Upper Gastrointestinal Bleeding

Upper gastrointestinal bleeding refers to hemorrhage originating **proximal to the ligament of Treitz**, including the esophagus, stomach, and duodenum. It is a **medical emergency** with the potential for significant morbidity and mortality.

Epidemiology

- Incidence: ~0.1% of the general population annually.
- UGIB is approximately **four times more common** than lower GI bleeding.
- Despite advances in endoscopic and medical therapy, **3–15% of patients** may still require surgical intervention.

Etiology and Differential Diagnosis

Common Causes

1. **Peptic ulcer disease (gastric and duodenal)**
2. **Esophageal or gastric varices** (often due to portal hypertension)
3. **Mallory-Weiss tears**
4. **Esophagitis, erosive gastritis**
5. **Upper GI malignancies** (e.g., gastric or esophageal cancer)
6. **Dieulafoy lesions**
7. **Vascular malformations** (e.g., angiodysplasia)
8. **Aortoenteric fistula** (rare but fatal)
9. **Hemobilia or pancreatic sources (pseudoaneurysm)**

Risk Factors

- **NSAID use**
- **H. pylori infection**
- **Alcohol abuse**
- **Cirrhosis or portal hypertension**
- **Previous history of ulcers or GI bleeding**
- **Coagulopathies**

Clinical Presentation

Classic Symptoms

- **Melena** (black tarry stool): 70–80%
- **Hematemesis** (vomiting of blood): 40–50%
- **Hematochezia** (bright red blood per rectum): suggests brisk bleeding
- **Presyncope/Syncope** in hemodynamically unstable patients

Associated Symptoms (preceding days)

- Dyspepsia, epigastric pain, heartburn
- Dysphagia
- Weight loss
- Jaundice (in hepatic etiology)

Initial Assessment & Resuscitation (ABCs)

1. **Airway:** Secure airway early if risk of aspiration exists.
2. **Breathing & Circulation:**
    - 2 large-bore IV lines
    - Fluid resuscitation: 3:1 rule (3 mL crystalloid for every 1 mL blood loss)
    - Monitor vital signs: HR <120 bpm, SBP >90 mmHg
    - Insert Foley catheter: Monitor urine output (>30 mL/hr)
    - Continuous monitoring: CVP, O? sat, BP, and mental status

Diagnostic Evaluation

Nasogastric Tube Lavage

- Helps differentiate upper vs lower GI bleeding.
- Presence of bile without blood suggests a non-upper source.

Endoscopy (Esophagogastroduodenoscopy, EGD)

- **First-line diagnostic and therapeutic tool.**
- Ideally performed within **24 hours**, or emergently if unstable.
- Allows localization and immediate intervention.

Endoscopic Hemostatic Techniques

1. **Injection therapy:**
    - **Epinephrine** (1:10,000 dilution): vasoconstriction & tamponade
    - **Saline**: tamponade effect alone
2. **Sclerosants:**
    - **Absolute ethanol, polidocanol**, **sodium tetradecyl sulfate**
    - Induce thrombosis, inflammation, and necrosis
3. **Thermal coagulation:**
    - Bipolar/multipolar electrocoagulation, heater probe, argon plasma coagulator
4. **Mechanical:**
    - **Band ligation** (especially for varices)
    - **Hemostatic clips**
5. **Topical agents:**
    - Biological glues (e.g., fibrin sealants)
    - Hemostatic powders

Pharmacologic Therapy

- **IV Proton Pump Inhibitors (PPIs):**
  - Omeprazole, pantoprazole
  - Decreases rebleeding risk in ulcers
- **Vasoactive agents** for varices:
  - **Octreotide** or **terlipressin**

Surgical Indications

Surgery is considered when:

1. **Massive or persistent bleeding** despite endoscopic and pharmacologic therapy
2. Hemodynamic instability not responsive to resuscitation
3. Bleeding with signs of **perforation, obstruction**, or suspected malignancy
4. Ongoing transfusion needs or blood loss >50% of blood volume
5. Recurrent bleeding requiring **second hospitalization**

Surgical Options

Duodenal Ulcers

- **Truncal vagotomy + pyloroplasty + suture ligation**
- **Truncal vagotomy + antrectomy**
- **Highly selective vagotomy + duodenostomy**

Gastric Ulcers

- Often treated with **distal gastrectomy** (including ulcer)

Options include:

1. Truncal vagotomy + pyloroplasty + wedge resection
2. Antrectomy + ulcer excision
3. Distal gastrectomy ± vagotomy
4. Wedge resection alone (select cases)

Complications

- Rebleeding
- Hypovolemic shock
- Perforation
- Multi-organ failure
- Death (mortality rate 5–10%)

Key Points

- Melena = upper GI bleed until proven otherwise
- Hematemesis = almost always upper GI source
- Early endoscopy is the gold standard
- PPIs reduce the risk of rebleeding in ulcers
- Octreotide for variceal bleeding
- ABCs and volume resuscitation are the first priorities
- NSAIDs + H. pylori are the most common causes of PUD-related bleeding