Gastrointestinal Bleeding

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Upper and lower gastrointestinal bleeding (GIB) are defined based
on their location relative to the ligament of Treitz in the terminal duodenum, so esophagus, stomach, and duodenum origin bleeds
are upper and all others are lower. Upper GIB (UGIB) mortality rates have remained constant at about 15% over the past 2 decades
despite advances in medical therapy, intensive care unit (ICU) management, endoscopy, and surgery. This is most likely due to the increasing proportion of older patients, who may die due
to comorbid conditions, and increases in cirrhotic and variceal patients. The lower GIB (LGIB) mortality rate is approximately 4%. Predictors include age older than 70 years, intestinal ischemia,
comorbid illness, coagulation defects, transfusion of packed red blood cells, and male gender.

TABLE 27.1

Common Causes of Gastrointestinal (GI) Bleeding in Adults and Children

CAUSE	ADULTS	CHILDREN
Common causes of upper GI bleeds	Peptic ulcers (gastric more than duodenal) Gastric erosion Esophagogastric varices Mallory-Weiss tears Esophagitis Gastric cancer	Duodenal ulcers Gastric ulcers Esophagitis Gastric erosion Esophageal varices Mallory-Weiss tears
Common causes of lower GI bleeds	Diverticular disease Angiodysplasia Colitis (inflammatory, infectious, ischemic) Anorectal sources Neoplasm Upper GI bleeding	Anorectal fissure Infectious colitis Inflammatory bowel disease Juvenile polyps Intussusception Meckel's diverticulum

BOX 27.3

Key Historical Information for Patients With Gastrointestinal Bleeds (GIBs)

- Events prior to or leading up to the bleeding episode
- Severity, frequency, and quantity of the bleeding episode
- Appearance and color of the bleed
- Medical history, including risk factors for GIB:
  - Prior bleeding episodes and any identified source
  - Medication use that may increase the risk of GIB
  - Social factors that may increase the risk of GIB
- Symptoms patient is experiencing with the bleeding episode

BOX 27.1

Alternative Diagnoses or Mimics of Gastrointestinal Bleeding

Melena

- Ingestion of bismuth medications
- Ingestion of activated charcoal

Hematemesis

- Nasopharyngeal bleeding (eg, nosebleeds, dental bleeding)
- Ingestion of red drinks or food

Hematochezia

- Vaginal bleeding
- Gross hematuria
- Partially digested red food (eg, red beets, red grapes)

BOX 27.2

Characteristics of Patients With High-Risk Gastrointestinal Bleeds

Medication use
- Aspirin
- Nonsteroidal antiinflammatory drugs
- Steroids
- Anticoagulants (warfarin, heparin)
- Chemotherapeutic agents

History of peptic ulcer disease
Known liver disease, cirrhosis
Advanced age (>60 yr)
Alcoholism
Current smoker
Chronic medical comorbidities
- Congestive heart failure
- Diabetes
- Chronic renal failure
- Malignancy
- Coronary artery disease

History of abdominal aortic aneurysm graft

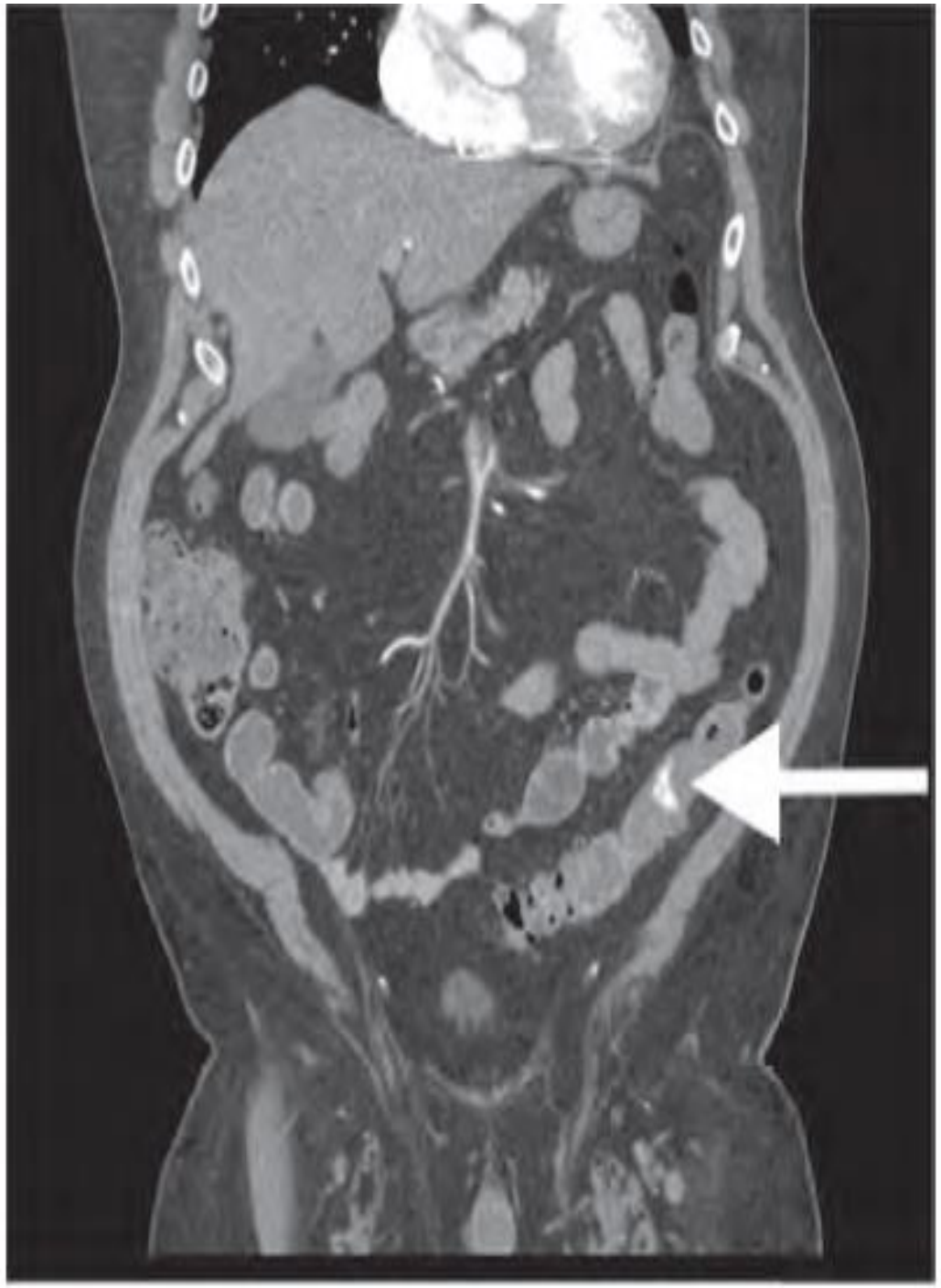


Fig. 27.1. Axial and coronal images from CT angiograms demonstrating extravasation of contrast
material within the colon from a bleeding diverticulum. (Courtesy Wendy B. Landman, MD; Department
of Radiology Brigham and Women’s Hospital.)

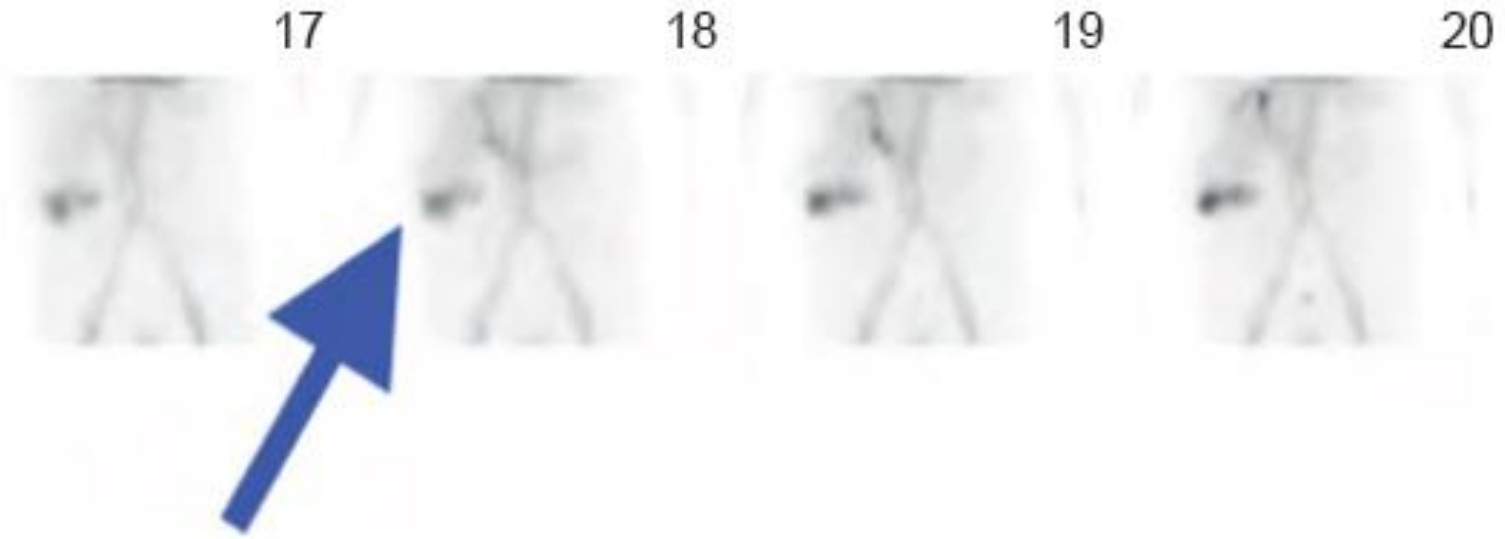


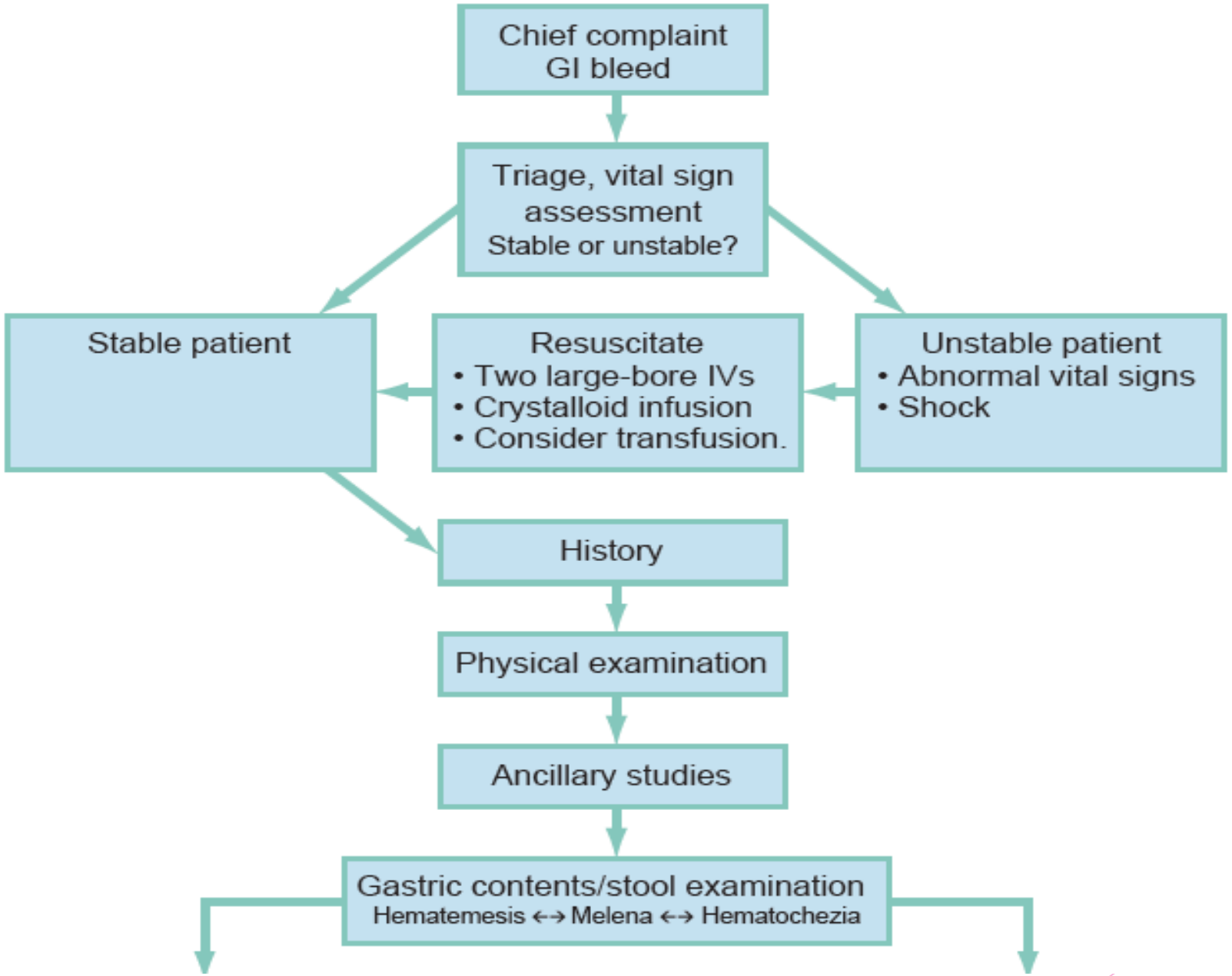
Fig. 27.2. Technetium 99m-labeled red blood cell scintigraphy demonstrating focus of increased activity in the ascending colon with antegrade transit into the hepatic flexure and transverse colon. (Courtesy Wendy B. Landman, MD; Department of Radiology Brigham and Women's Hospital.)

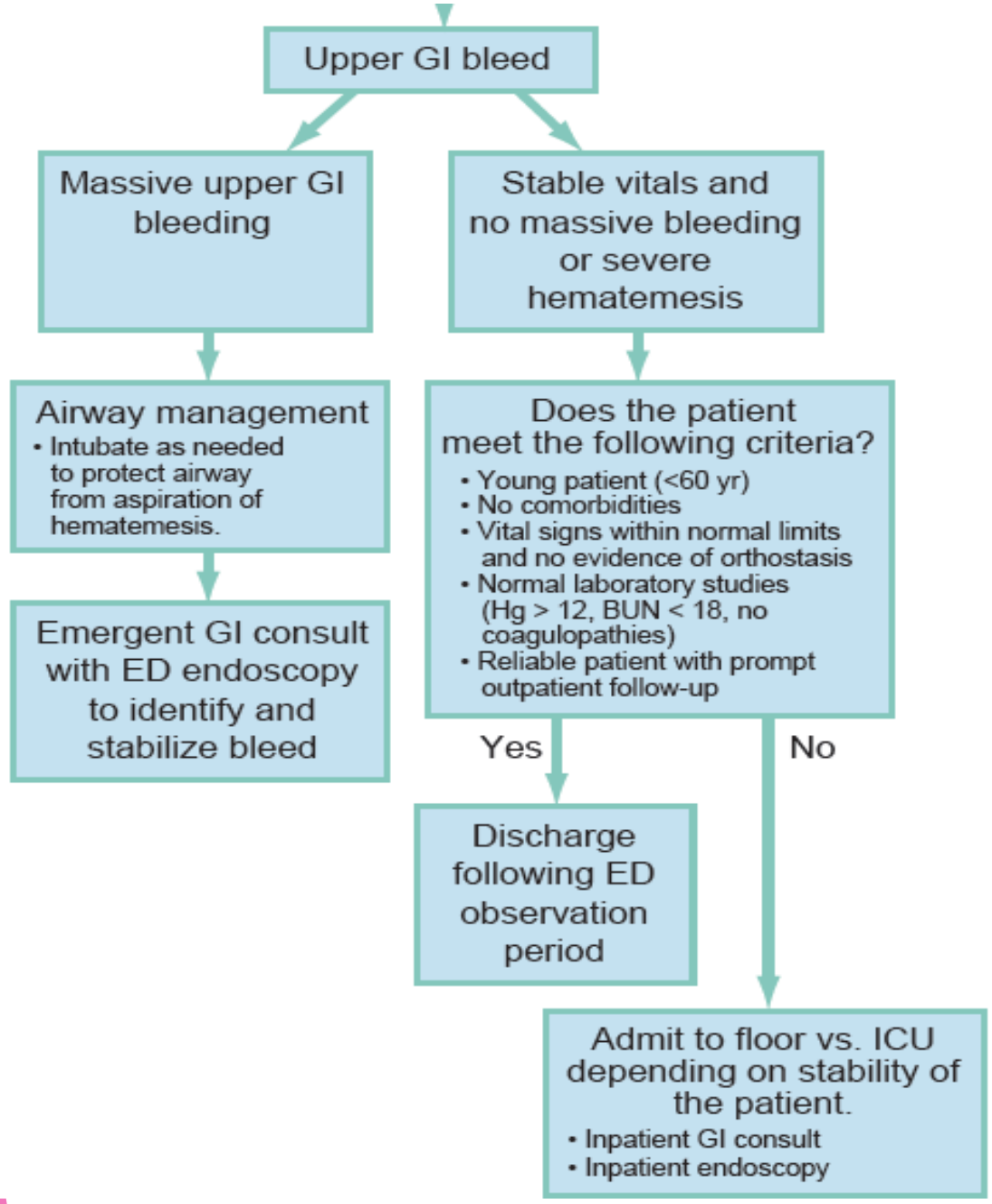
TABLE 27.2

American College of Radiology Appropriateness Rating Scale[a]

TREATMENT OR PROCEDURE	RATING	COMMENTS
Transcatheter arteriography, intervention	8	Allows for embolization if positive on arteriography
Diagnostic, therapeutic colonoscopy	4	Challenging in an unstable patient
Surgery	5	Appropriate if bleeding site localized
Nuclear medicine scan	1	More appropriate for hemodynamically stable patient
CTA abdomen	5	Continuing to emerge as an appropriate option when the bleeding source is unknown
MRI abdomen	1	Not appropriate in hemodynamically unstable patients

NOTE: Rating scale from 1 to 9, with 1 = least appropriate and 9 = most appropriate.


Chief complaint
GI bleed
Triage, vital sign assessment
Stable or unstable?
Stable patient
Resuscitate
• Two large-bore IVs
• Crystalloid infusion
• Consider transfusion.
Unstable patient
• Abnormal vital signs
• Shock
History
Physical examination
Ancillary studies
Gastric contents/stool examination
Hematemesis ↔ Melena ↔ Hematochezia


Upper GI bleed
Massive upper GI bleeding
Airway management
• Intubate as needed to protect airway from aspiration of hematemesis.
Emergent GI consult with ED endoscopy to identify and stabilize bleed
Stable vitals and no massive bleeding or severe hematemesis
Does the patient meet the following criteria?
• Young patient (<60 yr)
• No comorbidities
• Vital signs within normal limits and no evidence of orthostasis
• Normal laboratory studies (Hg > 12, BUN < 18, no coagulopathies)
• Reliable patient with prompt outpatient follow-up
Yes
No
Discharge following ED observation period
Admit to floor vs. ICU depending on stability of the patient.
• Inpatient GI consult
• Inpatient endoscopy

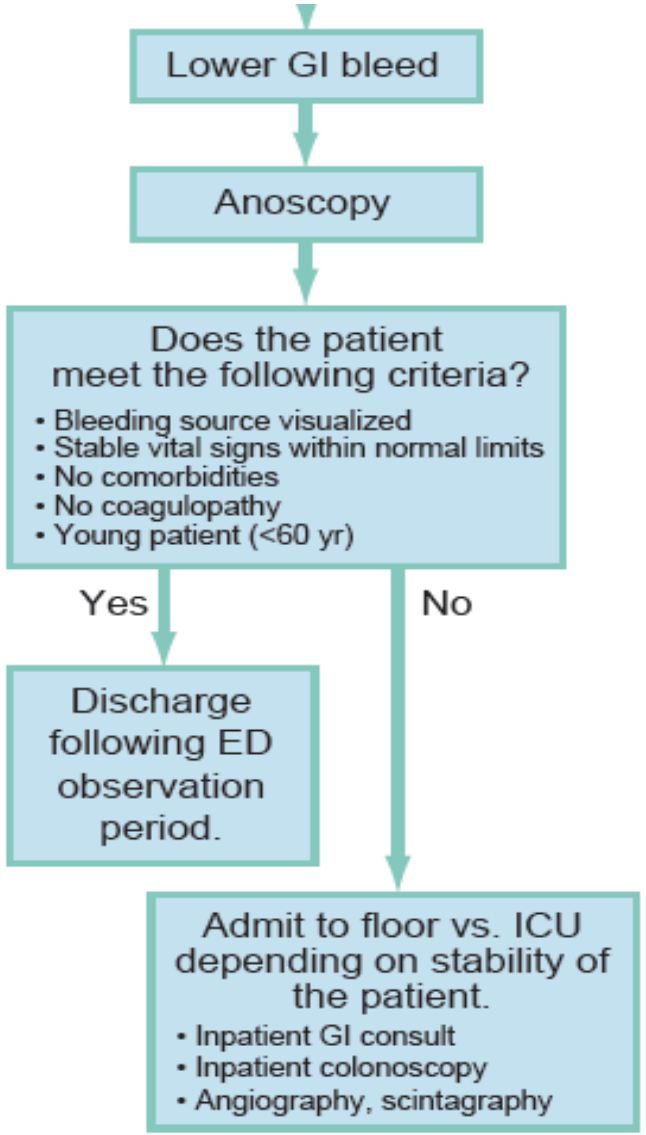

Lower GI bleed
Anoscopy
Does the patient meet the following criteria?
• Bleeding source visualized
• Stable vital signs within normal limits
• No comorbidities
• No coagulopathy
• Young patient (<60 yr)
Yes
No
Discharge following ED observation period.
Admit to floor vs. ICU depending on stability of the patient.
• Inpatient GI consult
• Inpatient colonoscopy
• Angiography, scintagraphy

TABLE 27.3

Blatchford Score[a]

ADMISSION RISK MARKER	SCORE COMPONENT VALUE
Blood urea nitrogen level (mg/dL)	
≥18.2 to <22.4	2
>22.4 to <28	3
>28 to <70	4
>70	6
Hemoglobin level for men (g/dL)	
>12 to <13	1
≥10 to <12	3
<10	6
Hemoglobin level for women (g/dL)	
≥10 to <12	1
<10	6
Systolic blood pressure (mm Hg)	
≥100 to <109	1
>90 to <99	2
<90	3
Other markers	
Pulse rate ≥100 beats/min	1
Presentation with melena	1
Presentation with syncope	2
Hepatic disease	2
Heart failure	2

TABLE 27.4

Clinical Rockall Risk Score[a]

VARIABLE	SCORE 0	SCORE 1	SCORE 2	SCORE 3
Age	<60	60–79	>80	
Shock	No shock	Pulse >100 SBP >100	SBP <100	
Co-morbidity			CHF, IHD, major morbidity	Renal failure, liver failure, metastatic cancer

Patients at low risk for recurrent or worsening UGI bleed can be discharged to home if they meet all the following criteria: no significant comorbid diseases (eg, ischemic heart disease, congestive heart failure, hepatic disease); normal vital signs; normal or trace positive results on stool guaiac testing; normal hemoglobin and hematocrit levels; good support systems; proper understanding of signs and symptoms of significant bleeding; immediate access to emergent care; and arranged follow-up within 24 hours. Low-risk patients deemed appropriate candidates for discharge should be given clear instructions reviewing the signs and symptoms of significant GIB and when to contact their primary care physician or return to the ED.

Which of the following cannot clinically mimic hematemesis?

A. Dental bleeding
B. Bismuth-containing medication
C. Oral trauma or injury
D. Red food coloring
E. Severe epistaxis

Answer: B. When evaluating a patient with an upper gastrointestinal (GI) bleed, one must consider other potential causes that are not related to the GI tract. Epistaxis, dental bleeding, oral trauma, and red food coloring can mimic the appearance of hematemesis. Bismuth-containing medication can create melanotic-appearing, guaiac-negative stools, so this presentation is not truly consistent with the findings of hematemesis and a possible upper GI bleed.

A 56-year-old man presents with nausea, vomiting, and hematemesis since early this morning. He reports vomiting a combination of coffee-ground emesis and, more recently, bright red blood. His past medical history is significant for heavy alcohol use and known esophageal varices. On arrival, he is pale and diaphoretic. His vitals are remarkable for a blood pressure of 90/54 mm Hg and a regular heart rate of 118 beats/min. What is the most appropriate initial step in management?

A. Consult a gastroenterologist for immediate endoscopy.

B. Perform a rectal examination to confirm a gastrointestinal bleed.

C. Perform electrocardiography to evaluate a cardiac cause for the patient’s presentation.

D. Perform emergent abdominal plain radiography to evaluate the cause of the GI bleed.

E. Place two large-bore intravenous catheters and begin crystalloid resuscitation.

Answer: E. If a patient with a reported GI bleed is unstable, the initial step in management involves resuscitation with the immediate placement of two large-bore intravenous catheters (18 gauge or larger) and crystalloid infusion. Other diagnostic measures, such as performing electrocardiography or imaging, can be carried out after the initial step of gaining venous access and initiating resuscitation. It is important to note that abdominal plain films are rarely helpful in patients with GI bleeding unless bowel obstruction is suspected. Gastroenterology consultation is an important part of this patient's care plan; however, it is not the first step in management after the evaluation

27.3. A 65-year-old man presents with weakness, fatigue, melena, and increasing amounts of coffee-ground emesis over the last 24 hours. The patient has a known history of cirrhosis and heavy alcohol abuse. On examination, he is pale and diaphoretic and has rectal findings showing a combination of melena and hematochezia. His vital signs show a blood pressure of 75/40 mm Hg and a regular heart rate of 125 beats/min. You place two large-bore intravenous (IV) catheters and attempt to resuscitate the patient with crystalloid, but the patient shows no improvement after 2 L of fluid. At this point, the management of this patient should include all of the following, except which one?

A. Emergent gastroenterology consultation for endoscopy

B. Emergent intensive care unit (ICU) consultation for admission, further evaluation, and monitoring

C. Placement of a nasogastric (NG) tube with gastric lavage

D. Transfusion of 1 unit of fresh frozen plasma (FFP) for every 4 units of packed red blood cells

E. Transfusion of packed red blood cells

Answer: C. Placement of an NG tube in suspected upper GI bleed is not recommended. The sensitivity of this modality for predicting upper GI bleed is low, and there is a negative likelihood ratio in patients with melena or hematochezia. Along with this, NG tube placement has been associated with severe complications, including aspiration, pneumothorax, perforation, and development of gastric lesions. Transfusion of packed red blood cells and FFP is indicated here because the patient is hemodynamically unstable and likely to be suffering from coagulopathy resulting from his liver disease. Both GI and ICU consultation should be pursued because the patient will require endoscopy and close monitoring.

Which of the following statements regarding the epidemiology of GI bleeding is correct?

A. LGIB affects a larger portion of patients than does UGIB.

B. LGIB requiring admission is more common in adults than in children.

C. Most deaths secondary to GI bleeding occur in patients older than 60 years.

D. Overall mortality has remained the same over the past 20 years.

E. UGIB is more common in women than in men.

Answer: C. The overall mortality of GI bleeding is approximately 13% to 14% and has not changed significantly since the 1960s. LGIB affects a smaller portion of patients and results in proportionally fewer hospital admissions than UGIB. GI bleeding can occur in individuals of any age but usually affects people in their

40s through 70s (mean age, 59 years). Most deaths caused by GI bleeding occur in patients older than 60 years. UGIB is more common in men than in women (2 : 1), whereas LGIB is more common in women. Significant UGIB requiring admission is more common in adults, whereas LGIB requiring admission is more common in children.

What is the most common cause of significant upper GI bleeding in adults?

A. Duodenitis
B. Esophagitis
C. Gastric erosions
D. Peptic ulcer disease
E. Varices

Answer: D. The most common cause of significant upper GI bleeding in adults is peptic ulcer disease. In descending order of frequency, this is followed by gastric erosions, varices, Mallory-Weiss tear, esophagitis, and duodenitis

What is the most common cause of significant lower GI bleeding in adults?

A. Cancer
B. Diverticular disease
C. Inflammatory bowel disease
D. Rectal disease
E. Upper GI bleeding

Answer: B. The most common cause of significant lower GI bleeding in adults is diverticular disease. In descending order of frequency, this is followed by angiodysplasia, upper GI bleeding, cancer or polyps, rectal disease, and inflammatory bowel disease.

What is the most common cause of upper GI bleeding in children?

A. Esophageal varices
B. Esophagitis
C. Gastric and duodenal ulcers
D. Gastritis
E. Mallory-Weiss tear

Answer: C. Gastric and duodenal ulcers are the most common cause of upper GI bleeding in children. In descending order of frequency, this is followed by esophagitis, gastritis, esophageal varices, and Mallory-Weiss tear.

What is the most common cause of lower GI bleeding in children?

A. Anorectal fissure
B. Infectious colitis
C. Inflammatory bowel disease
D. Intussusception
E. Polyps

Answer: A.

Anorectal fissure is the most common cause of lower GI bleeding in children.

In descending order of frequency, this is followed by infectious colitis, inflammatory bowel disease, polyps, intussusception, and Meckel’s diverticulum.

Which of the following has been shown to decrease rebleeding occurrences effectively in patients treated for upper GI bleeding secondary to esophageal varices?

A. Cimetidine
B. Famotidine
C. Octreotide
D. Omeprazole
E. Vasopressin

Answer: C.

Octreotide is a useful addition to endoscopic sclerotherapy and decreases rebleeding occurrences.
Patients with documented esophageal varices and acute upper GI bleeding should be treated with an intravenous infusion of DAM, 50 µg/hr, for a minimum of 24 hours while being observed in the intensive care unit.

Emergent surgical consultation should be obtained in a patient with GI bleeding and which of the following?

A. Esophageal varices
B. History of abdominal aortic graft
C. Initial systolic blood pressure < 100 mm Hg
D. Liver disease
E. Transfusion requiring 4 units of blood

Answer: B.

Emergent surgical consultation is needed for patients who have abdominal aortic grafts and who present to the emergency department with GI bleeding because of the possibility of an aortoenteric fistula.
Consultation with a surgeon should be obtained if it appears that more than 5 units of blood is required to achieve hemodynamic stability or if there is reasonable suspicion that operative intervention may be needed.
This is especially true for patients older than 65 years.
Patients with a history of varices, persistent postural changes in heart rate, or significant bright red blood per rectum are more likely to require surgery than patients without these findings.