



Case Series

A retrospective case series study for acute abdomen in general surgery ward of Aliabad Teaching Hospital

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ABSTRACT

Introduction: Acute abdomen means, the patient complains of acute abdominal symptoms that suggest a disease, which definitely or possibly threatens life and may or may not demand immediate operative interference, but often requires emergency surgical therapy. The diagnosis and management of acute abdomen forms a large part of routine duties of a general surgeon throughout his career.

Objective: The aim of this study was to clarify the clinical profile of acute abdomen and their frequency according to age and sex in general surgery ward of Aliabad teaching hospital.

Patients and method: This descriptive retrospective study was performed by reviewing medical records (In-patient file) of 299 patients who admitted with diagnosis of acute abdomen between March 21, 2018 and March 21, 2019 in general surgery ward of Aliabad teaching hospital.

Results: Males were affected more than females with male to female ratio being 1,14:1. Highest number of patients were in 15–24 years of life (n = 122, 40,8%). The most common cause was found to be acute appendicitis for acute abdomen, accounting for 57,5% of total admission. It was followed by acute intestinal obstruction (20,7%) and acute cholecystitis (10,4%). The most common symptom was abdominal pain and most common surgical procedures were open appendectomy for acute appendicitis followed by explorative laparotomy. The complications (Clavien-Dindo = IIIb) and mortality rate in our study were 17% and 3.6% respectively.

Conclusion: Abdominal pain is one of the cardinal and common symptom of acute abdomen in the emergency department. The causes of acute abdominal pain have a wide range and their relative incidence varies in different populations. Clinicians think seriously multiple diagnoses, especially in those cases that require immediate intervention to limit morbidity and mortality.

1. Introduction

The term acute abdomen describes symptoms and signs of intra-abdominal disease usually treated by surgical operation. Many diseases do not require surgical treatment but produce severe abdominal pain and clinicians require to make an urgent therapeutic decision [1].

Acute abdominal pain is the most common cause of admission in general surgical emergency [2]. Acute abdominal pain is a severe abdominal pain, if accompanied by guarding and muscular rigidity, essentially describes the clinical picture of peritonitis and usually calls for an emergency operation [2]. The general rule is that any pain which is persistent for a period of more than 6 days is usually caused by a disease of surgical significance [2]. This led to the common misconception that the acute abdomen is synonymous with the surgical abdomen. However, not all cases of acute abdomen are best treated with surgery.

According to the surgical point of view, acute abdominal pain is the cardinal symptom of acute abdomen [3]. The causes of acute abdominal pain have a wide range, a number of them will have life threatening conditions that require urgent surgery, others may need a trial of conservative management that may require intervention if the condition fails to settle [4]. A detailed history, full clinical examination and carefully selected investigations will guide to correct diagnosis and management [4].

Acute abdomen is a common condition encountered in emergency surgical practice [4,5]. In the developed world, acute abdomen is most common in the age group of 20–29 years with male predominance and acute abdomen accounts for 36.4% of surgical emergency [5].

Proper management of the patients with acute abdominal pain requires a timely decision about the need for surgical intervention. This decision requires evaluation of the patient's history, physical findings, laboratory data and imaging tests. Most cases of acute abdomen can

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diagnose clinically by the presence of abdominal pain, abdominal tenderness, guarding and rigidity. There should be a certain diagnostic modality which confirms the diagnosis and the surgeon should feel safe and accurate in deciding which patients require surgical intervention. Although imaging modalities like x-rays, USG, CT, MRI, are available and can diagnose accurately but these investigations are not available everywhere or not available for 24 h in developing countries like Afghanistan [6].

The aim of this study was to know the Clinical profile of acute abdomen and their frequency according to the age and sex during one year (March 21, 2018–March 21, 2019), in general surgery ward of Aliabad Teaching Hospital.

2. Method and patients

This descriptive retrospective study includes all adult cases that were managed as acute abdomen in the general surgery Ward of Aliabad Teaching Hospital during one year (From March 21, 2018 to March 21, 2019). Those who had traumatic injury of abdomen were excluded. Abdominal pain due to urological and gynaecological origin also excluded. There were 176 males (58,7%) and 123 females (41,3%) with diagnosis of acute abdomen who underwent conservative or surgical treatment and the age range was 15–94 years. Diagnosis was made by detailed history, physical examination, abdominal X-ray, Ultrasonography and blood investigations. A special data collection sheet designed to collect data regarding the diagnosis, age and sex from the profile of patients retrospectively. Data entry was performed by using Microsoft Excel 2016 and all the data were analyzed by SPSS (version 21.0). Descriptive analyses were performed regarding the frequency of diseases, distribution of the diseases according to the age and sex. The study was approved by the ethics committee of the Kabul University of Medical Sciences, and research was registered ([ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT05088200) identifier: NCT05088200). Informed consent was obtained from all presented patients. All work has been reported in line with the STROCSS criteria [7].

3. Results

This study is based on data collected from 299 patients who admitted due to acute abdomen between March 21, 2018 and March 21, 2019, including 176 males (58,7%) and 123 females (41,3%), male to female ratio being 1,14:1. Mean (\pm SE) age was 36,5 (\pm 1,09) years, and the age range was 15–94 years. Highest number of patients were in 15–24 years of life ($n = 122$, 40,8%) followed by the 25–34 years of life ($n = 51$, 17%). (Table 1).

Abdominal pain was the main symptom in all the patients ($n = 299$)

Table 1
Age and sex distribution.

Age group	Male, n (% of gender)	Female, n (% of gender)	Total, n (% of total)
15–24 years	65 (36,9%)	57 (46,3%)	122 (40,8%)
25–34 years	39 (22,2%)	12 (9,8%)	51 (17%)
35–44 years	21 (11,9%)	25 (20,3%)	46 (15,4%)
45–54 years	17 (9,7%)	16 (13,1%)	33 (11%)
55–64 years	14 (8%)	8 (6,5%)	22 (7,3%)
65–74 years	9 (5%)	2 (1,6%)	11 (3,7%)
75–84 years	6 (3,4%)	3 (2,4%)	9 (3%)
85–94 years	5 (2,9%)	0 (0%)	5 (1,7%)
Total	176 (100%)	123 (100%)	299 (100%)

followed by nausea ($n = 291$) and vomiting ($n = 265$). Abdominal tenderness was the most common clinical sign (295) followed by guarding ($n = 233$) and abdominal distention (Table 2).

The most common cause was found to be acute appendicitis; 57,5% of total admission, followed by acute intestinal obstruction (20,7%), and acute cholecystitis (10,4%). The causes of small and large intestinal obstruction were adhesion, obstructed and strangulated inguinal hernia, volvulus, intussusception, ileum's mass, sigmoid volvulus, colonic mass and torsion of caecum respectively. Other causes of acute abdomen were acute pancreatitis (4%), peptic ulcer perforation (2%), mesenteric ischemia (1,7%), subdiaphragmatic abscess (1%), appendicular abscess (1,3%), perforation of ileum (0,7%), jejunal perforation (0,3%) and peptic ulcer hemorrhage (0,3%). (Table 3).

Median age, age range and male to female ratios in the most common causes of acute abdomen like acute appendicitis, intestinal obstruction and acute cholecystitis were; (23 years, 16–78 years, 1.5:1), (50 years, 17–91 years, 1.8:1), (47 years, 16–94 years, 0.6:1), respectively. (Table 4). Comorbid conditions of diabetes mellitus, hypertension, chronic pulmonary obstructive diseases, and malignancy were present in 3.3%, 2%, 1.3% and 0.6% of patients, respectively. 235 cases (78.6%) were managed surgically while 64 (21.4%) cases were managed conservatively.

Most common surgical procedures were open appendectomy via Mc Burney incision for acute appendicitis, drainage of appendicular abscess by right lower paramedian incision and interval appendectomy was done after 6 weeks, laparotomy with colostomy for large bowel obstruction, resection and primary anastomosis for strangulated small intestinal obstruction and ileostomy for post typhoid Ileal perforation, laparotomy with Graham's omentoplasty for perforated peritonitis via midline incision (Table 5). All of the patients with acute cholecystitis were treated conservatively and cholecystectomy was done after six weeks via Kocher incision. A total of 11 patients (3.6%) expired post-operatively and complications (Clavien-Dindo = IIIb) occurred in 51 patients (17%) including surgical site infection, Enterocutaneous fistula and abdominal burst.

4. Discussion

Acute abdominal pain is one of the most Common complaints of patients in the emergency department. It remains a diagnostic challenge for emergency clinicians and primary care doctors. The risks are missed diagnosis, over-investigation and even an undue intervention. All patients with abdominal pain do not require extensive diagnostic tests. Sometimes, detailed history and physical examination is sufficient to accurately diagnose the condition and treat accordingly. Patients may present vague complaints and varying associated symptoms that make it difficult to diagnose [5,6]. Abdominal pain can be the manifestation of a spectrum of diseases processes. Conditions that causes acute abdominal pain may vary from conditions need immediate intervention to relatively mild presentations need careful observation to avoid over investigation and unnecessary intervention.

In this study, frequency of acute abdomen in male was higher than female in most of the acute abdomen cases except for acute cholecystitis. In general, male to female sex ratio was 1,14:1. Male to female ratios in the most leading cause of acute abdomen like acute appendicitis,

Table 2
Distribution of symptoms and signs among the study patients.

Signs and symptoms	Frequency	Percentage
Abdominal pain	299	100
Nausea	291	97.3
Vomiting	265	88.6
Abdominal tenderness	295	98.7
Guarding of abdomen	233	77.9
Distention of abdomen	77	25.7

Table 3
Spectrum of disease in patients with acute abdomen.

Diagnosis	Number	Percentage (%)
Acute appendicitis	172	57.5
Acute intestinal obstruction	62	20.7
Acute cholecystitis	31	10.4
Acute pancreatitis	12	4
Peptic ulcer perforation	6	2
Mesenteric ischemia	5	1.7
Appendicular abscess	4	1.3
Subdiaphragmatic abscess	3	1
Ilium perforation	2	0.7
Jejunal perforation	1	0.3
Peptic ulcer hemorrhage	1	0.3
Total	299	100

Table 4
Distribution of diseases according to sex and their median age with age range.

Diagnosis	Male	Female	Range (years)	Median age (years)
Acute appendicitis	103	69	16–78	23
Acute intestinal obstruction	40	22	17–91	50
Acute cholecystitis	12	19	16–94	47
Acute pancreatitis	6	6	35–60	51.5
Peptic ulcer perforation	5	1	15–80	31
Mesenteric ischemia	1	4	45–75	48
Appendicular abscess	3	1	17–50	35
Subdiaphragmatic abscess	2	1	56–85	60
Ilium perforation	2	0	23–75	49
Jejunal perforation	1	0	47	47
Peptic ulcer hemorrhage	1	0	33	33

Table 5
Frequency of type of surgeries performed.

Type of surgery performed	Frequency	Percentage (%)
Open appendectomy	171	72.8
Laparotomy	56	23.9
Drainage of abscess	7	2.9
Pancreatic Necrosectomy	1	0.4
Total	235	100

intestinal obstruction and acute cholecystitis were 1.5:1, 1.8:1 and 0.6:1, respectively. The male dominance is similar to finding reported in a study conducted in country of Ethiopia [5]. The majority of patients were in their 2nd and 3rd decades of life which was a compatibility with previous study in other countries [2,5,6,8].

The most common symptom in our study was abdominal pain; 299 cases (100%) followed by nausea in 291 cases (97.3%) and vomiting in 265 cases (88.6%). Abdominal tenderness was the most common clinical sign in 295 cases (98.6%) followed by guarding in 233 cases (77.9%) and abdominal distention which is similar to other studies [2,6].

In current study we found that acute appendicitis is the most leading cause of acute abdomen accounting for 57.5% of total admission that is similar to other studies [1,2,5,6,8]. Second common cause was intestinal obstruction followed by acute cholecystitis. Similar findings were found in a study conducted by Rajesh poudel et al. [9]. A research study was conducted by Malviya A et al. where they found similar finding to our study that acute appendicitis to be most common cause of acute abdomen followed by intestinal obstruction, but they have found the hollow organ perforation more common than acute cholecystitis [10]. Similar findings were also found by Aijaz et al. in regard to frequency of acute appendicitis and intestinal obstruction but their study also showed that hollow organ perforation more common cause of acute abdomen than acute cholecystitis and this their finding also was contradicted with our study. May be, socio-economic and diet are the factors for observed

difference and analytical researches need to find out more reasons for this difference in the future.

The complications and mortality rate in our study were 17% and 3.6% which is comparable with other studies [2], [11]. This relatively high number of complications may be due to elderly age of patients, being late for their illness and comorbid conditions such as diabetes mellitus, hypertension, chronic obstructive pulmonary diseases and malignancy. Enterocutaneous fistula was also attributed to various diseases such as diabetes mellitus, chronic obstructive pulmonary diseases and malignancy.

Limitations associated with the present study warrant mention. This was a study performed at a single hospital with a small number of patients.

5. Conclusion

It is extremely important to develop the skill of identifying patients with acute abdomen requiring immediate surgical intervention. Acute abdomen is more common in 2nd and 3rd decades of life with male predominance, exception of acute cholecystitis. The leading cause of acute abdomen in this study was acute appendicitis followed by acute intestinal obstruction and acute cholecystitis. The causes of acute abdominal pain have a wide range and their relative incidence varies in different populations.

Ethical approval

Ethical approval was given by the Scientific Committee of the Research Department of Kabul University of Medical Sciences.

Sources of funding for your research

No funding was received for this study.

Author contribution

This study done by me, completely.

Registration of research studies

1. Name of the registry: [ClinicalTrials.gov](https://clinicaltrials.gov)
2. Unique Identifying number or registration ID: 05088200
3. Hyperlink to your specific registration (must be publicly accessible and will be checked): (you can search by: condition or diseases: Acute abdomen; 05088200, Ahmadullah Danish; country: Afghanistan in [clinicalTrials.gov](https://clinicaltrials.gov)).

Consent

In this research, patient's files that have already been treated and operated on and at the same time the operation agreement obtained have been used.

Guarantor

I accept full responsibility for the work, had access to the data and made decision to publish.

Provenance and peer review

Not commissioned, externally peer reviewed.

Declaration of competing interest

There is no conflict of interest in this study.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2021.103199>.

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