion EEN is effective in adults with CD in inducing clinical response both as an exclusive treatment and as an adjunct to other immunosuppressants across all disease phenotypes.

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Estimation of gluten content in unlabeled and labeled gluten-free food products and commonly used food items consumed by celiac disease patients

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Introduction Gluten-free (GF) diet is the only reliable treatment for patients with celiac disease (CeD). However, there is a paucity of data on the type of GF food available in India, those consumed by Indian CeD patients and more importantly the extent of gluten contamination therein. We evaluated the gluten content in labelled and unlabelled GF food products currently available in Indian market.
Methods A total of 251 processed and commercially available GF products (including both naturally [n=99] and certified labelled GF products [n=152]) were randomly collected from supermarkets of a metropolitan city (Delhi) of India. Those not available in stores, were purchased from e-commerce sites. Gluten level in food was determined by Ridascreen Gliadin sandwich R5-enzyme-linked immunosorbent assay (R-Biopharm AG, Germany). As per Codex Alimentarius, European Commission Regulation and Food Safety and Standard Authority of India, "gluten-free" labelled products must not contain >20 mg/kg of gluten.
Results Of one hundred and fifty-two samples of labelled GF products, 19 samples (12.5%) had gluten content >20 mg/kg (range: 25.68-713.74 mg/kg) and 133 items had gluten content within permissible limits (range: 1.41-19.5 mg/kg). Among non-labelled natural GF foods, five samples (5%) had gluten content >20 mg/kg (range: 23.2-168.87 mg/kg), while 94 items had gluten content <20 mg/kg (range: 1.46-18.31 mg/kg). Contaminated products most commonly belonged to cereal and its products like pasta/macaroni, cereal based snack foods and pulse products.

Contamination levels were negligible in companies producing only GF foods.
Conclusion A substantial number (12.5%) of labelled GF products available in India have high gluten content. Patients with CeD should be aware about this fact and ingestion of contaminated GF food products may be the reason for non/partial response in them.

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Comparative analysis of cost and nutritional composition of gluten-free food with their gluten containing counterparts

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Introduction Gluten-free diet (GFD) is the cornerstone treatment for patients with celiac disease (CeD). However, GFD has become a trend in general population as well. There is paucity of analysis of nutritional content and cost of gluten free (GF) food-items compared with their gluten containing counterparts.
Methods Nutrient composition and cost of commonly consumed labelled GF (n=158) and non-labelled naturally GF/gluten containing (n=170) food items, systematically obtained from supermarkets of metropolitan city of India (Delhi), were compared. The nutritional content per 100 g of product and per gram cost was taken for comparison under different categories.
Result GF pasta/macaroni products were found to have lower protein (7.2 g vs. 11.3 g) and higher carbohydrates (78 g vs. 73 g) compared to their gluten containing counterparts. Similarly, GF flour mixes had lower protein (9.3 g vs. 12 g) and substantially lower fiber (2.7 g vs. 13.8 g) than gluten containing flours. In case of GF biscuits, the carbohydrates were lower (54.1 g vs. 69 g) and fats were higher (26.2 g vs. 19.7 g) including saturated fat (12.7 g vs. 9.4 g) and trans fat (0.9 g vs. 0.02 g). The trans-fat content was >1.5 g in most of the GF biscuits and cookies. GF cereal-based snack foods contained higher sodium (1293 mg vs. 658.5 mg) than their gluten containing counterparts. Overall, GF foods were markedly higher in cost, ranging from 1.6 (biscuits and cookies) to 3.8 times (snack foods) higher, compared to similar gluten containing counterparts.
Conclusion Compared to their gluten containing counterparts, the gluten-free foods are substantially costlier and less nutritious with respect to their protein, fiber and fat content, particularly the saturated and trans-fat. Strategies need to be developed to lower the cost and improve the nutritional profile of gluten-free food items.

CASE REPORTS

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Gastrointestinal basiodiobolomycosis – A rare case

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Introduction Basidiobolomycosis is a rare fungal infection caused by *Basidiobolus ranarum*, a member of the subphylum Entomopthoromycotina. Visceral involvement by basidiobolomycosis is rare but has been emerging fungal infection in the stomach, small intestine, colon, and liver. Diagnosis of GIB is clinically difficult due to the fact that GIB occurs in immunocompetent patients and so it may not be clinically suspected. We report a patient presented with involving gastrointestinal tract and generalised lymphadenopathy who has been diagnosed with disseminated basidiobolomycosis.
Methods We report a case of basidiobolomycosis with gastrointestinal tract involvement and intrabdominal lymphadenopathy.
Results Twenty-seven-year-old housewife presented with history of: 1. Diffuse abdominal pain for 3 months; 2. Postprandial vomiting for 3 months; 3. Significant loss of weight and appetite. Previously treated twice with ATT for granulomatous inflammation on biopsy of cervical lymphadenopathy. Local and systemic examination was unremarkable. CT abdomen: Long segment circumferential wall thickening of the 2nd and 3rd parts of duodenum. Gastroscopy - duodenal nodules, proabable infiltration of mucosa. Biopsy - granulomatous duodenitis, eosinophilic microabscesses and dimorphic form with Splendore-Hoeppli phenomenon favor Basidiobolomycosis. Colonoscopy – normal study. CT guided FNA from paraortic nodal mass - extensive necrosis with broad fungal hyphae, consistent with Entomophthoromycosis. Treatment: She was started on T. Iatraconazole for months. On follow up after 2 months, she had significant improvement in the form generalied well being, improved appetite, weight gain, reduction of abdominal pain and vomiting. On follow up she was started on Syp potassium iodide.
Conclusion GI Basidiobolomycosis presents diagnostic challenges due to lack of specific features. GI Basidiobolomycosis should be considered as the differential diagnosis in patients presenting with pain abdomen and intraabdominal lymphadenopathy after ruling out common conditions. Clinical finding may mimic malignancy, TB, or IBD. Prognosis for this disease is usually favorable,but can be fatal if not treated.

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De novo gastric cancer following gastrojejunostomy

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Introduction Gastric stump carcinoma (GSC) following gastric surgeries is well documented in the Indian and western literature. De Novo gastric malignancy following gastrojejunostomy 42 years ago for benign disease is quite rare and scarcely reported in literature. The incidence of gastric malignancy ranges from 2% to 8% in the remnant stomach.
Aim To report an unusual case of De Novo gastric cancer occurring 42 years following gastrojejunostomy for a benign disease.
Case Report We present a 75-year-old male who underwent gastrojejunostomy for gastric outlet obstruction 42 years ago presented with post prandial fullness and vomiting for past 3 months. No melena. On examination patient was anemic. Abdomen had a clean scar 5 cm below the xiphisternum to umbilicus. No mass or VGP detected. Upper GI endoscopy showed post GJ status with peristomal inflammation and ulceroprolifertive lesion in the antrum. Biopsy from lesion proved to be singnet ring cell carcinoma.
Discussion The incidence of GSC is more following gastric surgeries like Billroth II with partial gastrectomy than Billroth I. The procedure gastrojejunostomy alone for benign disease is quite rare and it has the last risk of developing GSC compared to Billroth II and Billroth I. Latent period for development of malignancy in the anastomotic site or remnant stomach varies from 15 to 20 years. De Novo gastric cancer can present as late as 36 years. The pathogenesis of GSC has been implicated to duodenogastric reflux of bile, hypochlorhydria, chronic inflammation, intestinal metaplasia and bacterial overgrowth. The pathogenesis of De Novo gastric cancer following gastrojejunostomy is not well understood. *H pylori* eradication in prevention of gastric carcinoma following gastric

surgeries is debatable. Peroidic endoscopic surveillance is recommended following gastric surgeries.
Conclusion De novo gastric cancer is very rare following gastrojejunostomy alone after 42 years. Case reported for its rarity.

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Rare case of pancreatitis

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Introduction Antiphospholipid syndrome has been defined by the presence of antiphospholipid antibodies or lupus anticoagulant in association with certain clinical events, including recurrent arterial and venous thrombosis and recurrent fetal loss. Definite APS is present if at least one of the clinical criteria and one of the laboratory criteria are met, with the first measurement of the laboratory test performed at least 12 weeks from the clinical manifestation. A. Clinical criteria; 1) vascularthrombosis- one or more clinical episode of arterial, venous or small vessel thrombosis confirmed by imaging or histopathology. 2) Pregnancy morbidity B. Laboratory criteria: 1) anticardiolipin antibody antibody of IgG and or IgM medium or high titre, 2) lupus anticoagulant, 3) antiibeta 2 glycoprotein-1 antibody.
Methods We report a case of a young male known case of left brachiocephalic, proximal subclavian and SVC thrombosis, pulmonary thrombosis and pulmonary infarction, presenting with abdominal distension since 1 month which was not associated with pedal edema, jaundice, GI bleed and pain abdomen since 1 month – diffuse, non-radiating, not aggravated with food. Past history of admission 3 months back for swelling in right side of neck, cough, hemptysis, breathlessnes for 1 week. Nonalcoholic, non-smoker, no specific drug history, no significant family history.
Results With above history and clinical presentation, on further evaluation he had massive hemorrhagic pancreatic ascites and pseudocyst in the head of pancreas. His thrombotic workup showed laboratory evidence for primary APS with lupus anticogulant and beta 2 glycoprotein positivity and no clinical features or laboratory evidence of other autoimmune diseases.
Conclusion A high index of suspicion for Antiphospholipid syndrome should be kept in patients with pancreatic ascites with previous thrombotic episodes. This case is being reported due to the rarity of antiphospholipid syndrome presenting as pancreatitis.

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A young man with progressive jaundice

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Introduction Acute viral hepatitis, especially hepatitis A, may sometimes present as progressive hyperbiliribinemia due to prolonged cholestasis up to 9 months. On the other hand hepatitis A, hepatitis E, cytomegalovirus and Epstein-Barr virus may activate clinically inactive chronic liver disease resulting in progressive hyperbiliribinemia and hepatocellular failure. In this report we present a rare case of acute hepatitis A with progressive severe hyperbiliribinemia unmasking manifestation of autoimmune hepatitis (AIH) in a young man.
Methods and Results Case Report A 21-year-old man presented with 3 months history of progressive yellowish discoloration of eyes and urine along with generalized itching and 11/2 months history of fever with anorexia and weakness. He gave no history of melena or altered sensorium. Clinical examination revealed pallor, icterus and hepatosplenomegaly. Anti-HAV IgM was reactive. Ultrasound showed coarse echotexture of liver with mild ascites. We ruled out other viral hepatitis as well as Wilson's disease. Liver function tests (LFT) initially showed markedly raised bilirubin and liver enzymes.
Liver enzymes decreased over 3 months, bilirubin level continued to rise up to 30 mg%. Albumin level was normal, but globulin was gradually rising to 5.1 gm%. Serial LFTs showed AST slightly higher than normal (Table1). Prothrombin time was 18 seconds. Endoscopy showed 2 columns of grade I varix. As there was features of portal hypertension coupled with hyperglobulinemia, autoimmune hepatitis profile was done. ANA and anti-LKM1 antibodies were nonreactive whereas anti-smooth muscle antibody was reactive (1 in 80). Total IgG level was high 1733 mg% (n=620-1400). A probable diagnosis of AIH was made according to simplified diagnostic criteria adapted from Hennes et al. Patient refused liver biopsy. He was successfully treated with glucocorticoids.
Conclusion Every episode of acute viral hepatitis should be evaluated for exclusion of acute exacerbation of any occult chronic liver disease.

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A case of combined liver and kidney transplantation for primary hyperoxaluria

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Background Primary hyperoxaluria type 1 (PH1) is a rare disorder that mainly affects the kidneys. The main defect is overproduction of oxalates by liver resulting in build-up of oxalate, which normally is filtered through the kidneys and excreted in the urine. The deficiency is of the liver peroxisomal enzyme alanine: glyoxylate-aminotransferase (AGT), which catalyzes the conversion of glyoxylate to glycine. When AGT activity is absent, glyoxylate is converted to oxalate, which forms insoluble calcium oxalate crystals that accumulate in the kidney and other organs leading to progressive renal involvement and chronic renal disease.
Case Characteristics A 4-month-old girl infant presented with features of chronic renal disease. She was started on renal replacement therapy-peritoneal dialysis from infancy along with management of hypertension and anemia. She was evaluated and diagnosed to have primary hyperoxaluria Type 1(Genetically proven). She also had multiple complications like refractory hypertension, obstructed umbilical hernia, recurrent peritoneal catheter block and peritonitis. She was then managed with hemodialysis. She was advised combined liver and kidney transplantation. However, in view of her extreme young age, low weight, and anticipated technical difficulties due to size of the child this was initially considered impossible. She finally underwent combined simultaneous live related liver and kidney transplant with right nephrectomy (native kidney) at 21 months of age with a weight of 7.6 kg and is currently doing well.
Conclusion This is the youngest reported simultaneous combined liver-kidney transplantation done to date in India in a child with a weight of 7.6 kg.

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Levosulpride induced involuntary movements

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Levosulpiride is a substituted benzamide that is widely used in plethora of medical conditions. It is used in dyspepsia, gastroparesis, burning mouth syndrome, cataplexy, acute labrynthine dysfunction, glycemic control and premature ejaculation. Psychiatric illness such as depressive disorders, somatoform disorder and schizophrenia recommend levosulpride use. Levosulpride produces extrapyramidal symptoms as it blocks dopaminergic D2 receptor activity. We report some involuntary movements encountered with use of levosulpride.
Reports 1 Isolated tremors-45-year-male was prescribed pantoprazole+ levosulpride for dyspeptic symptoms. On the next day, he developed rest and postural tremor which was mainly confined to his upper extremities. He completely recovered within 10 days of stopping the drug.
2 Parkinsonism-70-year-female, was on levosulpride for nearly 5 months for upper GI symptoms, presented with asymmetrical bradykinesia, rest tremor and rigidity since 1-month duration. Tremor and bradykinesia improved on stopping the drug but rigidity persisted.
3 Worsening of preexisting Parkinsonism–72-year-male on antiparkinsonian medication showed rapid worsening after starting levosulpride. Increasing the dose of levodopa showed no benefit.
3 Orolingual dyskinesia-52-year-female on levosulpride since 5 days, presented with acute onset of oro-lingual dyskinesia. She completely recovered in few days on stopping the drug.
Conclusion We report these cases as levosulpride has to be prescribed carefully especially in elderly age group. Possibility, of neurological complications have to be explained. Isolated tremors, Parkinsonism, worsening of Parkinson disease, tardive dyskinesia, dystonia, truncal akathisia have been reported in literature with levosulpride. Some of them, though not all are completely reversible on stopping the drug.

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Presenting an unusual case of a foreign body ingested orally getting impacted in the colon

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Fifty-four-year old male patient, no comorbidity presented with c/o of fresh bleeding per rectum for 10 days. No abdominal pain, distention, vomiting, fever, diarrhea, urgency, fecal incontinence. Clinically-Vitals stable, normal abdominal findings. PR examination - normal. Routine investigations - Hb 12.5 gm/dL, creatinine 0.8 mg/dL, bilirubin 0.7 mg/dL, PT 12 sec, APTT 34 sec. Colonoscopy planned after split bowel preparation. There was an impacted foreign body at recto-sigmoid junction 25 cms from anal verge. Scope not advanced further. It was removed using rat tooth forceps after disengaging it from deeply into the muscle. Utterly surprising it was a denture with sharp margins, measuring 8 cm ×7.5 cm! Complete ileo colonoscopy did not reveal any gross abnormality except area of abnormal mucosa with granulation tissue around the site of impaction. Biopsies-No evidence of malignancy. The distal area revealed an area of visible muscularis s/o suspicious sealed perforation.
Patient gave past history of accidental ingestion of the denture 5 months back but did not consult to medical practioner for the same!
CECT abdomen showed thickening at the sigmoid area, no mass, no through perforation or diverticulum. Started normal diet after 24 hours and discharged with supportive treatment. Follow up after 10 days - completely asymptomatic. Repeat colonoscopy planned after 1 month.
We present this rare case report as such a large, sharp foreign body which was likely to get impacted in the small bowel or terminal ileum surprisingly got impacted at sigmoid colon without any mass lesion or any other gross mucosal abnormality.

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Recurrent gastrointestinal bleeding due to ileal varix

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Introduction Ectopic varices result from portal hypertension, surgical procedures, venous outflow anomalies or abdominal vascular thrombosis, and can be familial (1) in origin. They account for 1% to 5% of GI bleeding episodes. They can occur anywhere along the GI tract, abdominal wall or even the retroperitoneal space, common sites being the duodenum (17%) and jejunum or ileum (17%).
Case Presentation A 53-year-old obese man with history of significant alcohol intake presented with recurrent melena. The hemoglobin was 7.6 g/dL. There was no history of NSAID use. Prior episodes of melena in 2015 and 2016 were managed conservatively with blood transfusions and were attributed to duodenal ulcer with *H pylori* infection, which was eradicated. Colonoscopy 2 years ago had shown ileal varix but no intervention was required then. This time, abdomen ultrasonography showed hepatosplenomegaly. Fibroscan could not be done due to technical issues. Upper GI endoscopy showed small esophageal varices without RCS and mild portal hypertensive gastropathy. Colonoscopy showed terminal ileal varix with stigmata of recent bleed like red patch on it, for which endotherapy with histoacryl glue was done. Subsequently, the melena resolved completely. Capsule enteroscopy was done to rule out any other source of GI bleed which was normal. He was discharged after IV iron replacement with no recurrence of GI bleed and hemoglobin of 7.8 on follow up at 1 month.
Conclusion Ectopic varices should be considered in patients with obscure GI bleed, especially in the presence of portal hypertension.

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Late recurrence of colon cancer as isolated mediastinal lymphadenopathy after curative surgery

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Introduction Colorectal cancer is one of the most common causes of cancer-related death. Tumor recurrences in distant organ after resection of colon cancer is frequently seen. Among the patients with evidence of distant organ recurrence, the liver was the most common site, followed by lung, bone, and brain in descending order. The first site of recurrence of colon cancer is rarely the mediastinal lymph nodes. Solitary recurrence at this site without another site of recurrence is extremely rare. Till 2017 only 7 cases of isolated mediastinal recurrence of colorectal cancer have been reported. We are reporting a case of late recurrence of colon cancer presenting as isolated mediastinal lymphandenopathy successfully treated with resection.
Case report A 74-year-old male, resident of Udupi with comorbidities of hypertension and bronchial asthma, was diagnosed with adenocarcinoma of sigmoid colon in 2008 and was successfully treated with sub-total colectomy and adjuvant chemotherapy. Following which he was asymptomatic and doing well and was on regular follow up tests. PET CT done in 2017 revealed a para cardiac lymph node 3.1×2.9 cm (SUV 8.8) with no mural thickening or focal hypermetabolic lesion at the anastomotic site or any other site in body. EUS done for further evaluation showed a hypoechoic lesion with irregular border of size 2.5 x 2 cm in the para-cardiac region. EUS guided FNAC was done and sent for cytological examination which

revealed clusters of atypical hyperchromatic cells with larger irregular nuclei - consistent with metastatic carcinoma. As this was isolated lesion with no other regional or distant involvement, resection was done. HPE of lesion showed atypical irregular glands in fibrous stroma suggestive of moderately differentiated adenocarcinoma indicating late recurrence of colon cancer.
Conclusion Clinicians must be aware of mediastinum as a potential site for recurrence during follow ups of patients with colorectal carcinoma.

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A rare case of cholestasis in infancy

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Progressive familial intrahepatic cholestasis (PFIC) is a heterogeneous group of rare, genetic autosomal recessive disorders, resulting from defects in the mechanisms involved in bile formation with typical clinical, biochemical and histological features. These patients typically present with intrahepatic cholestasis in infancy or childhood. Progressive, familial intrahepatic cholestasis (PFIC) is a heterogeneous group of rare, genetic autosomal recessive disorders, resulting from defects in the mechanisms involved in bile formation with typical clinical, biochemical and histological features. These patients typically present with intrahepatic cholestasis in infancy or childhood.
We report a case of a 21-month-old female child borne out of 3rd degree consanguineous wedding, presenting with acholic stools since birth along with pruritus since 6 months of age and jaundice since 6 weeks, suggestive of cholestatic jaundice.
On investigations LFT showing elevated direct bilirubin and elevated ALP with normal GGT and elevated serum bile acids. Other cholestatic disorders are ruled out. Liver biopsy showing intracanalicular cholestasis with early cirrhosis. Genetic study showing positive for ABCB11 EXON21 gene positive. Diagnosis of PFIC 2 was made. Patient on medical management and listed for liver transplantation and surveillance for HCC.

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Von Meyenberg complex: A rare case report in an infant

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Biliary hamartomas also known as Von Meyenberg complexes are found incidentally in less than 4 percent of adults and are even less commonly seen in infants. They are considered to be arising from bile ducts that fail to involute. Often they are asymptomatic and detected incidentally. Biliary hamartomas are often multiple scattered throughout the liver. They are usually less than 1.5 cm in diameter, when they are large called as giant cystic biliary hamartomas. The importance of this condition lies in the fact that it has got high chances of malignant transformation to cholangiocarcinoma and can be confused with hepatic metastasis on imaging. Here we present a six months old male infant presented with fever, vomitings, and upon investigating found to have bicytopenia and biliary hamartomas on imaging and we also briefly review the literature of this condition.

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Two rare cases of steatohepatitis in neutral lipid storage disorder-Chanarin-Dorfman syndrome

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Chanarin-Dorfman syndrome a rare genetically determined autosomal recessive neutral lipid storage disorder caused by mutations in either adipose triglyceride lipase (ATGL/PNPLA2) on chromosome 11p15.5 or comparative gene identification-58 (ABHD5/CGI-58) on chromosome 3p21,which are involved in lipid metabolism, characterized by lipid droplets in cytoplasm of blood leukocytes (Jordans anamoly) and multiple tissues of body particularly liver causing steatohepatitis which may rapidly progress to cirrhosis. In literature less than 60 cases have been reported. Here we present two cases of 4 year old and 6 year old male children who are brothers presented with icthyosis and upon investigating found to have lipid droplets in leukocytes (Jordans anamoly) on peripheral smear ,elevated liver enzymes, liver biopsy showed macrovesicular steatohepatitis and genetic analysis showed mutations of comparative gene identification-58 (ABHD5/CGI-58) on chromosome 3p21, we also briefly review the clinical implications and management of this rare syndrome.

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Unusual case of hemetemesis-Bleeding from vertebral artery

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Introduction Here we present a rare case of hemetemesis due to bleeding from vertebral artery due to a migrating foreign body which was managed with coil embolization of the vessel.
Case report A middle aged female was admitted with history of hemetemesis followed by syncope. Her upper GI endoscopy showed a post cricoid ulcer with opposite wall showing a penetrating wound with pus draining. She gave a history of forgotten accidental fish bone ingestion 2 days back. CT imaging showed an anomalous hypoplastic left vertebral artery arising directly from the arch of the aorta with a thrombus in situ and suspicious contrast leak with surrounding early abscess formation around the vessel. The fish bone was found dislodged and found lying in the stomach. She was taken up for coil embolization after ensuring that right vertebral artery was patent and perfusing the vertebrobasilar system. Post-embolization she had an uneventful course and was stable at follow up.
Conclusion Vertebral artery injury due to foreign bodies are rare. A penetrating fish bone causing vertebral artery injury which was successfully managed with coil embolization of the vessel has not been previously described.

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A rare case of celiac disease presented as enteropathy associated T-cell lymphoma

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Introduction Celiac disease is an autoimmune disorder in which a genetic predisposition and the ingestion of wheat gluten triggers a deleterious immune response. Enteropathy associated T cell lymphoma is a rare primary intestinal lymphoma. It is often, but not always associated with celiac disease.
Case presentation A 31-year-male presented with bloating, postprandial fullness, and significant weight loss since 4 months. Family history of celiac disease in elder sister. He had Bitemporal, supraclavicular hollowing (Fig.1). The patient had iron deficiency anemia (hemoglobin: 8.9 g/dL). Endoscopy was normal (Fig. 2 A and B). Anti-tissue transglutaminase antibody >100. Duodenal biopsy - subtotal villous atrophy (Fig. 3). Based on this patient was started on gluten-free diet. After a month patient had overt upper GI bleed. Ileocolonoscopy was normal (Fig. 4 A and B), hence single balloon enteroscopy planned which revealed circumferantial short segment ulcerated stricture in mid jejunum (Fig. 5) on histopathology and immunohistochemistry -T cell non-Hodgkin's lymphoma (Fig. 6 A and B).The patient started on chemotherapy-CHOP (cyclophosphamide, doxorubicin, vincristine and prednisolone) protocol and after 1 cycle of chemotherapy patient had intestinal perforation and died due to sepsis/poor nutritional status.
Discussion The patient was exposed to gluten during all his lifetime and it is widely acknowledged that a gluten-free diet effectively prevents the development of EATL in patients with overt CeD. In this clinical case there was no formal indication to institute a gluten-free diet previous to the diagnosis of lymphoma, since the diagnosis of CeD was simultaneous to that of EATL.
Conclusion This may raise the question whether *silent CeD* in family members of affected patient would benefits by early screening and initiation of gluten-free diet and preventing it's life threatening complication like EATL. This case draws our attention to clinically silent celiac disease, which may present directly as intestinal lymphoma.

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A rare case of disseminated histoplasmosis in a patient with Crohn disease on immunosuppressive treatment

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A 45-year-male presented to us in December 2017 with fever, bloody diarrhea, weight loss, fatigue, watery peri-anal discharge, and left the lower abdominal colicky pain of 4-months. He reported having undergone left hemicolectomy followed by a standard 9-month treatment with isoniazid, rifampicin, ethambutol, and pyrazinamide for subacute intestinal obstruction and descending colon stricture 4 years back. The resected specimen revealed transmural lymphocytic infiltration and non-caseating granuloma without acid-fast bacilli. Though he remained well for the next 3-y, he experienced recurrent symptoms. A colonoscopy revealed multiple rectosigmoid and colonic ulcers, biopsy revealed moderate mononuclear inflammatory infiltrate in the lamina propria, ZN stain was negative. Based on this, a diagnosis of Crohn disease was considered and oral prednisolone (50 mg/d) and azathioprine (100 mg/d) were started. After a month of therapy, the patient presented with proximal myopathy, bleeding per rectum, and peri-anal ulceration, fever, and cervical lymphadenopathy. A fine needle aspiration and biopsy of the cervical lymph node revealed histoplasmosis. Perianal ulcer biopsy also revealed histoplasmosis. Colonoscopy revealed rectosigmoid ulceration with stricture, biopsy also revealed histoplasmosis. Serological test for immunodeficiency virus was negative. A computerized tomographic scan showed bilateral adrenal enlargement, and thickening of the ileocecal junction. With a diagnosis of disseminated histoplasmosis in a patient with Crohn disease on immunosuppressive treatment, prednisolone and azathioprine were withheld, treatment with liposomal amphotericin B started, and continued for the next 21 days; his fever subsided, lymph node regressed, perianal ulcer showed healthy granulation tissue. At this stage, itraconazole was started.
Conclusion In patients with inflammatory bowel disease including Crohn disease on immunosuppressive treatment such as corticosteroids, azathioprine, and biologicals, though opportunistic infections like tuberculosis, cytomegalovirus, coccidiomycosis have been reported, 1, 2, 3 disseminated histoplasmosis has not been widely published in adult population. 4 An early recognition and appropriate treatment may be life-saving for such infection.

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An unusual case of acute left upper quadrant pain at high altitude

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Introduction Sickle cell trait is often asymptomatic; anemia and painful crisis are rare. An uncommon but highly distinctive symptom is pain less hematuria due to papillary necrosis. Exposure to high altitude, extreme exercise and dehydration is widely known to be associated with splenic infarction in sickle cell anemia. Here we present a case splenic infarction after exposure to high altitude and was later diagnosed as case of sickle cell trait.
Clinical presentation A 27-year-old south Indian sportsman with no comorbid conditions, no illicit drug addiction and un remarkable past history was on a leisure trip to Ladakh, at a height of 4000 meters above sea level. He developed sudden onset pain in epigastrium and left hypochondrium associated with vomiting. Initial diagnosis of motion sickness was made however due to persistence of left hypochondriac pain detailed evaluation was done with USG abdomen, CECT abdomen and CT angiography were suggestive of splenic infraction. On subjecting patient to hemoglobulin electrophoresis diagnosis of sickle cell trait leading to splenic infarction was made. Patient was treated with I.V hydration and analgesics with gradual improvement and had no further complications.
Conclusion Spontaneous infarction of spleen can occur in patients of sickle cell trait on exposure to high altitude or other conditions leading to hypoxia. Diagnosis of sickle cell trait leading to splenic infarct should be considered in a patient with left upper quadrant pain abdomen on ascent to high altitude. Further most of these patients achieve full recovery with conservative management.

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Severe symptomatic thrombocytopenia in acute hepatitis E - A case report

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Introduction HEV related acute hepatitis is common in developing and underdeveloped countries. It can be both sporadic or epidemic. Severe thrombocytopenia is rare during acute HEV infection. We present a rare case of severe thrombocytopenia in an adult with acute hepatitis E which was probably immune mediated.

Methods A 60-year-old male presented with jaundice for 10 days, hematuria 5 days, ecchymosis 2 days and epistaxis 1 day. He was non-alcoholic. Physical examination showed jaundice and ecchymotic spots on both upper limbs. On investigation: hemoglobin-13 gm/dL, Platelet count 0.02 lakh/microlitre.PT- 17.60, INR-1.36, creatinine 1.00, total bilirubin 12 mg/dL, direct bilirubin was 7 mg/dL, indirect bilirubin- 5.00 mg/dL, ALT 980 U/L, AST 878 U/L, alkaline phosphatase 114 U/L and IgM anti-HEV positive, other acute viral markers for HAV, HBV, HCV were negative. Multiple platelet rich plasma (PRPs) were given, platelet rose up to 0.10 lakh/microliter but again fell to 0.05 lakh/microlitre on next day, hence bone marrow biopsy done which showed adequate number of megakaryocytes with normal morphology, patient was treated with IV methylprednisolone 100 mg daily for 3 day. After 2 dose of IV steroids patient's platelet count rose to 0.36 lakh/microliter, suggesting possible immune mediated destruction of platelets.
Results As the patient responded to Inj. methylprednisolone and bone marrow showed normal megakaryocyte population, thrombocytopenia could possibly because of immune mediated destruction of platelets.
Conclusion Acute hepatitis E infection can rarely cause symptomatic severe thrombocytopenia. Immune mediated destruction of platelets possibly is the cause. Antiplatelet antibody have been frequently reported in this setting.

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Dieulafoy's lesion in a patient with co-existing ALD, diabetes and hemophilia A- An unusual case with unexpected challenges

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Dieulafoy's lesion is a large caliber submucosal artery which accounts for 1.5% of all upper GI bleeds. A bleeding dieulafoy's evades endoscopic diagnosis in approximately 1/3rd of the cases and carries a mortality of 9% to 13%. Our case presented with massive UGI bleed and hemorrhagic shock. Endoscopy done twice revealed small non-bleeding esophageal varices, with stomach full of blood, no duodenal ulcer was seen. Patient was taken up for emergency laparotomy, gastric devascularization was done along with removal of 2 litres of blood clot. An arterial spurter identified just below the GE junction was underrun with vicryl suture and intraoperative liver biopsy was taken. Patient started improving, remained hemodynamically stable and was extubated. On reviewing the history, a bleeding disorder was suspected as patient gave history of receiving 8 units of blood for a minor injury. Subsequent coagulation studies revealed improving INR but persistently elevated a PTT. Factor assays VIII and IX were sent and confirmed the diagnosis of hemophilia A, liver biopsy was suggestive of alcoholic steatohepatitis. On postoperative day 12 patient developed wound dehiscence which was managed with wound manager and daily dressings. Two intra-abdominal collections and a gastrocutaneous fistula were diagnosed on CECT abdomen. Postoperative course was complicated by development of fungiemia, septicemia, shock, seizures and cortical blindness which were appropriately managed. The patient finally was discharged after 73 days of hospitalization and needed 23 units of O negative PRC's, 18 units of cryoprecipitates, 12 units of FFP's, 3 units of platelet apheresis and 17,500 IU of rFactor VIII. Vac dressings were used for management of gastrocutaneous fistula which finally closed on 13th post discharge day.
Conclusion A rare and challenging case of Dieulafoy's lesion with hemophilia A and co-existing ALD with diabetes is presented.

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Recurrent anemia and jejunal gastrointestinal stromal tumor: A mystery unfolded

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Introduction Gastrointestinal stromal tumors (GISTs) are rare form of soft tissue sarcoma of the digestive tract. The incidence of gastrointestinal stromal tumors is very low. Jejunal GISTs are extremely rare. GISTs comprise 0.2% of gastrointestinal tumors and only 0.04% of small intestinal tumors. Jejunal GISTs are the rarest subtype. Only 10% to 30% progress to malignancy.
Case report A 45-year-old female referred for esophagogastroduodenoscopy and colonoscopy for anemia under evaluation. She had a past history of repeated episodes of anemia for which she got multiple blood transfusions in previous two years. She denied history of melena and weight loss. Blood tests showed microcytic, hypochromic anemia. She had a positive test for stool for occult blood three times. All endoscopies were normal, failing to identify a bleeding source. Further investigation with capsule endoscopy exposed a bleeding source in the form of multiple jejunal ulcers. CT shows well defined lobulated exophytic heterogeneously enhancing soft tissue density lesion noted in pelvis in close relation to small bowel wall.
Intraoperative findings were also suggestive of GIST. There was 12 x 8 cm mass seen in the wall of jejunum with no extraluminal involvement and lymph nodes metastasis. The whole mass excised and resection anastomosis of jejunum to jejunum done. Histopathological appearance and immunohistochemical profile of the mass confirmed high-grade gastrointestinal stromal tumor. Imatinib mesylate 400 mg once daily was given as adjuvant chemotherapy, and patient is asymptomatic without any evidence of tumor recurrence after 12 months of postoperative follow up.
Conclusion GIST can have multiple clinical pictures and unusual symptoms, such as anemia, obscure gastrointestinal bleeding. This case report highlights the rarity of jejunal GISTs and as extensive initial investigation yielded all false-negative results, indicates the difficulty in diagnosing jejunal GIST resulting in progression to unusually large jejunal GIST.

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A curious story of rare companions-coexistence of celiac disease and Crohn' s disease

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Twenty-nine-year-old female patient was asymptomatic till 11years when she had perianal abscess and fistula at the age of 11 years for which fistulectomy was done and it took 1½ years to heal. After which she was having intermittent episodes of small bowel diarrhea which increases after food intake along with abdominal pain and bloating sensation. She has increasing symptoms for last 7 yrs with increasing frequency and nocturnal episodes. The symptoms were related to some food items like-chapati, bread etc. She also developed pedal edema and abdominal distension for past 1 month. Symptoms were associated with failure to gain weight, skin changes and secondary amenorrhea. On examination, she is short statured and have features of protein energy malnutrition and signs of nutritional deficiencies. Investigations revealed low ferritin anemia, low albumin level (1.7 g/dL), increased INR. Her anti-TTG level was high. Esophagogastroduodenoscopy (EGD) showed scalloping of

D2 folds with biopsy showed focal blunting of intestinal villi with increased intraepithelial lymphocytes >30/100 intestinal epithelial cells suggestive of celiac disease. Colonoscopy was normal. Upper GI endoscopic biopsy showed microgranulomas favoring Crohn's disease. MR enterography showed mild diffuse bowel wall thickening noted involving proximal jejunal loops. Hence, we arrived at a diagnosis of celiac disease coexisting with Crohn's disease after discussion with the pathologist and considering history of fistula and MR enterography findings. She was given a trial of gluten free diet and nutritional rehabilitation for malnutrition and she showed initial significant improvement in general condition and is under follow up.
Conclusion Celiac disease and inflammatory bowel disease are chronic inflammatory conditions of gastrointestinal tract. These immune mediated diseases may co-exist, but rare. As per literature, around 1% to 3.2% of celiac disease patients have IBD. Increased recognition of coexistent IBD and celiac disease can prompt clinicians to investigate for concomitant disease.

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An uncommon cause of abdominal wall abscess

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A 31-year-old male presented with complaints of fever and pain abdomen for 10 days. On examination patient is found to have tenderness in lower abdomen and fullness in left iliac fossa. USG abdomen showed a collection in left iliac fossa and a pseudocyst near tail of pancreas (Retrospective history revealed h/o pain abdomen 6 months back, for which he took local treatment). MRI abdomen revealed a collection in the abdominal wall that is in communication with the pseudocyst near the tail of pancreas. Due to poor general condition, patient is not taken up for surgery and a percutaneous pigtail catheter was inserted. Post drainage, collection size decreased and so are the patient's complaints.
Pseudocyts are described to be seen in various locations like mediastinum, retroperitoneal space, omental bursa, perinephric space and even as renal cysts. But this type of infected pseudocyst with abdominal wall extension is not described in the literature till yet.

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Atypical presentation of a diffuse large B cell lymphoma

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Background Lymphomas are not uncommonly encountered as a causative diagnosis for prolonged fever, weight loss and pain abdomen; but it requires a high degree of suspicion in case of necrotic lymphadenopathy, with few features in support of Koch's, to diagnose NHL. We recently encountered a case of pain abdomen, melena and weight loss in a young adult who already been evaluated by various gastroenterologists, with no diagnosis being made.
Case Report Thirty-one-year-old male, presented with abdominal pain since 4 months, fatigue, reduced appetite, significant weight loss and occasional dark stools. Examination was normal except for pallor. CECT of abdomen showed ~20 cm segment circumferential wall thickening in the patient's mid and distal ileal loops, with necrotic areas within the thickened wall and surrounding fat stranding. Multiple necrotic lymphnodes and omental/mesenteric necrotic deposits were noted. Blood TB quantiferon was positive. Mantoux was negative. Serum CEA was normal. Serum LDH was mildly elevated. Colonoscopy with ileoscopy revealed nodular terminal ileal mucosa and biopsy showed florid cryptitis and focal mucosal ulcerations, crypt branching and destruction. Intervening lamina propria was densely infiltrated by lymphocytes, plasma cell and showed many lymphoid follicles. No dysplasia or granuloma noted, and AFB stain was negative. CT-guided biopsy of necrotic omental nodule revealed areas of necrosis, adjacent viable areas infiltrated with lymphocytes and histiocytes. But no granuloma was identified, and AFB stain was negative. Evidence of increased cell proliferation noted by pathologist prompted tissue immunohistochemistry which revealed positivity for CD20, BCL2, C-MYC and MUM1, making a diagnosis of diffuse large B cell lymphoma of activated B cell type. This case represents dilemmas in diagnosis between abdominal TB, lymphoma and IBD. Diligent and intelligent investigations, along with tissue diagnosis were the key points in clinching the case.

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An ulceronodular lesion in stomach: A case report

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A 21-year-old male non-smoker and non-alcoholic presented with complaints of fever with chills and melena for 15 days. On further enquiry patient gave history of myalgia, bone pain and early satiety. On examination sternal tenderness was elicited and there was massive splenomegaly. blood investigation showed elevated WBC count with 82% blasts. Upper GI endoscopy showed ulceronodular lesion in the a body of stomach. Bone marrow aspiration and biopsy of ulceronodular lesion in stomach both were suggestive of large B cell lymphoma/ Burkitt lymphoma. Flow cytometry was positive for CD 19, CD 20 and CD 38. Confirmed to have B cell lymphoblastic leukemia with GI involvement. chemotherapy with MCP 841 protocol was administered. Repeat bone marrow aspiration and upper GI endoscopy were normal after 1 month of therapy.
Conclusion GI involvement of hematological malignancy is seen in 15% to 20% of patients. Early diagnosis and treatment help to achieve remission in 70% to 80% of patients.

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Sepsis induced liver dysfunction – A case report

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A 28-years-old male with no previous comorbidities presented with febrile jaundice of 10 days duration and vomiting of 2 days duration. Clinical examination revealed normal hemodynamic status, marked icterus and right upper quadrant tenderness. There was no hepatosplenomegaly, ascites or encephalopathy. Investigations revealed anemia (Hb – 8.2 gm%), leukocytosis (TLC–28,100/cu.mm), neutrophilia (DLC – N76L16), thrombocytopenia (Plt - 30,000/cu.mm), marked direct hyperbilirubinemia (Total bil–56 mg%, direct bil–41 mg%), transaminitis (AST/ALT – 112/90 IU/L), mildly raised ALP (140 IU/L), hypoalbuminemia (S. Alb – 2.7 gm%), azotemia (Bl urea – 128 mg%, S. Creat - 1.6 mg%), hyponatremia (S. Na – 128 mEq/L), hypokalemia (S. Pot – 2.8 mEq/L) and coagulopathy (PT – 21 sec, INR – 1.8). HBsAg, anti-HCV, HIV, IgM anti-HAV, IgM anti-HEV and IgM anti-HBc were negative. Malarial, leptospiral and dengue serology were

negative. Peripheral blood smear did not reveal any malarial parasites. Urine analysis revealed 15-20 WBCs/HPF. However, urine culture did not show any growth. Ultrasound abdomen revealed normal liver, IHBRs and CBD and contracted gallbladder. Upper GI endoscopy did not reveal any esophageal or gastric varices or portal hypertensive gastropathy. He was managed with antimicrobials to cover sepsis and UTI, ursodeoxycholic acid and other supportive measures and started improving rapidly. His bilirubin decreased to 11.9 mg% during the period of 8 days of hospitalization and other parameters also improved. He was discharged on oral hematinics and oral antibiotic and is under follow up on OPD basis.

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Sepsis induced liver dysfunction – A case report

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A 68-years-old male was admitted with fever and jaundice of 7 days duration and vomiting of 2 days duration. Clinical examination revealed stable hemodynamic status, marked icterus, anemia (Hb-7.1 gm%), leukocytosis (TLC – 15,200/cu.mm), neutrophilia (DLC – N74L22), marked direct hyperbilirubinemia (Total Bil – 32 mg%, Direct Bil – 28 mg%), transaminitis (AST/ALT – 177/215 IU/L), mildly raised ALP (294 IU/L), hypoalbuminemia (S. Alb – 2.4 gm%), azotemia (Bl urea – 259 mg%, S. Creat - 4 mg%), hyponatremia (S. Na – 124 mEq/L) and coagulopathy (PT – 23 sec, INR – 1.9). HbsAg, anti-HCV, HIV, IgM anti-HAV, IgM anti-HEV and IgM anti-HBc were negative. Peripheral blood smear did not reveal any malarial parasites. Malarial and leptospiral serology were negative. Urinalysis, urine culture, blood culture and chest X-ray were normal. An ultrasound abdomen showed mild hepatosplenomegaly with thickened GB wall with no evidence IHBR dilatation or CBD dilatation. Upper GI endoscopy was normal. CECT abdomen showed mild bilateral pleural effusion, pericecal fat standing, edematous ileocecal valve and left anterior lower abdominal wall edema. Colonoscopy was normal. He was managed with antimicrobials to cover sepsis, ursodeoxycholic acid and other supportive measures and started improving rapidly. His bilirubin decreased to normal within 2 weeks of hospitalization and other parameters also improved. He was discharged on oral hematinics and oral antibiotic and is under follow up on OPD basis.

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An unusual cause of liver abscess

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Introduction Liver abscess is an infectious space occupying lesion in liver parenchyma. It could be pyogenic or amebic in origin. The most common source is biliary followed by abdominal infection and hematogenous spread. We describe a patient with liver abscess caused by a fish bone which penetrated into liver capsule through the gastric wall.
Methods A 65-year-old male presented with history of fever and mild abdominal discomfort. He was evaluated and was found to have a liver lesion on ultrasonography. Triphasic CECT scan abdomen revealed a liver abscess in segment 4 with hyper dense linear material within. On probing, there was history of fish bone ingestion a month earlier. Endoscopy did not reveal any gastric lesion or breach in mucosa. He was given antibiotics and taken up for surgery. Laparoscopic liver abscess drainage was done and foreign body- fish bone was noted within the abscess. Patient improved clinically and was doing well on follow up.
Conclusion Liver abscess due to fish bone penetrating liver capsule through stomach is very rare. The transgastric penetration of foreign body should be kept in mind whenever there is unusual cause of liver abscess with foreign body within.

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Spontaneous rupture of bile duct due to choledocholitiasis- A case report with review of literature

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Introduction Non-traumatic perforation of the extrahepatic biliary ductal system is a rare; in adult and occur due to choledocholithiasis. The treatment of this rare condition should be based on the individual's clinical status. The rarity of this case is the atypical site of CBD perforation and its occurrence at a relatively young age.
Case Summary Fifty-one-year-old male presented with pain in abdomen. On examination patient had icterus with tenderness in abdomen. CECT of abdomen was suggestive of subphrenic biloma. EUS showed distal CBD stone. In HIDA scan there was biliary leak from left hepatic duct. We managed patient successfully with external drainage of biloma and endoscopic stone removal. Patient was discharged after 8 days of hospitalization in stable condition.
Discussion In spontaneous perforation of the bile duct the majority of cases are related to choledocholithiasis. Other causes include pregnancy, acalculous cholecystitis, choledochal cyst etc. Abdominal USG, and CT can aid to primary lesion and intra-abdominal collection. Biliary leakage can be detected through nuclear medicine studies or via intraoperative cholangiography. The role of surgical treatment in cases of spontaneous bile duct rupture is unclear. The most preferred treatment modality is ERCP with stone extraction.
Conclusion This case emphasizes on conservative surgery which is the mainstay of treatment in the acute presentation.

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Sarcina ventriculi as a cause of gastric outlet obstruction- A rare association

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Although gastric outlet obstruction is a common condition, etiology could not be determined in a few cases by means of clinical features, radiological, and endoscopic examination, resulting in substantial diagnostic dilemma. Sarcina ventriculi is a Gram-positive organism, which has been reported to be found rarely, in the gastric specimens of patients with gastroparesis. Only eight cases of Sarcina, isolated from gastric specimens have been reported so far. Sarcina has been implicated in the development of gastric ulcers, emphysematous gastritis and gastric perforation. A case is being described where a 47-year-old female presented with anorexia, dyspepsia, vomiting, loss of appetite, and weight loss for 2 months.
Results of routine laboratory tests were within normal limit except mild decrease in hemoglobin. Abdominal computed tomography scan demonstrated a gastric outlet obstruction. Upper gastrointestinal endoscopy depicted gastric outlet obstruction along with duodenopathy.

Sigmoidoscopy shows patchy colitis. Endoscopic biopsy revealed only chronic gastritis with regenerative changes of epithelium. Exfoliative cytology of gastric brushings revealed spores of candida along with colonies of Sarcina ventriculi. Report were negative for malignant cells. Stomach being an uncommon site of infestation with sarcina ventriculi diagnosis of such rare condition remains a diagnostic enigma. Finally, the patient was treated with ciprofloxacin and metronidazole for 1 week, and a repeat endoscopy showed improvement of erythema, along with clearance of Sarcina organisms. Review of reported cases including ours suggests that Sarcina is more frequently an innocent bystander rather than a pathogenic organism. However, given its association with life threatening illness in two reported cases, it may be prudent to treat with antibiotics and anti-ulcer therapy, until further understanding is achieved.

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A rare case of disseminated abdominal hydatidosis

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Hydatid disease (HD) also known as cystic echinococcosis is a zoonotic infection caused by the cestode tapeworm *Echinococcus granulosus* and rarely by *Echinococcus multilocularis*. In humans the HD commonly involves the liver (75%) and the lungs (15%). The remaining (10% to 15%) of the cases includes the other regions of the body. Peritoneal hydatidosis is a rare presentation reported in only 2% to 12% of all abdominal HD.
We report a case of 20-year-old male from remote area presented with abdominal distension since 6 months with no pedal edema. No h/o breathlessness/cough/hemoptysis. On investigations patient is anemic with mild eosinophilia. Liver function tests are normal. USG abdomen: e/o multiple thin walled cystic lesions seen in liver, spleen, and abdomen. B/L kidneys showing B/L HUN
CECT abdomen showing multiple hepatic hydatid, splenic hydatid and peritoneal hydatidosis. Patient was started on albendazole preoperatively and planned for surgery.

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Retroperitoneal tumor causing portal vein block led to gastric variceal bleed

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Introduction We report a patient who presented with recurrent UGI bleeding from gastric varices due to infiltration of portal and superior mesenteric vein by retroperitoneal carcinoma. Multiple attempts of endotherapy for gastric varices failed and BRTO was needed.
Fifty-three-year-old diabetic lady presented with abdominal pain radiating to back and an episode of hematemesis in 2017 September. An upper gastrointestinal (UGI) endoscopy revealed large esophageal varices for which band ligation was done. On further evaluation CT abdomen showed retroperitoneal infiltrating mass encasing main PV and causing narrowing of celiac trunk, SMV and CBD. Biopsy suggestive of retroperitoneal metastatic adenocarcinoma. Patient was started on chemotherapy in December 2017. In December 2017, patient had yellowish discolorations of eyes, suggest biliary obstruction for which she underwent ERCP stenting. Patient had repeated episode of upper GI bleeding in spite of multiple sessions of glue injections in gastric varices. An initial effort to do balloon retrograde transvenous obliteration (BRTO) was abandoned. In June 2018, after 2 more episodes of gastric variceal bleeding, attempt to perform BRTO via femoral route failed due to failure to cannulate gastro-renal shunt. Repeat BRTO was performed via right internal jugular vein and sclerosant was injected in gastric varices. Post-procedure patient did not have hematemesis.
Discussion Nineteen percent of patients with gastric varices require alternative management inform of BRTO1. In our case retroperitoneal mass encasing portal vein led to gastric varices which responded well to BRTO. Gastric varices due to portal vein block is extremely rare.

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An uncommon cause of chronic diarrhea: an unusual way of diagnosis

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Introduction Chronic diarrhea is a common clinical problem encountered in the Gastroenterology office. Investigations can be extensive, but a thorough clinical history and physical examination can provide valuable clues to appropriate diagnostic workup.
Case presentation A 64-year-old woman presented with non-specific upper abdominal pain, non-bloody diarrhea and 10% weight loss over 6 months. A history of peptic-ulcer surgery came to light after noticing an upper abdominal scar during physical examination. Her BMI was 12.8 kg/m2. Upper GI endoscopy (UGIE), done for the abdominal pain, showed a gastrojejunostomy on the posterior wall with some feculent material draining from a suspicious opening, surrounded by mucosal nodularity, at entry into the efferent loop. Suspecting a gastrojejunocolic fistula (GJCF), barium enema was attempted, however since patient could not hold the enema, the imaging failed. Even the colonoscopy did not show any fistulous opening. Contrast-enhanced CT abdomen with an oral contrast also failed to demonstrate any fistulous tract. Meanwhile, the biopsies that were taken from the suspicious fistulous opening (during the UGIE) showed colonic mucosa with colonic glands. At a re-look UGIE, the endoscope could gently be negotiated across the fistulous tract into the colon, confirming GJCF. She has been advised corrective surgery after appropriate nutritional build-up.
Conclusion With a decrease in surgery for peptic ulcer disease, its complications, such as of much GJCF, are becoming uncommon. However, GJCF from the previously popular surgery may manifest as a late complication today and have high morbidity and mortality of left untreated. Hence a high index of suspicion is necessary to make an early diagnosis for better outcome.