

The EM Educator Series: Lower Gastrointestinal Bleeding Author: Alex Koyfman, MD (@EMHighAK) // Edited by: Brit Long, MD (@long_brit) and Manpreet Singh, MD (@MprizzleER)

Case 1: A 65-year-old female presents with several days of bloody stools and crampy abdominal pain, which worsens with eating. She has a history of atrial fibrillation on apixaban and metoprolol. Vital signs are normal, and abdominal exam reveals diffuse, mild tenderness but no peritonitis.

Case 2: A 55-year-old male presents with hematochezia, with a history AAA endovascular repair. He is tachycardic to 110 beats per minute, but the rest of the exam is unremarkable.

Questions for Learners:

- 1. What are the most common causes of lower GI bleeding?
- 2. What risk factors should you consider in those with lower GI bleeding?
- 3. How do patients present?
- 4. What should you consider for the ED evaluation?
- 5. What should you consider for managing the patient with lower GI bleeding?
- 6. What is the disposition?

Suggested Resources:

- Articles
 - emDocs.net Evaluation and Management
 - o <u>emDocs.net Guideline Update</u>
 - Emergency Medicine Cases
 - o IBCC GI bleeding
- Journal Articles
 - EM Clinics of NA GI Bleeding

Answers for Learners:

1. What are the most common causes of lower GI bleeding?

Table 1. Etiologies of LGIB by Frequency, Adapted from Ghassemi a	and Jensen.	2013. ³
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Etiology	Frequency (%)
Diverticulosis	30 (depending on source, up to $40)^2$
Hemorrhoids	14
Ischemic Colitis	12
Inflammatory Bowel Disease (IBD)	9
Post-Polypectomy	8
Colon Cancer/Polyps	6
Rectal Ulcer	6
Vascular Ectasia / Arteriovenous	3
Malformations (AVMs)	
Radiation Colitis/Proctitis	3
Other	6

2. What risk factors should you consider in those with lower GI bleeding?

- History of present illness
 - Severity, timing, and frequency
 - Bleeding from hemorrhoids and infectious colitis will most likely be seen with bowel movements, while other causes of bleeding may cause passage of frank blood without stool.
 - Appearance and color
 - Patient-reported melena is associated with a likelihood ratio of 5.1-5.9 for an UGIB.⁹
 - The presence of clots is less likely to be from an upper GI source (likelihood ratio 0.05).⁹
 - Associated symptoms
 - A history of constipation raises concern for hemorrhoids and diverticulosis.
 - Associated abdominal pain is seen with ischemic colitis, infectious colitis, and inflammatory bowel disease. Painless bleeding is more typical in diverticular bleeding and arteriovenous malformations.^{5,10}
 - Medications
 - Medications that may increase risk for bleeding include non-steroidal antiinflammatory drugs, aspirin and other anti-platelet agents, and other anticoagulant medications. Consider reversal of agents if the patient is unstable.¹¹⁻¹⁶
 - Past medical history and other risk factors
 - Patients with alcohol abuse or cirrhosis may present with an upper GI source with rapid transit.
 - Atrial fibrillation, coagulopathy, and atherosclerotic disease can predispose to ischemic colitis.^{17,18}

- Past surgical history
 - A history of abdominal aortic aneurysm repair should raise suspicion for an aortoenteric fistula, an uncommon but incredibly dangerous etiology of hematochezia, which requires immediate surgical consultation.

3. How do patients present?

Stability is key. Most lower GI bleeds will **self-resolve and tend to be less severe than upper** GI bleeds. Consider **UGIB with rapid transit if the patient is unstable and/or has upper GI risk factors (e.g., cirrhosis)**.

GI bleed risk stratification	on
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	Less Worrisome	More Worrisome
Past Medical History	 History of numerous non-critical GI bleeds (suggesting arteriovenous malformations) Prior endoscopies negative for high-risk lesion 	 Cirrhosis, known history of varices S/p abdominal aortic aneurysm repair Comorbidities that reduce hemodynamic reserve (e.g. cardiomyopathy, aortic stenosis, pulmonary HTN)
Hemoglobin	 Profound anemia with normal hemodynamics Anemia responds appropriately to transfusion 	 Normal hemoglobin with unstable hemodynamics Anemia unresponsive to blood transfusion
Hemodynamics	 Normal shock index (HR/SBP < ~0.8) Blood pressure normal or elevated 	 Elevated shock index (HR/SBP > ~0.8) Syncope/presyncope Pressor-dependent shock (most worrisome sign)
Ultrasonography	 IVC is normal size or dilated Stomach is empty 	- IVC is collapsed - Stomach is full
Coagulation	- Easily fixable coagulopathy (e.g. $INR = 10$)	- Difficulty-to-fix coagulopathy (e.g. NOAC)
Signs of active bleeding?	 No active bleeding (no recent hematemesis or bowel movements) 	- Ongoing hematemesis or hematochezia
Probable source of bleeding	- Lower GI bleed	- Upper Gl bleed
		The Internet Book of Critical Care, by @PulmCrit

4. What should you consider for the ED evaluation?

- Labs
 - CBC, type and screen (type and cross if unstable), renal and liver function panels, electrolytes, and coagulation panel
- ECG
 - Assess for ischemia from acute blood loss in patients at risk (older than 40 or history of CAD).
- Risk Stratification
 - A risk stratification tool may be used to guide further evaluation. The most recent British Society of Gastroenterology guidelines recommend calculating the shock index, as described above.⁴ Stable patients (shock index <1) can be further risk stratified using the Oakland score, which relies on history, exam, and hemoglobin level (of note: Dr. Oakland is the primary author of the British guidelines).
 - Using a cutoff of ≤8 identifies patients safe for discharge with a sensitivity of 98.4%. Extending the cutoff to ≤10 carries a sensitivity of 96%.
 - As always, decision making and scoring tools should never replace or override clinical judgement.

- Imaging:
 - Younger patients with obvious anorectal etiologies of LGIB and who are otherwise low risk (shock index <1, Oakland score ≤8-10) will likely not require imaging.
 - Abdominal CT may show signs of ischemic colitis, especially later in the disease presentation (Figure 1). CT with contrast may be able to locate areas of diverticular bleeding, with a sensitivity of only 57.6%, but specificity of 91.2%. The sensitivity is increased if the scan is obtained within 4 hours of the last bleed, up to 64.7%.
 - CT angiography (CTA) is emerging as the imaging tool of choice for GI bleeds, but recommendations for its use differ between organizations⁻ CTA relies on an active bleed for visualization and carries a sensitivity of 85% and specificity of 92% for moderate to severe acute bleeds. The most recent American College of Gastroenterology (ACG) guidelines give preference to direct visualization with endoscopy and/or colonoscopy, with CTA reserved for patients with active bleeding who have negative esophagogastroduodenoscopies (EGDs) and are "unable to tolerate bowel prep;" i.e., it most likely would not be performed in the ED. The 2019 guidelines from the British Society of Gastroenterology stress the importance of CTA for *unstable* patients in finding the source of bleeds and providing targets for interventional radiology (IR) embolization procedures. If CTA is negative and the patient continues to bleed, *then* an EGD is recommended. An unstable patient in these guidelines is defined as one with a shock index > 1.

5. What should you consider for managing the patient with lower GI bleeding?

To reiterate, any unstable patient, especially in one with suspected bleeding, focus on stabilization. This includes obtaining multiple large bore IVs and consideration for empiric blood transfusion.

- Blood transfusion
 - Threshold of hemoglobin <7 g/dL, target 7-9 g/dL
 - In patients with cardiovascular disease, the threshold is commonly 8 g/dL with goal 10.
 - Consider transfusion regardless of hemoglobin level in unstable patients with massive bleeds.
- For non-anorectal sources, stop anticoagulants (warfarin, direct/novel oral anticoagulants) at presentation, and consider reversal if the patient is unstable. Aspirin should not be discontinued if being used for secondary prevention in patients with CAD, though briefly pausing aspirin may be considered if its indication is for primary prevention. Resuming anticoagulants may be safe at 7 days, though this decision will likely be made by a multidisciplinary group of specialists and is out of the scope for the ED physician.
- Tranexamic acid is no longer recommended following the results of the HALT-IT trial.

Securing the airway in patients actively hemorrhaging from an UGIB is both a priority and a challenge. You may need to alter your standard approach.

• **Direct laryngoscopy** might give the best view. Video devices are easily obstructed by blood. Consider a video device equipped with a standard direct blade in case blood obstructs the camera.

- **Empty the stomach** prior to intubation with an NG tube and prokinetic agents (metoclopramide, erythromycin).
- Lower on the induction dose to avoid hypotension(eg 50% ketamine), don't skimp on the paralytic (to avoid vomiting with aspiration).
- **Pre-oxygenate** during setup *without bagging*. Bagging these patients may cause further vomiting and aspiration.
- **Decontaminate** the airway by placing the patient in *Trendelenburg* if they vomit and using a *double suction setup* including a *meconium aspirator* if available.
- Consider SALAD (Suction Assisted Laryngoscopy, Airway Decontamination) as described on <u>LITFL</u> and <u>EMCrit</u>.
- Have "push dose pressors" ready in the event of sudden deterioration

6. What is the disposition?

- Patients with self-limiting, minor bleeds without risk factors can be discharged with outpatient followup. These patients can be identified by an Oakland score ≤8-10, depending on the individual clinician's risk threshold.
- Active bleeding or bleeding with risk factors warrants GI consultation +/- surgical consultation. These patients should be admitted for observation and likely inpatient endoscopy and/or colonoscopy.
- Unstable patients (shock index >1) should be resuscitated and have emergent GI and IR consultation. Effective colonoscopy requires adequate bowel preparation, which is not possible in the acutely unstable patient. Therefore, IR may be required to perform an angiogram with embolization to resolve bleeding. CTA is recommended prior to angiogram to help solidify the diagnosis and identify embolization targets for IR.
- Previously, GI specialists aimed to perform colonoscopies for hospitalized patients with LGIB within 24 hours, as recommenced in the ACG 2016 guidelines. However, newer literature comparing "early" colonoscopy (within 24 hours of presentation) versus delayed or elective scoping (within 1-3 days) shows that clinical outcomes are not different. The British guidelines subsequently state that hospitalized patients should be placed on a next-available list for colonoscopy, but the scope can be delayed to ensure clinical stabilization and adequate bowel preparation.