Pathology Teaching in an Integrated Pre-clinical Medical School Curriculum and Adaptations to COVID-19 Restrictions

Supplemental Appendix 2: Example LabCAPS Case Used in Large Group Online Format

Notes:

(1) Version shown is the one that facilitator used during large group Zoom presentation to the class. Except where noted below, screenshots are from the software itself (what the student would see as they work through case) but with facilitator responses inserted. The screenshots of laboratory results (pp. 23-26) are from what the facilitator ordered and then saw later resulted in the case workup.

(2) p. 4: Red and green highlighting added by facilitator to indicate pertinent symptoms/signs present (red) and absent (green). The version on p. 3 is what students would see as they did the case workup.

(3) pp. 5, 28: Differential diagnosis tree and annotations added by facilitator for teaching purposes.

(4) The software shows relative costs of diagnostic tests ($, $$, $$$, $$$$) as a guide to students. In the current software version, the students do not have a maximum cap or limit on diagnostic test ordering.

Labcaps Case 205

Case Number: 205

Clinical vignette

Initial hypotheses (text entry)

Goals/Directions/Resources

Help for: Prioritizing Diagnostic Hypotheses

Quit/return to list of cases

HISTORY
This 73-year-old Caucasian female presents to the clinic complaining of feeling tired all the time. She was well until approximately eight years ago when she was diagnosed by her previous doctor as having "rheumatism". Over the past four or five years her joint pain and stiffness has "slowed her down" considerably. She has felt increasingly weak and easily fatigued the past couple of months. She denies hematemesis, hemoptysis, and melena and has not noted any vaginal bleeding for 20 years.
GENERAL HEALTH: Good except for arthritis for 8 years duration.
CURRENT MEDICATIONS: A variety of over the counter non-steroidal anti-inflammatory drugs and aspirin for eight years.
SOCIAL HABITS: Patient does not smoke or drink.
FAMILY HISTORY: Mother had a diagnosis of rheumatoid arthritis.
PERTINENT REVIEW OF SYSTEMS:
LYMPH NODES: No history of lymphadenopathy.
BONES, JOINTS, AND MUSCLES: Patient has joint stiffness, and pain involving hands and knees especially in the morning. Pain decreases later in the day.
HEMOPOIETIC: Patient denies anemia in the past and has had no transfusions, bleeding or jaundice.
GASTROINTESTINAL SYSTEM: Patient has had a rather poor appetite lately, and intermittent epigastric pain that may or may not be associated with meals.

PERTINENT PHYSICAL FINDINGS:
VITAL SIGNS: Blood Pressure - 120/55 mmHg; respirations - 17/min.; pulse 110/min. and regular.
EYES: Arcus senilis is noted. No jaundice is seen.
ORAL CAVITY: unremarkable
RECTUM: No evidence of hemorrhoids, fissures, or fistulae. No tenderness or masses. Sphincter tone is good. Stool is of normal color and consistency.
BONES, JOINTS, AND MUSCLES: Joint deformity, enlargement, and tenderness is present in knees and hands. There is mild ulnar deviation of the fingers.

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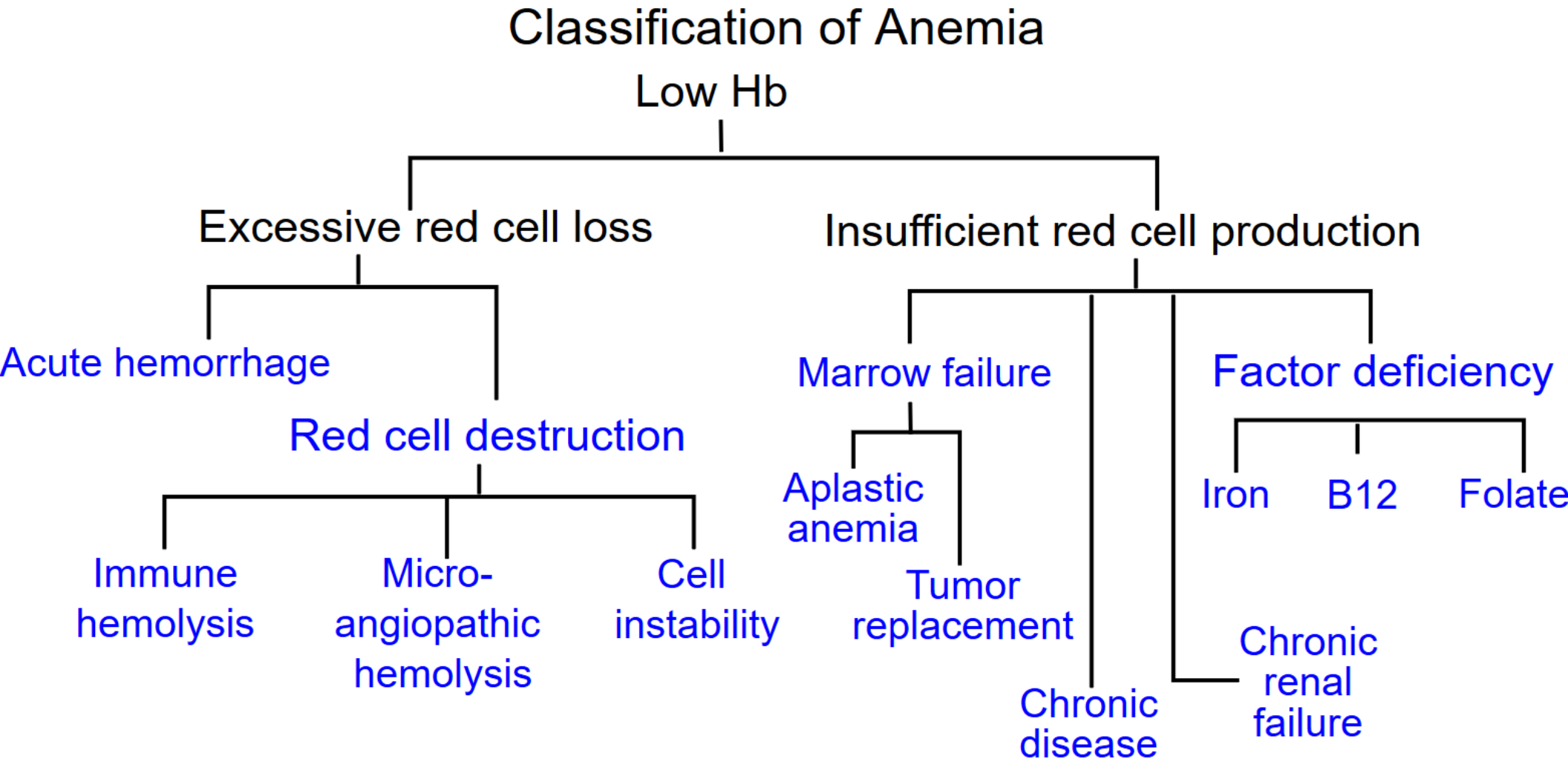
Classification of Anemia
Low Hb
Excessive red cell loss
Insufficient red cell production
Acute hemorrhage
Red cell destruction
Marrow failure
Factor deficiency
Immune hemolysis
Micro-angiopathic hemolysis
Cell instability
Aplastic anemia
Tumor replacement
Chronic disease
Chronic renal failure
Iron
B12
Folate

Initial Hypotheses
(see: **Help for Prioritizing Diagnostic Hypotheses**)

Click button when ready to finalize Finalize notes

In one or two sentences develop a **problem synthesis statement** including the chief complaint and pivotal points:

This 73 year old woman presenting with increased fatigue over the last few months. Her past medical history is positive for rheumatoid arthritis for the last 4-5 yrs for which she takes OTC NSAIDS. She denies any signs or symptoms of G.I., vaginal or other bleeding, though she has occasional postprandial epigastric pain and poor appetite.

Based on the clinical vignette, prioritize your diagnostic hypotheses in the three boxes below. Provide justification from the elements of the history and physical that support your hypotheses:

1. Leading diagnostic hypotheses/most-likely diagnoses:

Anemia of chronic disease
Rheumatoid arthritis

2. Active alternative diagnostic hypotheses:

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Iron deficiency anemia
Gastroduodenal ulcer
Pernicious anemia -> vitamin B12 deficiency
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3. Other diagnostic hypotheses:

```
Osteoarthritis
Aplastic anemia
```

Orders

Pathology Laboratory

Blood Center

- ☐ Antibody Screen (Indirect Coombs Test) $$
- ☐ Antibody Titration (IgM+IgG) $$
- ☐ Blood Type (ABO & Rh) $$
- ☐ Cold Agglutinin Titer $$
- ☐ Crossmatch $$
- ☐ Direct Coomb's Test (Direct Antiglobulin Test) $$
- ☐ Donath-Landsteiner Test $$$
- ☐ Fetal Hemoglobin Screen $$
- ☐ HLA Antibody Detection Assay $$$
- ☐ HLA Class I Typing $$$$
- ☐ Kleihauer-Betke test $$
- ☐ Platelet Antibody Screen Test $$$
- ☐ Pth related peptide

Chemistry

- ☐ Acid Phosphatase, Total $
- ☐ Alanine Aminotransferase (ALT) $
- ☐ Albumin $
- ☐ Alkaline phosphatase $
- ☐ Alpha Fetoprotein (nonpregnant) $$
- ☐ Ammonia $
- ☐ Amylase $
- ☐ Angiotension-1 Converting Enzyme (ACE) $
- ☐ Aspartate Aminotransferase (AST) $
- ☐ Beta Hydroxybuturate $
- ☐ Beta-2-Microglobulin $$
- ☐ Bilirubin, Direct $
- ☐ Bilirubin, Total $
- ☐ Erythropoietin $$$
- ☐ Fat; Fecal Quanitative $$
- ☑ Ferritin, serum $$
- ☐ Folate, red cell $
- ☐ Folate, serum $
- ☐ Free thyroxine (Free T4) $$
- ☐ Free Triiodothyronine (Free T3) $$
- ☐ Gamma Glutamyl transpeptidase $
- ☐ Gastric Acid Analysis $
- ☐ Gastrin, serum $
- ☐ Glucose (fasting) $
- ☐ Glucose Tolerance Test $
- ☐ Hemoglobin A1C (glycated hemoglobin) $$
- ☐ Osmolality $
- ☐ Parathyroid Hormone (Intact) $$$
- ☐ Phosphorus $
- ☐ Potassium $
- ☐ Prostate Specific Antigen (PSA) $$$
- ☐ Prostate Specific Antigen (PSA), free (includes total) $$$
- ☐ Protein Electrophoresis, Serum $
- ☐ Protein Electrophoresis, urine $$
- ☐ Sodium $
- ☐ Soluble Transferrin Receptor $
- ☐ Thyroglobulin antibody screen $$
- ☐ Thyroid Peroxidase (TPO) Antibody $$$
- ☐ Thyroid stimulating hormone (TSH) $$

- ☐ Blood Gases (Arterial) $$
- ☐ C-reactive protein $
- ☐ Calcium $
- ☐ Carbon Dioxide $
- ☐ Carcinoembryonic Antigen $$
- ☐ Chloride $
- ☐ Homocysteine, plasma $$
- ☐ Immunofixation electrophoresis serum & urine $$$
- ☐ Immunoglobulin A, Individual Quant $$
- ☐ Immunoglobulin D $$
- ☐ Immunoglobulin E, Individual Quantitation $$
- ☐ Immunoglobulin G, Individual Quant $$
- ☐ Thyroid stimulating hormone (TSH), with reflexive Free Thyroxine (FT4) $$$
- ☐ Thyroid-stimulating hormone receptor antibody, serum (TSH-R [stim] Ab)
- ☐ Thyroxine (T4) $$
- ☐ Total Protein $
- ☐ Triglycerides, serum $
- ☐ Triiodothyronine (T-3) $$

- ☐ Cholesterol LDL calculated at no charge if Cholesterol, Cholesterol HDL and Triglycerides are ordered and Triglicerides are >400mg/dl; must be fasting $
- ☐ Cholesterol LDL, measured $$
- ☐ Cholesterol, HDL $
- ☐ Cholesterol, serum $
- ☐ Creatinine $
- ☐ Creatinine Clearance $$
- ☐ Creatinine Kinase $
- ☐ Creatinine Kinase (CK) MB Isoenzyme (6 hr post baseline) $$
- ☐ Creatinine Kinase (CK) MB Isoenzyme (initial/baseline) $
- ☐ D-Xylose, Urine $$
- ☐ Immunoglobulin M, Individual Quant $$
- ☑ Iron (TIBC, %Sat) $
- ☐ Ketones $
- ☐ Lactate $
- ☐ Lactic dehydrogenase $
- ☐ Light Chains, Free, with K/L ratio, serum $$$
- ☐ Lipase $
- ☐ Magnesium $
- ☐ Methylmalonic acid, serum $$
- ☐ Myoglobin, plasma $$
- ☐ Troponin T $
- ☐ Urea Nitrogen (BUN) $
- ☐ Uric Acid $
- ☐ Vanillylmandelic Acid, urine $$
- ☐ Vitamin B12 $$
- ☐ Vitamin D 1,25 Dihydroxy
- ☐ Vitamin D, 25-Hydroxy
- ☐ Vitamin K $

Hematology

- ☑ CBC (RBC & indices, hemoglobin, hematocrit, platelets + WBC) $
- ☑ Differential WBC & Blood Smear $
- ☑ Fecal Occult Blood $
- ☐ Fetal Hemoglobin $$
- ☐ G6PD Screen $
- ☐ Heinz Bodies Test $
- ☐ Hematocrit $
- ☐ Hemoglobin $
- ☐ Hemoglobin evaluation/quantitation $$$
- ☐ Hemoglobin, plasma, free $
- ☐ Mononucleosis Test (Heterophil Antibody) $
- ☐ Osmotic Fragility $$$
- ☐ Platelet Count $
- ☐ Pyruvate Kinase Assay $$
- ☑ Reticulocyte cellular hemoglobin $
- ☑ Reticulocyte Count $
- ☐ Sedimentation Rate $
- ☐ Sickle Cell Screen $
- ☐ Sucrose Lysis Test $$
- ☐ White Cell Count $

Hemostasis

- ☐ ADAMTS13 Assay
- ☐ Alpha-2-Antiplasmin $$
- ☐ Antithrombin III $$
- ☐ Bleeding Time (Standardized Ivy) $
- ☐ Coagulation Factor Inhibitor (Factor VIII inhibitor) $
- ☐ D-Dimer $
- ☐ Euglobulin Clot Lysis $
- ☐ Factor II $$
- ☐ Factor IX $$
- ☐ Factor V $$
- ☐ Factor V (Leiden) $$$
- ☐ Factor VII $$
- ☐ Factor VIII $$
- ☐ Factor X $$
- ☐ Factor XI $$
- ☐ Factor XII $$
- ☐ Fibrin Degradation Products (FDP) $
- ☐ Fibrinogen $
- ☐ Lupus anti-coagulant evaluation $
- ☐ Mixing Study $
- ☐ Partial Thromboplastin Time (PTT) $
- ☐ Plasminogen Assay $$
- ☐ Platelet aggregation study $$$
- ☐ Platelet Function Analysis $
- ☐ Protein C Functional $$
- ☐ Protein S Functional $$
- ☐ Prothrombin gene mutation $$$
- ☐ Prothrombin Time (PT) $
- ☐ Thrombin Time $
- ☐ von Willebrand Antigen Assay $$$
- ☐ von Willebrand Factor Assay $$
- ☐ von Willebrand Multimeric Analysis $$$

Immunology

- ☐ Acetylcholine Receptor Binding Antibody $$$
- ☐ Acetylcholine Receptor Modulating Antibody $$$
- ☐ Adrenal Cortex Antibody $$$
- ☐ Alpha-1-Antitrypsin Quantitation $$
- ☐ ANCA (anti-neutrophil cytoplasmic antibody) screen $$$
- ☐ Anti-glomerular basement membrane (GBM) antibody $$$
- ☐ Anti-nuclear antibody (ANA) screen $$
- ☐ Bordetella Pertussis PCR (nasophryngeal swab) $$$
- ☐ C1-Esterase Inhibitor $$
- ☐ Cardiolipin antibody IGG & IGM $$
- ☐ Ceruloplasmin $$
- ☐ CMV Antibody IgG Class $$
- ☐ CMV Antibody IgM Class $$
- ☐ CMV Antibody, IgG &IgM $$
- ☐ Farmer's Lung Serology $$$
- ☐ Flow Cytometry on blood for CLL: CD2, CD3, CD5, CD23, CD38, Kappa/Lambda, Zap70 $$$
- ☐ Gliadin IgG & IgA AB. $$
- ☐ Haemophilus Influenzae AB $$$
- ☐ Haptoglobin $$
- ☐ Hepatitis A Antibody,Total (IgG & IgM) $$
- ☐ Hepatitis A Antibody-IgM Class $$
- ☐ Hepatitis B Core Antibody Total (IgG & IgM) $$
- ☐ Hepatitis B Core Antibody, IgM $$
- ☐ Hepatitis B e Antibody $$
- ☐ Hepatitis B Surface Antibody $$
- ☐ Hepatitis B Surface Antigen $$
- ☐ Hepatitis B Virus DNA, quantitative $$$$
- ☐ Hepatitis B, e Antigen $$
- ☐ Liver-Kidney Microsomal(LKM) $$
- ☐ Mitochrondrial Antibody $$
- ☐ Myelin Basic Protein $$
- ☐ Myeloperoxidase (MPO) antibody $$$
- ☐ Parathyroid Antibody $$
- ☐ Parietal Cell Antibody $$
- ☐ Paroxysmal Nocturnal Hemoglobinuria (PNH) $$
- ☐ Pemphigus/Pemphigoid/EBA AB $$$
- ☐ PM-1 Antibody $$
- ☐ Pneumococcal ABS $$
- ☐ Prealbumin $$
- ☐ Proteinase 3 (PR-3) Antibody $$$
- ☑ Rheumatoid Factor $$
- ☐ SCL-70 antibody $$

- ☐ Complement Component C1q $$$
- ☐ Complement Component C3 $$
- ☐ Complement Component C4 $$
- ☐ Complement, Total Classical, Hemolytic (CH50) $$$
- ☐ Cryoglobulin $$
- ☐ Cyclic Citrullinated Peptide (CCP) Antibody $$
- ☐ Diphteria Antibody $$$
- ☐ Dnase B Antibody
- ☐ Double stranded DNA Antibody $$
- ☐ EBV antibody panel $$
- ☐ Endomysial Antibody IgA Screen $$
- ☐ Endomysial Antibody IgG Screen $$
- ☐ Hepatitis C Antibody $$
- ☐ Hepatitis C genotype $$$$
- ☐ Hepatitis C Recombinant Immunoblot (HCVRIB) $$$
- ☐ Hepatitis C Virus RNA $$$
- ☐ Histone Antibody $$$
- ☐ HIV Antibody, Type 1&2 by ELISA $$
- ☐ HIV Confirmatory test (Western Blot) $$$
- ☐ HIV Viral Load by PCR $$
- ☐ HIV-1 Proviral DNA, Qualitative, PCR $$$
- ☐ HTLV-1 Antibody $$
- ☐ Intrinsic Factor Antibody $$$
- ☐ Islet Cell Antibody $$$
- ☐ Smith antibody $$
- ☐ Smooth Muscle Antibody $$
- ☐ SS-A antibody (anti-RO) $$
- ☐ SS-B antibody (anti-LA) $$
- ☐ Streptococcus pyogenes group A Antibody (Streptozyme)
- ☐ Streptolysin 0 Antibody (ASO) $$
- ☐ Striated Muscle Antibody $$$
- ☐ Tetanus Antibody $$$
- ☐ Transferrin $$
- ☐ UC-ANCA Screen $$$

Microbiology

- ☐ Culture, sputum, aerobic bacterial $$
- ☐ Culture, blood $$
- ☐ Culture, Bone Marrow $$
- ☐ Culture, sputum, acid fast bacilli, includes AFB stain $$
- ☐ Culture, sputum, fungus, includes a stain for fungus $$
- ☐ Culture, throat, for Group A beta hemolytic streptococcus $$
- ☐ Helicobacter, stool antigen $$
- ☐ Helicobacter, breath test $$$
- ☑ Helicobacter, on biopsy (must order endoscopy)
- ☐ Helicobacter, serum IgG antibody $$
- ☐ Quantiferon TB Gold (blood) $
- ☐ Rapid strep screen, throat swab $$

Molecular Pathology

- ☐ FISH prognostic probes for CLL (Cep[trisomy 12], del[11q], del[13q],and del[17p]) $$$$
- ☐ Hemochromatosis, DNA Testing $$

Urinalysis

- ☐ Hemosiderin, Urine $
- ☐ Pregnancy Test, urine $
- ☐ Protein, Urine Quantitation $$
- ☐ Urinalysis Screen $
- ☐ Urine Microscopic Exam $

Procedures

Cardiology

- ☐ Electrocardiagram $$

Dermatology

- ☐ Biopsy, lesional skin $$
- ☐ Biopsy, nonlesional skin $$

Gastroenterology

- ☐ Basal & maxium gastric acid $
- ☐ Biopsy, liver $$$$$
- ☐ Biopsy, liver + iron content and index $$$$$
- ☐ Biopsy, small intestine $$$$
- ☐ Colonoscopy, with biopsy if indicated $$$$$
- ☑ Endoscopy, upper GI with biopsy if indicated $$$$$
- ☐ ERCP (endoscopic retrograde cholangiopancreatography) $$$$$
- ☐ Peritoneal tap, cytology $$$$
- ☐ PTC - Percutaneous transhepatic cholangiogram $$$$$
- ☐ Secretin test $$$

General Aspirate(FNA) / Needle Biopsy

- ☐ Abdominal mass or lymph node - CT guided needle $$$$
- ☐ Breast mass by needle $$$$
- ☐ Lymph node - peripheral/superficial by needle $$$$
- ☐ Thyroid fine needle aspiration

General Surgical

- ☐ Lymph node or mass - surgical biopsy $$$$
- ☐ Parathyroidectomy (intraoperative post excision PTH assessment) $$$$$$$
- ☐ Thyroidectomy $$$$$

Gynecology

- ☐ Biopsy, endometrial $$$
- ☐ HPV - Human papilloma virus, cervical brush specimen (SurePath method) $$$
- ☐ Pap Test - Liquid Based Collection (AutoCyte method) $
- ☐ Culposcopy with cervical biopsy $$$$
- ☐ PAP smear, cervical $

Hematology

- ☑ Bone Marrow $$$$

Neurologic

- ☐ Cell Count & Diff $
- ☐ CSF Cytology $
- ☐ CSF Total Protein $
- ☐ CSF Culture $
- ☐ CSF Glucose $

Pulmonary

- ☐ Biopsy, lung $$$$$
- ☐ Bronchoscopy and biopsy $$$$$
- ☐ Bronchioalveolar lavage for cytology and pathogenic organisms $$$
- ☐ Thoracentesis, cytology $$$$$

Urology & Renal

- ☐ Biopsy (needle), prostate $$$$$
- ☐ Biopsy, kidney $$$$$$
- ☐ Cystoscopy, with cytology & biopsy if indicated $$$$
- ☐ Biopsy, bladder $$$$$
- ☐ Bladder wash for cytology $$$$

Radiology/Nuclear Medicine

Nuclear Medicine

- ☐ Bone Scan $$$$
- ☐ Hepatic iminodiacetic acid scan (HIDA) $$$$
- ☐ Imaging for GI bleed $$$$
- ☐ Red Cell Survival $$$$
- ☐ Renal Scan $$$$
- ☐ Schilling Test $$$
- ☐ Schilling Test and Antibiotics $$$
- ☐ Schilling Test and Intrinsic factor $$$
- ☐ VQ Scan $$$$

Radiology

- ☐ Abdominal Arteriography $$$$$
- ☐ Barium enema $$$$
- ☐ Carotid Angiogram $$$$$
- ☐ CT angiography, lung (spiral CT) $$$$$
- ☐ CT scan abdomen $$$$$
- ☐ CT scan chest $$$$
- ☐ CT scan head $$$$
- ☐ CT scan of neck $$$$$
- ☐ CT scan pelvis $$$$$
- ☐ Doppler, lower extremity $$$
- ☐ Esophogram $$$
- ☐ IVP $$$
- ☐ Mammogram $$$
- ☐ MRCP Magnetic resonance cholangiopancreatography $$$$$
- ☐ MRI head $$$$
- ☐ MRI neck $$$$
- ☐ MRI, Lumbar spine $$$$$
- ☐ PET scan $$$$
- ☐ PET/CT scan for cancer staging $$$$$
- ☐ Sestamibi $$$$
- ☐ Ultrasound - abdomen $$$$
- ☐ Ultrasound - chest $$$$
- ☐ Ultrasound - gallbladder/biliary tree $$$$
- ☐ Ultrasound - liver $$$$
- ☐ Ultrasound - Neck $$$$
- ☐ Ultrasound - pancreas $$$$
- ☐ Ultrasound - pelvic $$$$
- ☐ Upper GI $$$
- ☐ Upper GI small bowel follow through $$$$
- ☐ x-ray absorptiometry, dual-energy $$$
- ☐ X-ray face and sinuses $$$
- ☐ X-ray, abdomen $$$
- ☐ X-ray, bone survey (spine, pelvis, skull, long bones) $$$$
- ☐ X-ray, chest $$$
- ☐ X-ray, hands $$$
- ☐ X-ray, knees $$$
- ☐ X-ray, lumbar spine $$$

Results

CBC (RBC & indices, hemoglobin, hematocrit, platelets + WBC)

RBC 2.9 million/mm3

male 4.4-6.2 million/mm2
female 4.2-5.4 million/mm2

MCHC 26 g/dl — 32-36 g/dl
MCH 16 picograms — 27-32 picograms
MCV 61 femtoliters — 82-99 femtoliters
RDW 17.5% — 9.0-14.6%

Hematocrit

18%

	male	female
adult	40-52%	35-47%

Hemoglobin

4.6 g/dl

	male	female
adult	13.2-17.7 g/dl	11.9-15.5 g/dl

White Cell Count

8.1 Thousand/mm3

adult 3.7-10.5 Thousand/mm3

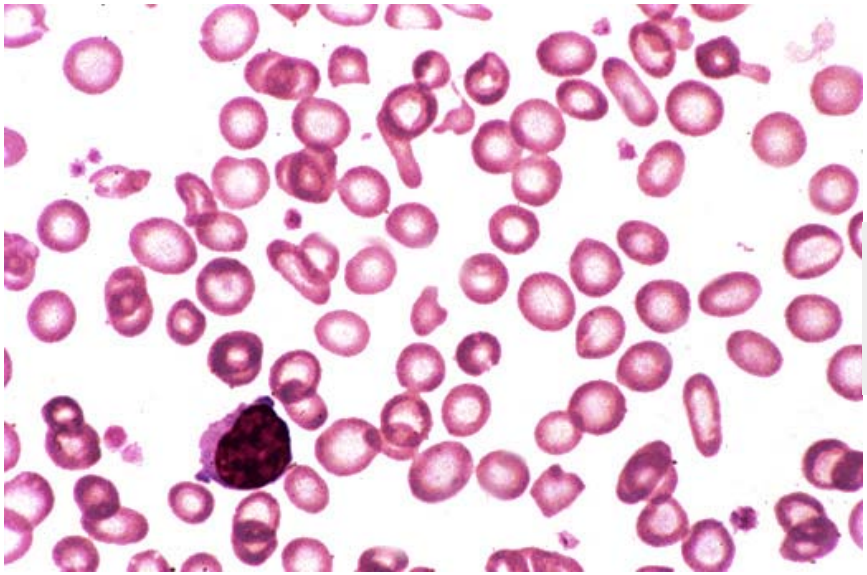
Platelet Count

450 thousand/mm3

150-400 thousand/mm3

Differential WBC & Blood Smear

Neutrophils	4993/mm3	2188-7800/mm3
Eosinophils	234	40-390
Basophils	93	10-136
Monocytes	512	130-860
Lymphocytes	2400	590-3200
Abnormal White Blood Cells	0	



BLOOD SMEAR COMMENT: Erythrocytes appear hypochromic and microcytic. Occasional elliptocytes are seen. Platelet and WBC morphology are unremarkable.

Reticulocyte Count

13k/mm3

male 37-121 k/mm3
female 12-128 K/mm3

Ferritin, serum

15 ng/ml

male 22-322 ng/ml
female 10-291 ng/ml

Iron (TIBC, %Sat)

Iron 14 mcg/dl
TIBC 350 mcg/dl
%Sat 4%

72-130 mcg/dl
224-429 mcg/dl
27-44%

Fecal Occult Blood

Positive

Endoscopy, upper GI with biopsy if indicated

A benign ulcer is present with chronic inflammation and scar. Negative for malignancy. Helicobacter is negative by H&E and CLO (urease) test.

Rheumatoid Factor

170 IU/ml	< 40 IU/ml

X-ray, hands

Hand films show space narrowing, erosions, new bone formation, subluxation and deformity. Suggest rheumatoid arthritis.

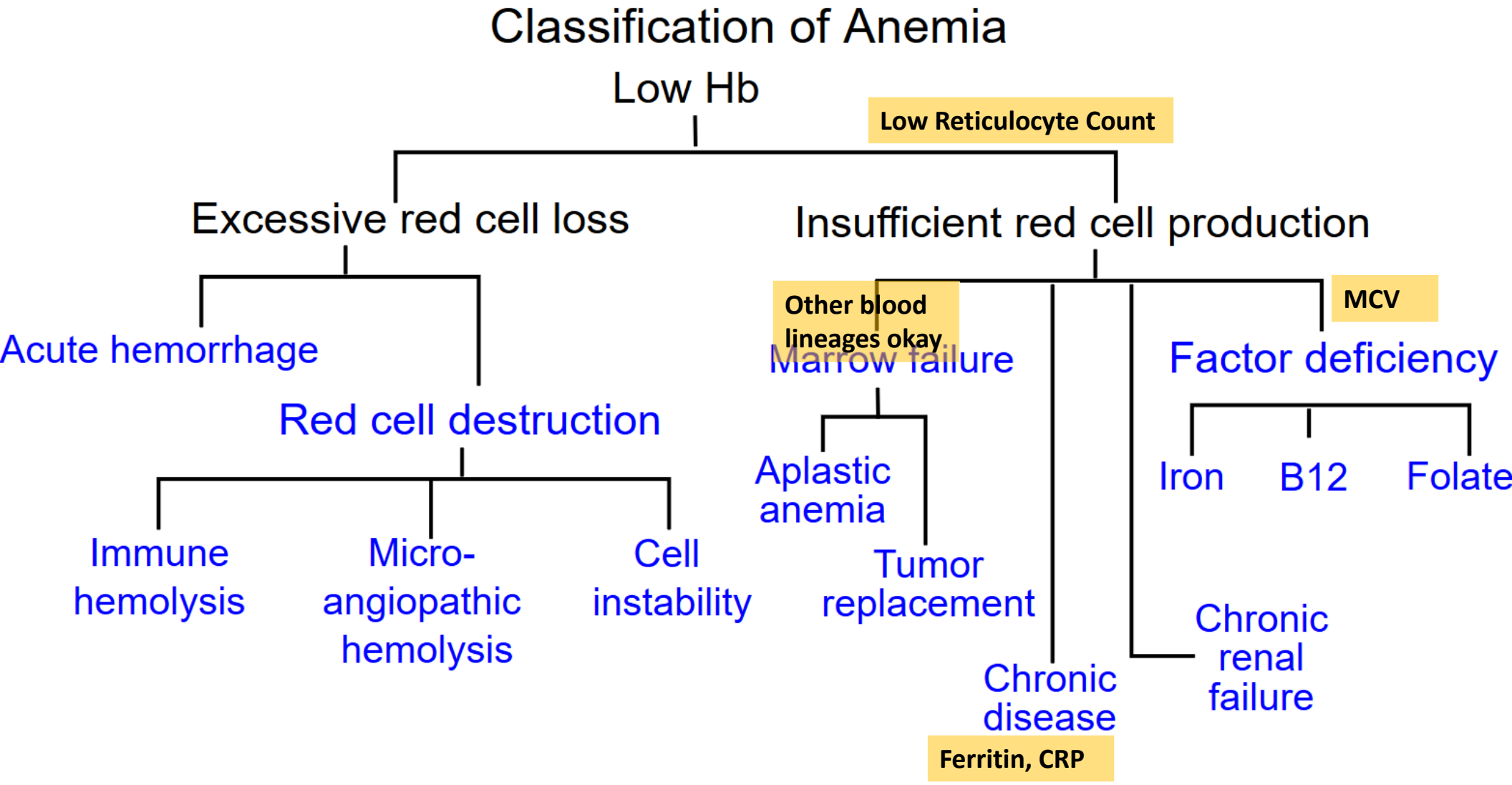
C-reactive protein

3.0 mg/dl	< 0.5 mg/dl

Sedimentation Rate

30 mm/hr	0-15 mm/hr

Diagnosis


Classification of Anemia
Low Hb
Low Reticulocyte Count
Excessive red cell loss
Insufficient red cell production
Acute hemorrhage
Red cell destruction
Immune hemolysis
Micro-angiopathic hemolysis
Cell instability
Other blood lineages okay
Marrow failure
Aplastic anemia
Tumor replacement
Chronic disease
Ferritin, CRP
MCV
Factor deficiency
Iron
B12
Folate
Chronic renal failure

Reprioritize check boxes if appropriate. Then continue with your workup.

If you make changes, **Save** when finished..

1. Leading diagnostic hypotheses
2. Active alternative diagnostic hypotheses
3. Other diagnostic hypotheses

1	2	3	
◉	○	○	Rheumatoid arthritis
○	○	◉	Vitamin B12 deficiency (pernicious anemia)
○	○	◉	Aplastic anemia
○	◉	○	Anemia of chronic disease
○	○	◉	Osteoarthritis
◉	○	○	Iron deficiency anemia
◉	○	○	Peptic ulcer, with G.I. bleeding

Reprioritize

Review this summary of your workup and then go to **Choose treatment options**.
You will then be able to see an interpretation of the case.

Expert diagnoses

- Rheumatoid arthritis
- Iron deficiency anemia
- Peptic ulcer, with G.I. bleeding

Your diagnoses

- Rheumatoid arthritis
- Anemia of chronic disease
- Iron deficiency anemia
- Peptic ulcer, with G.I. bleeding

Cost Effectiveness/efficiency

Expert costs = $385
Expert test ordering encounters =

Your costs = $2,676
Your test ordering encounters = 1

Treatment

Choose final management

- [x] Ferrous sulfate
- [x] Proton pump inhibitor
- [x] Withdraw or change drug therapy
- [ ] Additional treatment is not indicated
- [ ] Folic acid
- [ ] H2 antagonists
- [ ] Vitamin B12 injections followed by oral mega-dose B12 or B12 nasal spray for life with periodic B12 blood level check

Save choices