Chapter 16
Management of Gastrointestinal Bleeding

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Learning Objectives

1. Describe a systematic approach to management of a patient with acute gastrointestinal bleeding.
2. Recognize signs of severe bleeding that may warrant intensive care.
3. List therapeutic and diagnostic management options and which services would perform them.
4. Create patient-specific outpatient management plans after a patient's gastrointestinal bleeding has resolved.

Clinical Vignette: You are evaluating a 58-year-old woman with several days of worsening dark stools. She has a past medical history significant for atrial fibrillation and is currently anticoagulated with warfarin. Three days ago, she noted that her bowel movement was black. Now she describes maroon bowel movements occurring with increasing frequency.

A. **What signs, symptoms, and history can accompany a patient presenting with acute gastrointestinal (GI) bleeding?**

Write out the learner ideas under the categories of "low blood volume symptoms," "evidence of bleeding," and "risk factors," as in Fig. 16.1.

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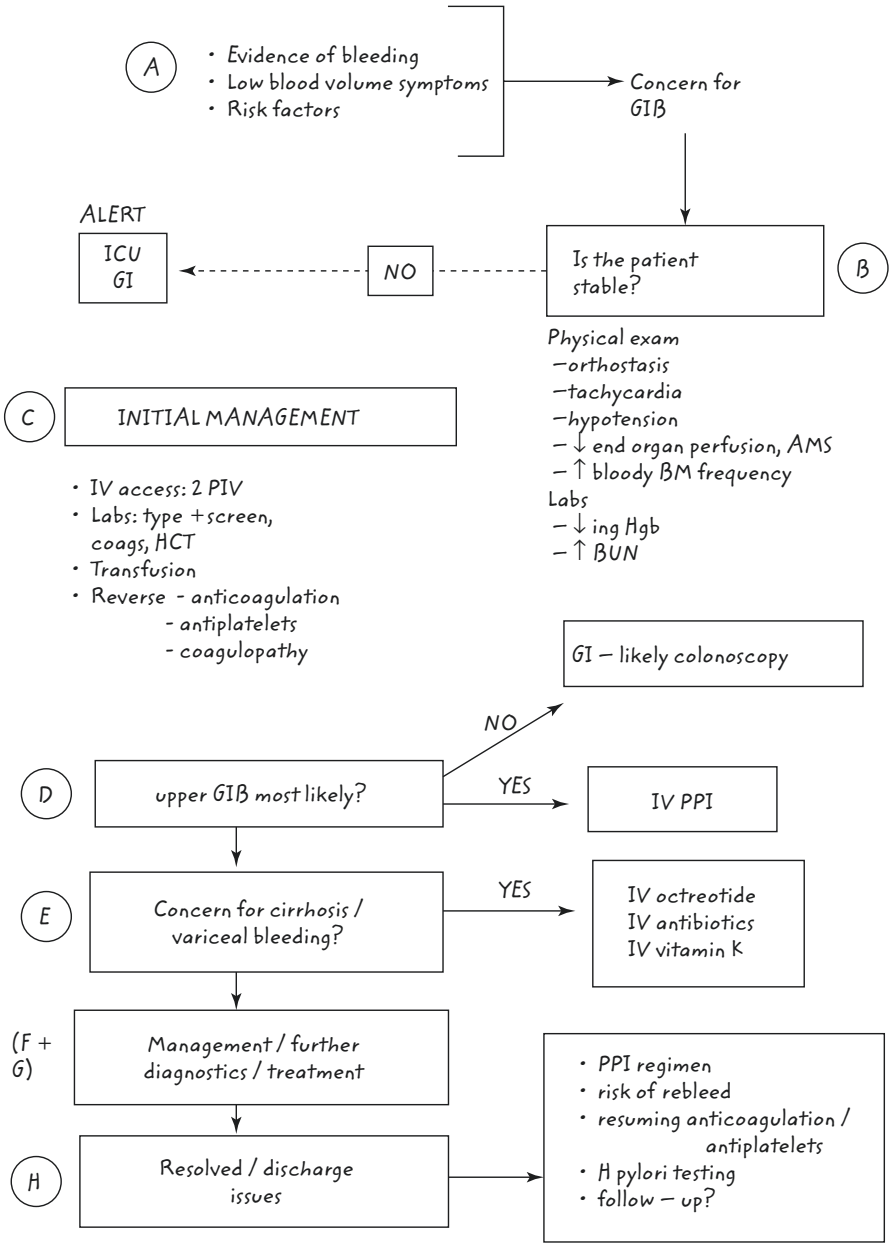

Fig. 16.1 Management of gastrointestinal bleeding, A–H

Teaching points

- Distinguishing between melena and hematochezia can help localize the source of the bleed.
- Low blood volume symptoms: lightheadedness, dizziness, syncope, presyncope, and dyspnea.
- Physical evidence of bleeding: melena, hematochezia, hematemesis, and coffee ground emesis.
- Risk factors: anticoagulation, antiplatelet medications, nonsteroidal anti-inflammatory drugs (NSAIDS), and liver disease.

B. **As you examine the patient, she passes another large maroon stool. It is important to determine that she is clinically stable and does not have ongoing, rapid bleeding. How do you determine if the patient is clinically stable and is not having rapid ongoing bleeding?**

Lead the learners through the physical exam findings and labs under "Is the patient stable?"

Teaching points

- Acute bleeding is not always reflected in the initial hemoglobin (Hgb) check—it is necessary to have serial checks.
- Shock can cause findings of poor perfusion and confusion.
- Hypotension is a late finding of hypovolemia; orthostasis and tachycardia are important preliminary findings of significant volume loss.
- Degrading blood products in the gastrointestinal (GI) tract can cause a rise in blood urea nitrogen (BUN).
- For unstable patients, seek immediate help to support the patient and plan for interventions—contact the intensive care unit (ICU) and gastroenterology service.

C. **Our patient has normal vital signs and is not orthostatic. At the same time as assessing the stability of our patient, it is important to begin the initial management steps. What initial management steps would you take for anyone presenting with a GI bleed?**

Lead the learners through the initial management steps.

Teaching points

- Access: Two large bore IVs. Peripheral IVs (PIV) are more effective than central lines for administering large fluid boluses.
- Labs: Hematocrit (HCT) level, coagulation labs (especially if coagulopathy due to medications or liver disease is suspected), type, and screen.
- Transfusion? Consider transfusing packed red blood cells, especially if there is concern for rapid blood loss. Transfusion thresholds are more restrictive than in years past—a hemoglobin less than 7 is generally considered to be appropriate for most patients. A higher threshold is needed if patients are symptomatic or are suspected of losing blood rapidly.

- Reversal of coagulopathy.
  - Direct oral anticoagulants (DOACs) are increasingly used but are challenging to reverse. In certain conditions and settings, idarucizumab is approved for reversal of dabigatran and andexanet alfa for factor Xa inhibitors (rivaroxaban, apixaban, and edoxaban). Prothrombin complex concentrate (Kcentra) is also used.
  - Patients with known or suspected cirrhosis are a special subgroup at high risk for upper GI bleed and also at risk for coagulopathy due to poor hepatic synthesis of clotting factors. These patients often receive vitamin K for elevated INR, although this typically does not rapidly correct their coagulopathy.
  - Warfarin can be reversed with the infusion of plasma and vitamin K.
  - Platelets can be given if platelet level is low or antiplatelet medications have been given.
- Proton pump inhibitor (PPI) therapy for suspected upper GI bleed.
- Always be ready to contact the gastroenterology service and the ICU!

D. **The initial treatment plan differs on the basis of whether an upper of lower GI bleed is considered most likely. How can you quickly determine whether the GI bleed is from an upper or lower source?**

Explain the need for GI consultation for colonoscopy for suspected lower GI bleed.

Teaching points
- Hematemesis, coffee ground emesis, or melena suggests upper GI source.
- Bright red blood suggests lower GI source.
- Rarely, a slow proximal colonic bleed can mimic maroon-colored melena.
- If the source remains unclear, sometimes nasogastric lavage or aspiration can help localize the bleeding source.
- If a lower GI bleed is most likely, the GI service should be contacted for colonoscopy.
- If an upper GI bleed is suspected, an intravenous (IV) proton pump inhibitor (PPI) should be started and consider GI consultation for upper endoscopy.

E. **How is variceal bleeding managed differently compared to other types of upper GI bleeds?**

Add the additional medical treatments for variceal bleeding.

- IV octreotide reduces portal pressures and lessens variceal bulging.
- IV antibiotics, specifically third-generation cephalosporins or quinolones, confer a mortality benefit for patients with cirrhosis experiencing a GI bleed from *any* cause, not just variceal hemorrhage.

F. **What diagnostic and therapeutic options are there for a GI bleed?**

Prepare Fig. 16.2*: draw an outline of the organs, arteries, varices, ulcer, arteriovenous malformations (AVMs) as shown. Ask the learners to list diagnostic and therapeutic interventions to manage GI bleed.*

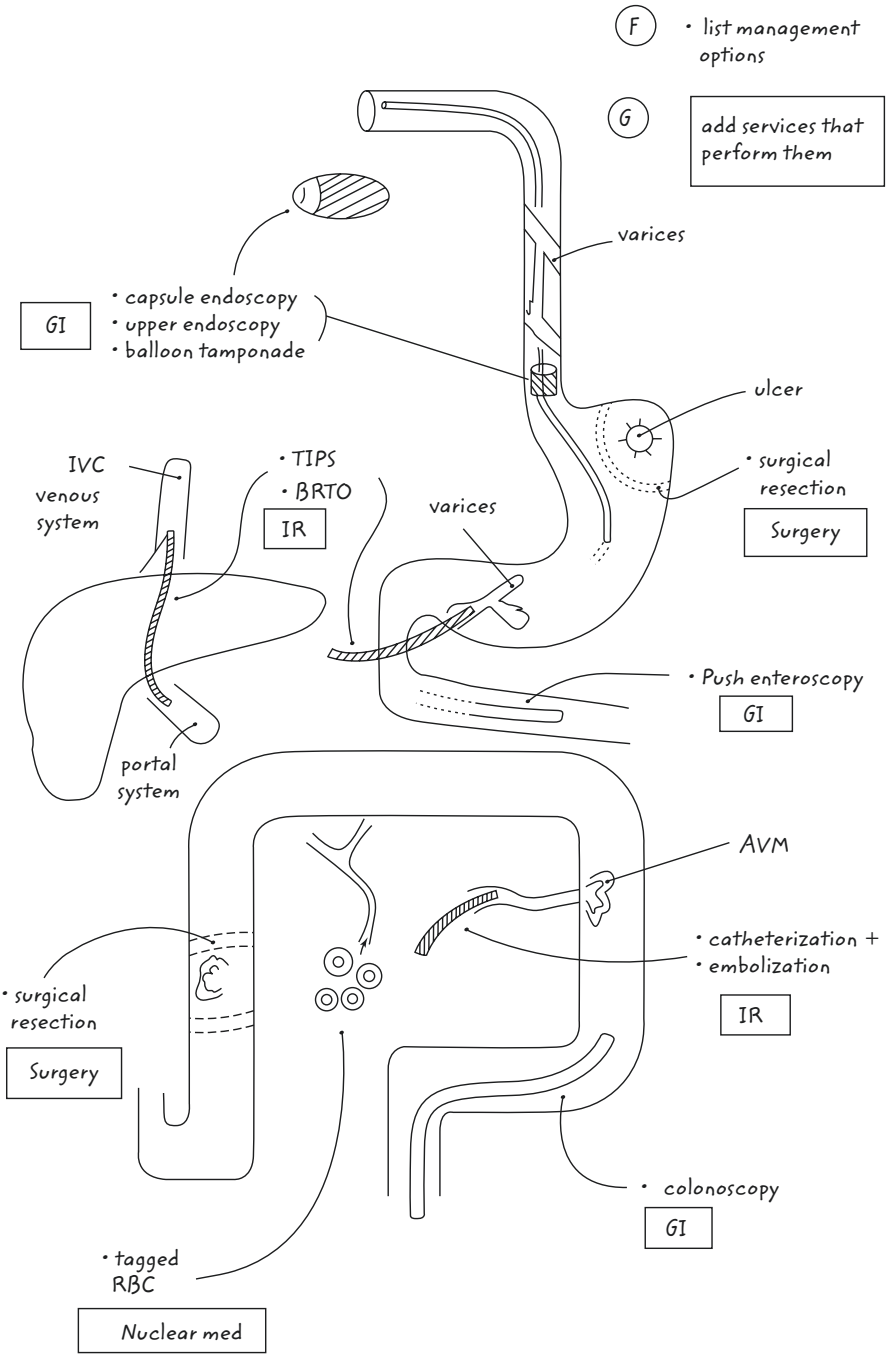

Fig. 16.2 Management of gastrointestinal bleeding, F–G

Teaching points

- Gastroenterology
  - Upper endoscopy (diagnostic and therapeutic)
  - Colonoscopy (diagnostic and therapeutic)
  - Capsule endoscopy (diagnostic)
  - Balloon enteroscopy (diagnostic)
- Interventional radiology (IR)
  - Catheterization (diagnostic) with embolization (therapeutic)
  - Balloon-occluded retrograde transvenous obliteration (BRTO) for gastric variceal hemorrhage
  - Transjugular intrahepatic portosystemic shunt (TIPS) for refractory variceal hemorrhage
- Nuclear medicine
  - Tagged red blood cell scan (diagnostic)
- General surgery
  - Gastric or bowel resection (therapeutic)—VERY RARE!

G. **What services or specialties perform the interventions listed?**

Point to each of the interventions listed and add the name of the appropriate service.

H. **Our patient had an upper GI bleed due to a gastric ulcer, which was treated endoscopically. What issues will you need to address before the patient can be discharged home?**

Return to the algorithm in Fig. 16.1 *and list the key discharge issues.*

Teaching points

- The majority of management strategies are based on evidence from peptic ulcer disease- associated upper GI bleeding.
- Continued outpatient proton pump inhibitors are used primarily when the etiology of GI bleed is peptic ulcer disease. Gastroenterology service often determines dose, frequency, and length of treatment.
- Several scoring systems to assess risk of rebleeding. The modified Glasgow Blatchford Score is more predictive than Rockall.
- For patients on anticoagulation, consider when to resume anticoagulation after hemostasis is achieved. Need for antiplatelet therapy and/or anticoagulation must be balanced against the risk for future GI bleed. May need to create plan with input from other clinical services.
  - In general, aspirin can usually be restarted 1–2 days after hemostasis.
  - Recommendations on clopidogrel (or other antiplatelet medication) are mixed but usually safe to restart 3–5 days after hemostasis.

  - For patients on warfarin or DOACs, the indication for anticoagulation must be weighed against the risk of future GI bleed. This is often a complex decision with individual risk–benefit profiles depending on the situation.

- *Helicobacter pylori* testing is recommended for all patients with new diagnosis of peptic ulcer disease. Typically, this is performed via biopsy of ulcer site during upper endoscopy, and often the results must be followed up after discharge.
- Determine follow-up: likely with the patient's primary care provider (PCP) followed by GI further in the future.

Return to objectives and emphasize key points

1. Describe a systematic approach to management of a patient with acute gastrointestinal bleeding.
   - Emphasize the need to determine clinical stability and potential need for ICU admission.
   - Initial management is the same in all cases: establish large bore IV access, send labs, transfuse if needed, reverse reversible factors such as anticoagulation, antiplatelets, and coagulopathy.
2. Recognize signs of severe bleeding that may warrant intensive care.
   - Circle hypotension, tachycardia, orthostasis in Fig. 16.1.
3. List therapeutic and diagnostic management options and which services would perform them.
   - Circle GI, IR, nuclear medicine, and general surgery in Fig. 16.2.
4. Create patient-specific outpatient management plans after a patient's gastrointestinal bleeding has resolved.

Asterisk PPI, risk of rebleed, resuming medicines, *H. pylori*, and follow-up in Fig. 16.1.

Resources

1. Kim BSM, Li BT, Engel A, Samra JS, Clarke S, Norton ID, et al. Diagnosis of gastrointestinal bleeding: a practical guide for clinicians. World J Gastrointest Pathophysiol. 2014;5(4):467–78.
2. Laine L, Jensen DM. Management of patient with ulcer bleeding. Am J Gastroenterol. 2012;107:345–60.
3. Cheng DW, Lu YW, Teller T, Sekhon HK, Wu BU. A modified Glasgow Blatchford Score improves risk stratification in upper gastrointestinal bleed: a prospective comparison of scoring systems. Aliment Pharmacol Ther. 2012;36(8):782–9.
4. Qureshi W, Mittal C, Patsias I, Garikapati K, Kuchipudi A, Cheema G, et al. Restarting anticoagulation and outcomes after major gastrointestinal bleeding in atrial fibrillation. Am J Cardiol. 2014;113(4):662–8.
5. Sengupta N, Feuerstein JD, Patwardhan VR, Tapper EB, Ketwaroo GA, Thaker AM, et al. The risks of thromboembolism vs. recurrent gastrointestinal bleeding after interruption of systemic anticoagulation in hospitalized inpatients with gastrointestinal bleeding: a prospective study. Am J Gastroenterol. 2015;110:328–35.