Approach to Gastrointestinal Bleeding

1. PRESENTATIONS & CAUSES

Upper GI Bleed (UGIB) → proximal to Ligament of Trietz

- Presentations:
  - Hematemesis
  - Coffee ground emesis → from blood sitting in stomach
  - Melena → digested blood; tarry black stool
  - BRBPR → brisk bleeds
- Causes based on location:
  - PROXIMAL TO ESOPHAGUS
    - Leads to swallowed blood = coffee ground emesis or melena
      - #1 cause = Epistaxis
  - ESOPHAGUS:
    - Causes:
      - Inflammation (Esophagitis)
        - Sx of GERD → positional, retrosternal CP (worse supine), worse post-prandial
        - Small volume bleeds (hematemesis, CGE, melena)
      - Tear (Mallory-Weiss)
        - From repeated vomiting episodes → vomit streaked with blood
        - Small volume bleeds (hematemesis, CGE, melena)
  - Esophageal Varices (most dangerous)
    - Associated with cirrhosis + portal HTN
    - Hx of liver injury (infection, EtOH abuse, meds)
    - Large volume, continuous bleeds (hematemesis, melena, ++brisk bleeding = BRBPR)
  - STOMACH:
    - Inflammation → Gastritis
      - Sx of GERD
      - Small volume bleeds (hematemesis, CGE, melena)
    - Gastric Varices
      - From cirrhosis + portal HTN
      - Similar to esophageal varices → can be large volume, brisk bleed
  - DUODENUM
    - Inflammation → Duodenitis
      - Sx of GERD
      - Small volume = hematemesis, CGE, melena
    - Peptic Ulcer Disease:
      - Hx of smoking, EtOH, NSAIDs + post-prandial epigastric pain
      - Small (melena) or large (BRBPR) volume bleeds

Lower GI Bleeds (LGIB) → distal to Ligament of Trietz

- Presentations:
  - Hematochezia (blood mixed with stool)
  - BRBPR
- Causes:
  - Inflammation (Colitis)
    - Presentation = hematochezia
    - Causes:
      - Autoimmune (IBD)
        - Repeated bloody BMs with abdo pain + fever ± EIM (skin, joints)
      - Infectious
        - Cause invasion of mucosa → sloughing of mucosa causes bleeding
        - Common pathogens = Yersina, Shigella, Campylobacter, Salmonella, E.Coli
        - Sx = abdo pain, fever, bloody diarrhea/hematochezia
  - Ischemic
Blood supply = mucosal sloughing off → bleeding
- Causes → atherosclerosis, embolism (ie. AFib)
- Sx → severe abdo pain, look unwell

- Growth/Tumour
  - Usually small volume bleeds
- Diverticulosis
  - Most common LGIB cause
  - Diverticuli = outpouching of colon mucosa through weakness of muscular layer of colon wall
    - Can get inflamed (Diverticulitis)
    - Can bleed
  - Most commonly found in sigmoid colon → BRBPR
  - Sx = bleeding with NO abdo pain
- Tears:
  - Haemorrhoids
    - RFs = constipation/straining with BMs
    - Internal:
      - Sx = painless, BRBPR during BM (in toilet bowl, wiping)
  - Fissures
    - Sx = ++painful, BRBPR during BM

General Causes of UGIB + LGIB
- Vascular
  - Most common = Angiodysplasia (vascular malformations)
    - Can occur anywhere along GI tract
    - Vessel wall = thin + friable → bleed
    - Dieulafoy lesion = angiodysplasia of small vessel in stomach
    - Presentation (location dependent) → hematemesis, CGE, melena, BRBPR
  - Aortoenteric fistula → rare but deadly
    - Previous surgical aortic graft erodes into GI tract = blood from aorta into GI tract → ++ brisk bleeding
    - Hx of aortic repair
- Bleeding disorder
  - Congenital
    - Hx = Usually multiple sites of bleeding in addition to GI (gums, hemarthrosis, hematuria, etc.), FHx
  - Acquired (ie. warfarin)
    - Similar presentation as congenital, but offending agent present

2. INVESTIGATIONS

Blood work → CBC, Coag profile, BUN, Cr, Lactate, VBG
- CBC:
  - Plat → r/o bleeding disorder (ie. thrombocytopenia)
  - Hgb → quantifying bleeding
  - WBC → inflammatory process (colitis)
- INR/PTT: on anticoagulants, cirrhosis
- BUN → blood sitting in GI tract → degradation → blood reabsorption → ↑BUN
- Cr → if dehydrated from hypovolemia
- Ischemic Colitis:
  - ↑Lactate (gut ischemia)
  - Metabolic acidosis (VBG)
- Type & screen, cross match

Imaging:
- ECG → for severe GI bleeds with CAD-like Sx (CP, SOB) → look for cardiac ischemia
- XRay → usually normal
  - Useful in perforation, bowel obstructions, foreign body
  - CXR → look for free air under diaphragm in perforations
• CT (requires hemodynamically stable patient)
  o In UGIB → Dx of varices, perf ulcer, duodenitis/gastritis, aortoenteric fistula
  o In LGIB → Dx of colitis, tumor, diverticuli
  o Unable to determine of bleeding = active

Special tests:
• Rectal exam → FOBT, fissure, haemorrhoids
• Anoscope → can look for fissure, haemorrhoids
• Endoscopy:
  o Upper GI (EGD) → can see from esophagus to proximal duodenum
  o Lower GI (colonoscopy)
    ▪ Need bowel prep (++) time → difficult in ED d/t prep time, and in massive bleeds (poor visualization)
• Capsule endoscopy (not useful for significant bleeds in ED)
• Nuclear imaging → tags RBCs (rarely performed)

3. TREATMENT:

Empiric:
  o General ABC approach → ensure patient is:
    ▪ Protecting airway
    ▪ Ventilating & oxygenating
    ▪ Circulation → good BP & perfusion
  o Initial resuscitation with IV crystalloids (RL, NS)
    ▪ Blood for larger amounts
  o If on anticoagulant → give reversal agents

Specific:
• UGIB:
  o Esophagitis/gastritis/duodenitis (small volume bleeding)
    ▪ Stop exacerbating factors (NSAIDs, EtOH)
    ▪ No urgent/specific tx
    ▪ Antacid tx
  o Mallory-Weiss tear (small volume bleeding)
    ▪ No specific tx
    ▪ Investigations focuses on etiology of ++ vomiting
    ▪ Usually settles with ↓vomiting
  o Esophageal/gastric varices (large volume bleeding)
    ▪ Direct treatment = during endoscopy (injected vs banded)
    ▪ Medical → octreotide (blood flow to gut), abx (fluoroquinolone for cirrhotics)
    ▪ Last resort if brisk bleeds = Blakemore tube (balloon tamponade)
  o PUD → can be quick/large volume bleeds
    ▪ Direct treatment = during endoscopy (allows identification of vessel)
    ▪ Medical → PPI
    ▪ If perforation d/t ulcer → general surgery

• LGIB:
  o Colitis
    ▪ Infectious
      o Tx = identify organism → appropriate abx/antifungal/antivirals
      ▪ Obtain stool culture (C&S, O&P)
    ▪ Inflammation → IBD
      o Tx = bowel rest (NPO), IVF, steroids
    ▪ Ischemia
      o Tx = bowel rest (NPO), abx +/- surgery
  o Tumour
    ▪ No specific ED tx
    ▪ If causing obstruction → admit for surgery (NPO)
- **Diverticulosis**
  - Embolization via IR
  - Surgery for resection
- **Fissures/haemorrhoids**
  - constipation via fiber + stool softener
  - Steroid cream → hemorrhoid bleed
    - Nitro/CCB (diltiazem) cream → fissures
- **UGIB or LGIB**
  - **Angiodysplasia**
    - Cauterization vs colonoscopy (not in ED → requires bowel prep)
  - **Aortoenteric fistula**
    - Emergent surgery
    - No ED tx → ++ fluids & blood

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