<u>Approach to Gastrointestinal Bleeding</u>

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
        - <u>Small volume</u> bleeds (hematemesis, CGE, melena)
      - Tear (**Mallory-Weiss**)
        - From repeated vomiting episodes → vomit streaked with blood
        - <u>Small volume</u> bleeds (hematemesis, CGE, melena)
      - **Esophageal Varices** (most dangerous)
        - Associated with cirrhosis + portal HTN
        - Hx of liver injury (infection, EtOH abuse, meds)
        - <u>Large volume</u>, continuous bleeds (hematemesis, melena, ++brisk bleeding = BRBPR)
  - STOMACH:
    - Inflammation → **Gastritis**
      - Sx of GERD
      - <u>Small volume</u> bleeds (hematemesis, CGE, melena)
    - **Gastric Varices**
      - From cirrhosis + portal HTN
      - Similar to esophageal varices → can be <u>large volume</u>, brisk bleed
  - DUODENUM
    - Inflammation → **Duodenitis**
      - Sx of GERD
      - <u>Small volume</u> = hematemesis, CGE, melena
    - **Peptic Ulcer Disease**:
      - Hx of smoking, EtOH, NSAIDs + post-prandial epigastric pain
      - <u>Small</u> (melena) or <u>large</u> (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
        - <u>Dieulafoy lesion</u> = angiodysplagia of small vessel in <u>stomach</u>
        - 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)
    - In UGIB → Dx of varices, perf ulcer, duodenitis/gastritis, aortoenteric fistula
    - In LGIB → Dx of colitis, tumor, diverticuli
    - Unable to determine of bleeding = active

Special tests:

- Rectal exam → FOBT, fissure, haemorrhoids
- Anoscope → can look for fissure, haemorrhoids
- Endoscopy:
    - Upper GI (EGD) → can see from esophagous to proximal duodenum
    - Lower GI (colonscopy)
        - 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:

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

Specific:

- **UGIB**:
    - **Esophagitis/gastritis/duodenitis** (small volume bleeding)
        - Stop exacerbating factors (NSAIDs, EtOH)
        - No urgent/specific tx
        - Antacid tx
    - **Mallory-Weiss tear** (small volume bleeding)
        - No specific tx
        - Investigations focuses on etiology of ++ vomiting
        - Usually settles with ↓vomiting
    - **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)
    - **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**:
    - **Colitis**
        - Infectious
            - Tx = identify organism → appropriate abx/antifungal/antivirals
                - Obtain stool culture (C&S, O&P)
        - Inflammation → IBD
            - Tx = bowel rest (NPO), IVF, steroids
        - Ischemia
            - Tx = bowel rest (NPO), abx +/- surgery
    - **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 colonscopy (not in ED → requires bowel prep)
  - **Aortoenteric fistula**
    - Emergent surgery
    - No ED tx → ++ fluids & blood

Summarized by Alex Mungham, Dr. Stella Yiu