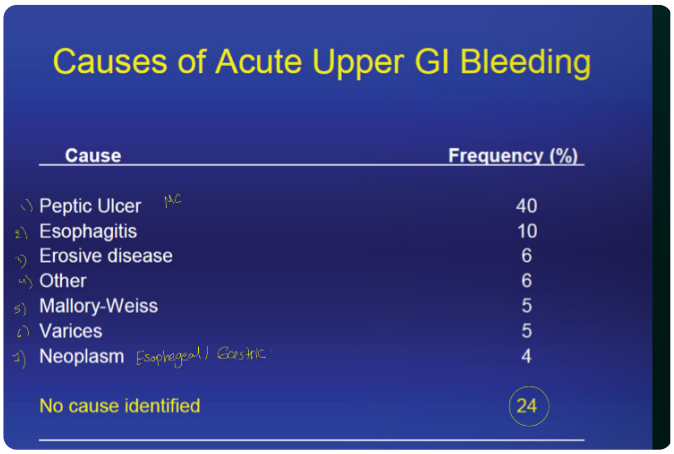
Upper Gastrointestinal Bleeding (UGIB)

Definition

- UGIB = **Bleeding proximal** to the:
- **Ampulla of Vater**
- Or more precisely **Ligament of Treitz**
- ➡️ **Accounts for ~50% of all GI bleeding.**
- ➡️ **#1 Most common cause (MC) : PUD**



Areas Involved

- **Esophagus**
- **Gastric (Stomach)**

Signs and Symptoms of UGIB

- **Hematemesis** (vomiting blood)
- **Melena** (black, tarry stool) , identified by PR
- **Dizziness**
- **Upper abdominal pain** (think **peptic ulcer disease**)
- **Odynophagia**, **GERD**, **dysphagia** (suggest **esophageal ulcer**)
- **Pallor** (pale skin, anemia sign)
- **Hypotension / Orthostasis** (low BP upon standing)
- **Dysphagia**, **early satiety**, **weight loss**, **cachexia** (think **malignancy**)
- **Jaundice**, **stigmata of chronic liver disease** (think **variceal bleeding**)

Symptoms Suggesting Severe Bleeding

- **Orthostatic dizziness**
- **Confusion**
- **Angina (chest pain)**
- **Severe palpitations**
- **Cold/clammy extremities**

Symptom Categories

Symptom Type	Examples
Symptoms of Bleeding	Hematemesis, Melena, Hypotension
Symptoms of Anemia	Pallor, Dizziness, Cold extremities
Symptoms Related to Etiology	Odynophagia (esophageal), Jaundice (liver disease), Weight loss (malignancy)

Black Tarry Stool

- **Shiny, tarry, black stool = Melena**.

PMHx (Past Medical History) Important Clues

Disease/Condition	Associated History
Varices/Portal HTN Gastropathy	Liver disease, Excess alcohol use
Angiodysplasia (AVM)	Renal disease, Aortic stenosis, HHT
Malignancy	Smoking, Alcohol use, H. pylori infection
Aorto-enteric fistula	AAA (abdominal aortic aneurysm), Aortic graft

hereditary hemorrhagic telangiectasia

Marginal ulcers	Ulcer at anastomotic (surgical) sites
PUD (Peptic Ulcer Disease)	H. pylori, NSAIDs, Antithrombotics, Smoking

📍 **Important Notes:**

- **Aorto-enteric fistula** = surgery history → fistula between **Aorta** and **Colon**.

🩺 **Comorbid Illnesses: Why They Matter**

Problem	Impact
CAD, Pulmonary Disease	Need **higher Hb** targets
Renal Disease, Heart Failure	Risk of **volume overload**
Coagulopathy, Thrombocytopenia, Liver Disease	**Harder bleeding control**
Dementia, AMS, Hepatic Encephalopathy	**High risk for aspiration** → consider intubation

📋 **Medication History to Ask About**

- **NSAIDs** → Peptic ulcers
- **Pill esophagitis** → Certain pills damage esophagus such as (doxycycline used for acne/ bisphosphanate for osteoporosis)
- **Anticoagulants** → Warfarin, DOACs
- **Antiplatelet agents** → Aspirin, P2Y12 inhibitors
- **Color-changing medications** → Bismuth, Charcoal, Licorice, Iron (make stool black and Matt not shiny)

📍 **Extra Drug Effects**

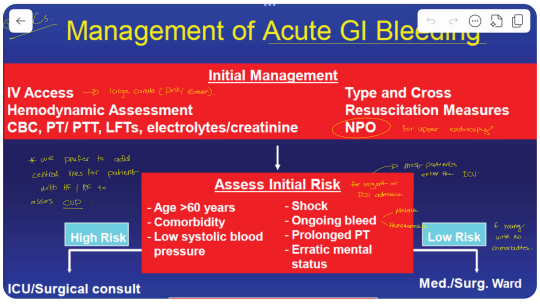
Drug	Issue
Doxycycline, Bisphosphonates	Severe odynophagia (pill esophagitis)
Iron, Bismuth	Black stool but not shiny (matte), cause constipation

⚠️ **If the Patient is on Antiplatelets After Stent:**

- Must **consult cardiologist** before stopping!
- **Early stopping** can risk stent thrombosis.

💉 **Access for Resuscitation**

- **Large bore cannula** (pink/green).
- **Prefer central lines** for patients with:
- Heart failure (HF)
- Renal failure (RF)



🔎 **Hemodynamics**

Finding	Blood Loss (%)
Resting tachycardia	<15% loss
Orthostasis (BP drop on standing)	<40% loss

Supine Hypotension (BP drop lying down)	>40% loss

- **Orthostasis = Best non-invasive indicator** (~20% blood loss):
- ↓ Systolic BP >20 mmHg
- ↓ Diastolic BP >10 mmHg
- ↑ HR >15 bpm

Initial Management

1. **Hemodynamic Stabilization** (IV fluids)
2. **NPO** (nothing by mouth)
3. **NGT Lavage** (not routinely beneficial we do it for a patient who is intubated in icu and now we want to know the source of bleeding or the contents of it), no proven benefit
4. **Blood Transfusion**:

- If **Hb ≤7 g/dL** (normal)
- If **Hb ≤9-10 g/dL** (if CAD)

Platelet Transfusion

- **If bleeding & platelets <50,000**, transfuse.
- **If not bleeding** → tolerate even if platelets ~30,000 (don't give them).
- For **Endoscopy**:
- Safe if >20,000
- Better to >50,000 if active bleeding suspected
- But if he is bleeding rn do endoscopy regardless
- Give it for a shocked patient who is not responding to fluids or he has ongoing bleeding

Co-Morbidities Check

- **Stabilize co-morbidities** before EGD.
- **Intubate** if:
- Ongoing hematemesis
- ↓ CNS status
- Loss of gag reflex

Rockall Score (Dafo memorize the numbers)

Variable	Score 0	1	2	3
Age	<60 years	60 - 79 Years	>79years	
Shock	'No Shock' Systolic BP>100 Pulse < 100	'Tachycardia' Systolic BP>100 Pulse > 100	'Hypotension' Systolic BP<100	
Co-morbidity	No Major co-morbidity		Cardiac Failure Ischaemic heart disease Any Major co-morbidity	Renal Failure Liver Failure Disseminated malignancy
Diagnosis (Not endoscopy)	Mallory-Weiss tear No lesion identified & no SRH	All other diagnoses	Malignancy of upper GI tract	
Major stigmata of recent haemorrhage	None or Dark spots only		Blood in upper GI tract Adherent Clot Visible or spurting vessel	

Where SRH is the abbreviation for Stigmata of recent haemorrhage. The maximum additive score prior to diagnosis is 7. The maximum additive score following diagnosis is 11. There is a positive linear correlation of Rockall Score and Mortality.

Rockall Score (points)	Mortality
3	3%
4	6%
5	12%
6	17%
7	27%
8	40%

Risk Assessment Scores

Score	Purpose
Blatchford Score	Need for urgent endoscopy/transfusion -> we depend on (HB, HR, SBP, MALENA, SYNCOPE, HF, RF -> if less than 2 no risk if larger than 6 then 50% of them would need intervention)
Rockall Score	Mortality prediction

Pre-EGD Preparation

- **We don't use them routinely unless we are suspecting a field full of blood or I know that the field is bleeding**

- **Prokinetics** (Erythromycin 250mg IV, 30–60min before EGD)
- Helps clear the stomach.

Management Based on Bleeding Type

Bleeding	Drug
Suspected Variceal Bleeding	Start Octreotide (long acting) or Somatostatin (before EGD)

Non-variceal Bleeding (e.g., PUD)	Start IV PPI (80mg bolus → 8mg/h infusion) -> it helps with less need of intervention but it doesn't decrease mortality or morbidity (re bleeding , need to transfuse, need for sx or mortality, lower high risk stigmata and low need for EGD)

💊 Somatostatin Analogs (used in ER)

- **Octreotide**: 50mcg bolus ➔ then after confirmation that is variceal after EGD ->50mcg/hr infusion -> causes splanchnic vasoconstriction and decreased portal inflow which is the opposite of liver cirrhosis physiology
- **Continue for 2-5 days in both drugs**
- **Terlipressin**: 2mg IV q4h → down-titrate to 1mg q4h once stable

💉 Antibiotic Prophylaxis

- For **cirrhotic patients** with UGIB:
- Give antibiotics early (before EGD) for suspected bacterial peritonitis

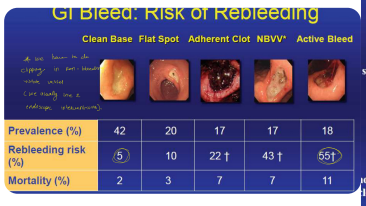
🕐 Timing of Endoscopy

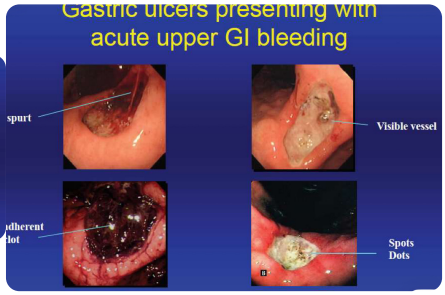
Patient Condition	Timing
Stable	EGD within 24 hrs
Unstable (shock) OR hemodynamically unstable	Urgent EGD (as soon as stabilized)
High-risk signs (tachy, hypotension)	EGD within 12 hrs if possible

🧠 Forrest Classification for Bleeding Lesions(we decide the endoscope intervention)

Forrest Class	Description
Ia	Spurting arterial bleeding
Ib	Oozing bleeding
IIa	Visible vessel
IIb	Adherent clot
IIc	Flat pigmented spot
III	Clean base ulcer

🔵 **Visible vessel or active bleeding needs endoscopic therapy!**





🛠️ Endoscopic Therapy

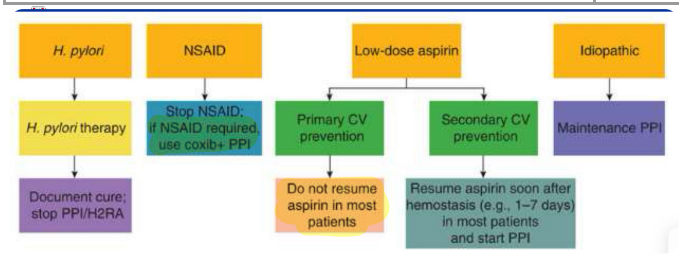
- Usually **2 interventions**:
- Injection (e.g., adrenaline)
- Thermal methods (e.g., gold probe, argon)

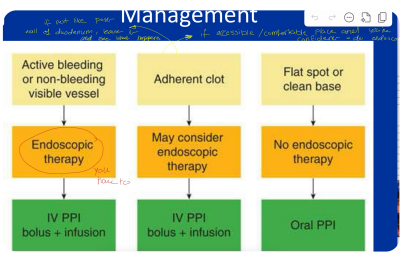
🩺 Variceal Bleeding Best Treatment

- **Endoscopic band ligation** is best.

💊 After Hemostasis — What To Do With Medications?

Medication	When to Resume
Aspirin, Clopidogrel	Resume after 1-3 days (no later than 7 days)
Warfarin	Resume same afternoon
LMWH	Resume after 12 hrs (high-risk patients)
SSRIs	Consider switching to non-SSRI antidepressant





🚑 **High Thrombo-Embolic Risk Patients**

- MVR
- Bio-prosthetic valve <3 months
- Recent VTE <3 months
- AF + prosthetic valve/MS
- Thrombophilia syndromes

➡️ Try to **restart antiplatelets/anticoagulants ASAP** after consulting cardiology.

🔄 **Repeat Endoscopy**

- Routine second-look endoscopy **NOT recommended** unless:
- New clinical signs of bleeding.
- If bleeding again after 2nd endoscopy → **surgery** or **transcatheter embolization**.

🌟 **Lower Gastrointestinal (GI) Bleeding**

📍 **Definition**

- **Lower GI bleeding** = blood originating **below the ligament of Treitz**.

📍 **What is the Ligament of Treitz?**

- **Ligament of Treitz**: A **fibromuscular band** coming from the **right diaphragmatic crus**.
- It **fixes the duodenojejunal flexure** (where duodenum becomes jejunum).

🔎 **Common Sources and Frequency of Lower GI Bleeding**

Cause	Frequency
Diverticula	30–40%
Colitis (Ischemic, IBD)	15–20%
Carcinoma, Polyps	13%
Angiodysplasia	10%
Anorectal diseases	10%
Upper GI bleeding (mimicking)	10–13%
Unknown	2–8%

✅ **Most common cause (MCC) = Diverticula**

🌟 **Mid GI Bleeding**

Cause	Frequency
Angiodysplasia	20–60%
Ulcerations (IBD, NSAIDs)	10–40%
Neoplasia (tumors)	1–10%

🔎 **Clinical Presentation**

- **Fresh blood** in stool ➔ implies lower GI source (unless very rapid upper GI bleed).
- **Melena** (black stool) ➔ if blood stays >14 hours in bowel.
- ➡️ Up to **35% of melena** cases are from below duodenojejunal flexure.
- A patient **may be hypotensive or shocked** even **without obvious bleeding** ➔ **Always do a rectal exam!**
- **So bleeding and hemodynamically stable-> lower/ if bleeding and unstable or high blood urea -> most probably upper gi bleeding**

🧠 **Why Even Hemodynamically Stable Patients Matter?**

- Because even "stable" lower GI bleeding can **suddenly worsen** or **mask** the severity.

Diagnosis / History Points

Ask about:

- **Past conditions**: Hemorrhoids, IBD, radiation therapy, prior polypectomy (bleeding may happen up to 10 days later).
- **Past bleeding episodes**.
- **Liver or renal disease** (risk factors).
- **Medication use**: Antiplatelets, NSAIDs, Warfarin.
- **Nature of blood**:
- **Mixed with stool** or **separate**?
- **Bright red blood** ➔ suggests **anorectal cause**.
- **Blood alone after defecation** ➔ total anorectal cause.
- Mixed with stool -> this is from a higher level like IBD
- **Change in bowel habits** ➔ can point toward higher level disease like **IBD**.

Common Causes (Western Populations)

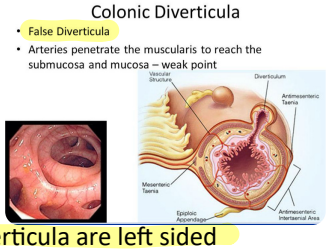
Cause	Frequency
Diverticular bleeding	40%
Colitis (infectious, ischemic, IBD)	20%
Benign anorectal disease	10%
Angiodysplasia	less common

Rare Causes

- Radiation colitis
- **Meckel's diverticulum**
- Rectal varices

Diagnosis / Investigations

- If **bleeding stops spontaneously** ➔ **Elective colonoscopy** ± EGD.(if you don't find anything helpful do EGD)
- If **bleeding continues** ➔ **Urgent colonoscopy** ± EGD.



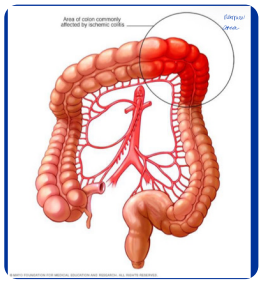
Diverticular Bleeding

- **Large-volume**, **brisk**, **painless**, **sudden** bleeding.
- Caused by **local trauma to vasa recti** inside diverticula.
- ✅ **Commonest cause** of **acute massive colonic blood loss**.
- **Rebleeding common**, especially from the **right colon**. Although most diverticula are left sided

Ischemic Colitis

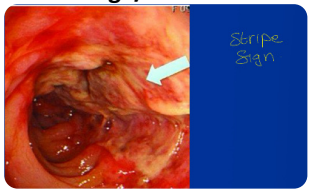
Cause	Examples
Low-flow states	Hypotension, Shock, HF, RF, Burns, Stress
Embolization or Thrombosis	Arterial occlusions

- **Watershed areas** (sensitive to ischemia) are common sites.
- Sudden **left lower quadrant cramping**, bloody stools, mild/moderate tenderness.



Dx of ischemic colitis

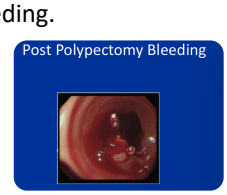
- **X-ray**: "Thumbprinting" sign ➔ due to **submucosal hemorrhage/edema**.
- **CT scan**: Confirm diagnosis.
- **Careful Endoscopy**: To check mucosa.

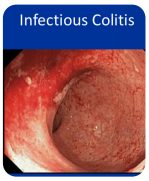


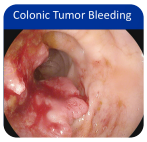
Bleeding Colonic Polyp

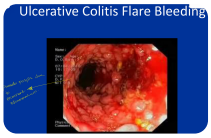
- **Polyps grow faster** than normal mucosa.

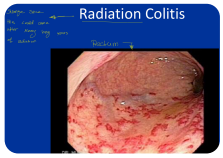
- **Ulceration** happens at the tip ➔ leads to bleeding.











🔥 **Other Causes of Lower GI Bleeding**

- **Post-polypectomy bleeding** (delayed).
- **Infectious colitis**.
- **Colonic tumors**.
- **Ulcerative colitis flares** (pseudopolyps may bleed).
- **Radiation colitis** (may appear many years after radiation).
- **Meckel's diverticulum** bleeding.

🌟 **Meckel's Diverticulum**

- Happens if the **vitelline duct** (yolk sac connection) is not fully absorbed during pregnancy.(usually absorbed by the 7th week)
- May contain **stomach or pancreatic cells** ➔ can **secrete acid** ➔ **ulcers and bleeding**.
- Common in **late teenagers (16–19 years)**.

📸 **Meckel's Scan**

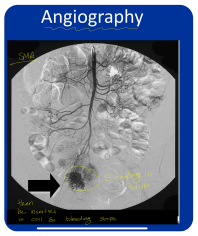
- Inject **IV Technetium-99m**. -> uptake -> gamma camera
- It highlights **acid-secreting tissue**.
- In a **normal patient** ➔ lights up only in **stomach**.
- In a **patient with Meckel's** ➔ lights up in **stomach + Meckel's pouch**.

🛠️ **Treatment Strategy**

✅ **Directed towards the cause.**

🔎 **Endoscopic Treatment (start with it)**

Problem	Treatment
Arterial bleeding	Heat probe, Clipping, Adrenaline injection
Bleeding polyp	Snare polypectomy, Endoloop
Angiodysplasia	Argon Plasma Coagulation (APC)



🔎 **Interventional Radiology (if above failed)**

- **Angiography with selective embolization**.

🛠️ **Surgery (if above failed)**

- Needed when bleeding source cannot be controlled.
- **Success depends** on **accurate preoperative localization**.
- **Surgical mortality 5–10%**.

🌟 **Management of Diverticular Bleeding**

1. **Resuscitate** → **Locate bleeding** → **Treat cause**.
2. **Colonoscopy**:

- If successful ➔ proceed.
- If unsuccessful ➔ Depends on hemodynamics:

Patient	Next Step
Hemodynamically Stable	Angiography
Hemodynamically Unstable	Surgery

🌟 **Important Point**

✅ It's **more important** to confirm that bleeding **is in the colon** than to find exact source.

✅ Always **check terminal ileum** during colonoscopy — if no bleeding above it, source is colon.

🔎 **Special Notes**

- **Finding active diverticular bleeding is rare (~5%)**.
- **Angiography ➔** useful if bleeding is active.

🔎 **Radiation Colitis**

- **APC (Argon Plasma Coagulation)** used.
- May need **more than one session**.

🌟 **Medical Management**

Condition	Treatment
IBD flare	IV hydration, IV steroids, IV antibiotics
Infectious colitis	IV hydration, IV antibiotics
Ischemic colitis without perforation/infarction	Bowel rest, IV hydration, ± IV antibiotics
Ischemic colitis with perforation/infarction signs	Immediate surgery

✅ **More than 50% of ischemic colitis cases resolve conservatively**.