Lower GI Bleeding

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GI-Bleeding - Definition and classification
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• Upper GI-Bleeding

• Mid GI-Bleeding

• Lower GI-Bleeding: blood loss of recent onset originating from the colon

  • Historical definition: bleeding source distal to the Treitz ligamentum
Mid GI Bleeding

• small-bowel bleeding with an origin located between the papilla and the ileocecal valves
  • diagnostic methods: capsule endoscopy (CE)
  • double-balloon endoscopy (DBE)

• different management strategy for MGIB

• **ACG** – guidelines definition of LGIB - the onset of hematochezia originating from either the colon or the rectum
Incidence and Causes
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  • 4 times less frequent than the upper GI-Bleeding
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• **Colonic diverticular disease** is the most common cause of LGIB (30-50%)

• LGIB is **more common in the elderly** than in younger people
  • diverticulosis and vascular disease are more common in these groups.
Causes: pathophysiology
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- Anatomic (diverticulosis)
- Vascular (angiodysplasia, ischemic, radiation-induced)
- Inflammatory (inflammatory bowel disease, infectious)
- Neoplastic
Causes

• Diverticulosis
• Ischemia
• Anorectal (hemorrhoids, anal fissures, rectal ulcers)
• Neoplasia (polyps and cancers)
• Angiodysplasia
• Postpolypectomy

• Inflammatory bowel disease
• Radiation colitis
• Other colitis (infectious, antibiotic associated, ischemic, colitis of unclear etiology)
• Small bowel/upper GI bleed
• Unknown cause – up to to 23 %
Prognosis:
Prognosis:

- LGIB ranges from trivial hematochezia to massive hemorrhage with shock
- accounts for up to 24% of all cases of GI bleeding.
- the bleeding will stop spontaneously in 80 to 85 % of patients
- mortality rate: 2 to 4 %
- patients of advanced age and patients with comorbid conditions are at the greatest risk.
- identification of the bleeding point is the most important initial step in treatment
History and physical examination

- first / recurrent episode of gastrointestinal (GI) bleeding

- significant medical history:
  - peptic ulcer disease, liver disease, cirrhosis, coagulopathy, inflammatory bowel disease [IBD]

- previous medication use:
  - nonsteroidal anti-inflammatory drugs (NSAIDs) and/or warfarin.

- in patients with cancer, the history of radiation, chemotherapy, or both should be considered.
Clinical presentation:
Clinical presentation:

• varies with
  • the anatomical source of the bleeding
  • the etiology.
• LGIB from the right side of the colon can manifest as maroon stools, whereas a left-sided bleeding source may be evidenced by bright red blood per rectum.
• upper GI bleeding (UGIB), and right-sided colonic bleeding may also present with bright red blood per rectum if the bleeding is brisk and massive
• cecal bleeding may present with melena, which is typically seen with UGIB,
• no distinct method exists for determining the anatomic source of bleeding based solely on stool color
Clinical presentation - etiology
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- **young patient:** fever, dehydration, abdominal cramps, and hematochezia caused by *infectious or noninfectious* (idiopathic) *colitis*.
- **older patient:** painless bleeding and minimal symptoms caused by *diverticular bleeding or angiodysplasia*. 
Clinical presentation - etiology

• young patient: fever, dehydration, abdominal cramps, and hematochezia caused by infectious or noninfectious (idiopathic) colitis.

• older patient: painless bleeding and minimal symptoms caused by diverticular bleeding or angiodysplasia.

• LGIB can be mild and intermittent, as often is the case with angiodysplasia, or moderate or severe, as may be the situation in diverticula-related bleeding.
Symptoms

- important in identifying the source of bleeding.

- young patients may present with abdominal pain, rectal bleeding, diarrhea, and mucous discharge (?IBD).
- elderly patients presenting with abdominal pain, rectal bleeding, and diarrhea (?ischemic colitis)
- elderly patients with atherosclerotic heart disease may present with intermittent LGIB and syncope (?angiodysplastic lesions)

- stools streaked with blood, perianal pain, and blood drops on the toilet paper or in the toilet bowl may be associated with perianal pathology, such as anal fissure or hemorrhoidal bleeding.
Massive lower GI bleeding
Massive lower GI bleeding

- is a life-threatening condition

- systolic blood pressure of less than 90 mm Hg
- hemoglobin (Hb) level of 6 g/dL or less.

- usually aged 65 years and older
- multiple medical problems
- are at risk of death from acute hemorrhage or its complications.
- the passage of maroon stools or bright red blood from the rectum is usually indicative of massive lower GI hemorrhage.
High-risk features:

- Hemodynamic instability (hypotension, tachycardia, orthostasis, syncope)
- Persistent bleeding
- Significant comorbid illnesses
- Advanced age
- Bleeding that occurs in a patient who is hospitalized for another reason
- A prior history of bleeding from diverticulosis or angiodysplasia
- Current aspirin use
- Prolonged prothrombin time
- A non-tender abdomen
- Anemia
- An elevated blood urea nitrogen level
- An abnormal white blood cell count
Diverticular bleeding

- patients may experience mild abdominal cramping due to the intraluminal blood that triggers spasmodic contraction of the colonic wall.

- bleeding is usually acute, without antecedent symptoms, and is self-limited in about 70-80% of cases. Rebleeding can occur in up to 25% of patients.

- chronic, intermittent, minimal blood loss per rectum is unlikely to be caused by diverticular bleeding (diverticular bleeding is arterial).
Angiodysplasia

- Significant angiodysplasia-related bleeding, like diverticular bleeding, presents as painless, self-limited hematochezia or melena;

- Venocapillary bleeding--angiodysplasia tends to cause slow but repeated episodes of bleeding.

- Patients may present with Hemoccult-positive stools, iron-deficiency anemia, and syncope.

- Occasionally, patients can present with bleeding of large quantities.
Colitis

- **Ischemic colitis**
  - may or may not present with abdominal pain and associated bloody diarrhea.
  - The bloody diarrhea is self-limited but can recur if the underlying cause is not corrected.
  - patients with ischemic colitis are usually older with cardiovascular comorbidities.

- Ischemic colitis may be fulminant, presenting with acute abdominal pain, rectal bleeding, and hypotension, or
- may be insidious, presenting with pain and rectal bleeding over several weeks.

- **Infectious colitis**, the clinical examination findings vary depending on the volume status, amount of blood loss, extent of abdominal pain, and accompanying peritoneal signs.
  - The clinical presentation of fever, diarrhea, dehydration, and abdominal pain can be caused by any of a number of bacterial, viral, or parasitic pathogens. The specific etiology can only be determined by isolating the organism from the stool, blood, or other tissue fluid.
  - Patients may be quite ill (intravascular volume depletion, abdominal pain, and generalized malaise), but blood loss is usually mild and a minor factor in symptomatology.
• The clinical presentation of ulcerative colitis depends on whether the disease is mild, moderate, or severe
  • bleeding is minimal to none in people with mild disease,
  • moderate-to-severe ulcerative colitis presents with bloody diarrhea with pus, abdominal cramps, and dehydration.
  • weight loss and fever occur in those with severe disease.

• Patients with Crohn disease usually present with fever, nonbloody diarrhea, and abdominal pain. However, patients with Crohn colitis can present with bloody diarrhea.
Colon carcinoma

- bleeding (particularly right-sided bleeding), can be insidious, with patients presenting with iron-deficiency anemia and syncope.

- right-sided colon cancer may also present with maroon-colored stools or melena

- left-sided colonic cancers can present as bright red blood per rectum, which can sometimes be confused with hemorrhoidal bleeding.
Anorectal disease

- Hemorrhoidal bleeding is most often painless

- bleeding secondary to fissures tends to be painful

- Hemorrhoids can also present with strangulation, hematochezia, and pruritus.

- typically, bright red blood coats the stool at the end of defecation or blood may stain the toilet paper

- rarely, large bleeding, distressing to the patient
Questions:
Initial assessment
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- Evaluation and risk stratification
Initial assessment

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  1. A **focused history, physical examination, and laboratory evaluation** should be obtained at the time of patient presentation to assess the severity of bleeding and its possible location and etiology. **Initial patient assessment and hemodynamic resuscitation should be performed simultaneously** (strong recommendation, very-low-quality evidence).

  2. Hematochezia associated with hemodynamic instability may be indicative of an UGIB source, and an upper endoscopy should be performed. A nasogastric aspirate/lavage may be used to assess a possible upper GI source if suspicion of UGIB is moderate (strong recommendation, low-quality evidence).

  3. Risk assessment and stratification should be performed to help distinguish patients at high and low risks of adverse outcomes and assist in patient triage including the timing of colonoscopy and the level of care (conditional recommendation, low-quality evidence).
Hemodynamic resuscitation
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   - 9 g/dl should be considered in patients with massive bleeding, significant comorbid illness (especially cardiovascular ischemia), or a possible delay in receiving therapeutic interventions (conditional recommendations, low-quality evidence).
Management of anticoagulant medications

- 6. Endoscopic hemostasis:

- 7. Platelet transfusion:

- 9. In patients on anticoagulant agents, a *multidisciplinary approach* (e.g., hematology, cardiology, neurology, and gastroenterology) should be used when deciding whether to discontinue medications or use reversal agents to balance the risk of ongoing bleeding with the risk of thromboembolic events (strong recommendation, very-low-quality evidence).
Management of anticoagulant medications

6. Endoscopic hemostasis:
   - may be considered in patients with an INR of 1.5–2.5 before or concomitant with the administration of reversal agents. Reversal agents should be considered before endoscopy in patients with an INR >2.5 (conditional recommendation, very-low-quality evidence).

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7. Platelet transfusion:
   • should be considered to maintain a platelet count of 50×10^9/l in patients with severe bleeding and those requiring endoscopic hemostasis (conditional recommendation, very-low-quality evidence).

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- 7. Platelet transfusion:
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- 8. Platelet and plasma transfusions should be considered in patients who receive massive red blood cell transfusions (conditional recommendation, very-low-quality evidence).

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• Colonoscopy
Colonoscopy as a diagnostic tool

• 10. Colonoscopy should be the initial diagnostic procedure for nearly all patients presenting with acute LGIB (strong recommendation, low-quality evidence).

• 11. The colonic mucosa should be carefully inspected during both colonoscope insertion and withdrawal, with aggressive attempts made to wash residual stool and blood in order to identify the bleeding site. The endoscopist should also intubate the terminal ileum to rule out proximal blood suggestive of a small bowel lesion (conditional recommendation, very-low-quality evidence).
Bowel preparation

• 12. Once the patient is hemodynamically stable, colonoscopy should be performed after adequate colon cleansing.
  • Four to six liters of a polyethylene glycol (PEG)-based solution or the equivalent should be administered over 3–4 h until the rectal effluent is clear of blood and stool. Unprepped colonoscopy/sigmoidoscopy is not recommended (strong recommendation, low-quality evidence).
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13. A nasogastric tube can be considered to facilitate colon preparation in high-risk patients with ongoing bleeding who are intolerant to oral intake and are at low risk of aspiration (conditional recommendation, low-quality evidence).
Timing of colonoscopy
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• 14. In patients with high-risk clinical features and signs or symptoms of ongoing bleeding:
  • a rapid bowel purge should be initiated following hemodynamic resuscitation and a colonoscopy performed within 24 h of patient presentation after adequate colon preparation to potentially improve diagnostic and therapeutic yield (conditional recommendation, low-quality evidence).
Timing of colonoscopy

14. In patients with high-risk clinical features and signs or symptoms of ongoing bleeding:
   - a rapid bowel purge should be initiated following hemodynamic resuscitation and a colonoscopy performed within 24 h of patient presentation after adequate colon preparation to potentially improve diagnostic and therapeutic yield (conditional recommendation, low-quality evidence).

15. In patients without high-risk clinical features or serious comorbid disease or those with high-risk clinical features without signs or symptoms of ongoing bleeding:
   - colonoscopy should be performed next available after a colon purge (conditional recommendation, low-quality evidence).
High-risk features:

- Hemodynamic instability (hypotension, tachycardia, orthostasis, syncope)
- Persistent bleeding
- Significant comorbid illnesses
- Advanced age
- Bleeding that occurs in a patient who is hospitalized for another reason
- A prior history of bleeding from diverticulosis or angiodysplasia
- Current aspirin use
- Prolonged prothrombin time
- A non-tender abdomen
- Anemia
- An elevated blood urea nitrogen level
- An abnormal white blood cell count
Endoscopic hemostasis therapy

• 16. Endoscopic therapy should be provided:

• 17. Diverticular bleeding:

• 18. Angioectasia bleeding:
Endoscopic hemostasis therapy

16. Endoscopic therapy should be provided:
   - to patients with high-risk endoscopic stigmata of bleeding: active bleeding (spurting and oozing); non-bleeding visible vessel; or adherent clot (strong recommendation, low-quality evidence).

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• 17. Diverticular bleeding:
  • through-the-scope endoscopic clips are recommended as clips may be safer in the colon than contact thermal therapy and are generally easier to perform than band ligation, particularly for right-sided colon lesions (conditional recommendation, low-quality evidence).

• 18. Angioectasia bleeding:
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18. Angioectasia bleeding:
   - noncontact thermal therapy using argon plasma coagulation is recommended (conditional recommendation, low-quality evidence).
• 19. Post-polypectomy bleeding:

• 20. Epinephrine injection therapy (1:10,000 or 1:20,000 dilution with saline):
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  • mechanical (clip) or contact thermal endotherapy, with or without the combined use of dilute epinephrine injection, is recommended (strong recommendation, low-quality evidence).

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  • mechanical (clip) or contact thermal endotherapy, with or without the combined use of dilute epinephrine injection, is recommended (strong recommendation, low-quality evidence).

• 20. Epinephrine injection therapy (1:10,000 or 1:20,000 dilution with saline):
  • can be used to gain initial control of an active bleeding lesion and improve visualization but should be used in combination with a second hemostasis modality including mechanical or contact thermal therapy to achieve definitive hemostasis (strong recommendation, very-low-quality evidence).
Role of repeat colonoscopy in the setting of early recurrent bleeding
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• 21. Repeat colonoscopy, with endoscopic hemostasis if indicated, should be considered for patients with evidence of recurrent bleeding (strong recommendation, very-low-quality evidence).
Non-colonoscopy interventions

• 22. A surgical consultation:

• 23. Radiographic interventions:
Non-colonoscopy interventions

• 22. A surgical consultation:
  • should be requested in patients with high-risk clinical features and ongoing bleeding. In general, surgery for acute LGIB should be considered after other therapeutic options have failed and should take into consideration the extent and success of prior bleeding control measures, severity and source of bleeding, and the level of comorbid disease. It is important to very carefully localize the source of bleeding whenever possible before surgical resection to avoid continued or recurrent bleeding from an unresected culprit lesion (conditional recommendation, very-low-quality evidence).

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• 23. Radiographic interventions:
  • should be considered in patients with high-risk clinical features and ongoing bleeding who have a negative upper endoscopy and do not respond adequately to hemodynamic resuscitation efforts and are therefore unlikely to tolerate bowel preparation and urgent colonoscopy (strong recommendation, very-low-quality evidence).
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• 24. If a diagnostic test is desired for localization of the bleeding site before angiography, CT angiography should be considered (conditional recommendation, very-low-quality evidence).
Prevention of recurrent lower gastrointestinal bleeding

- 25. **Non-aspirin NSAID use**

- 26. In patients with established high-risk cardiovascular disease and a history of LGIB, *aspirin used for secondary prevention:*

  *Aspirin for primary prevention* of cardiovascular events:

- 27. In patients on dual antiplatelet therapy or monotherapy with non-aspirin antiplatelet agents (thienopyridine):
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• 25. **Non-aspirin NSAID use**
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• 27. In patients on dual antiplatelet therapy or monotherapy with non-aspirin antiplatelet agents (thienopyridine):
  • non-aspirin antiplatelet therapy *should be resumed as soon as possible* and at least within 7 days based on *multidisciplinary assessment* of cardiovascular and GI risk and the adequacy of endoscopic therapy (as above, aspirin use should not be discontinued). However, dual antiplatelet therapy should **not** be discontinued in patients with an acute coronary syndrome within the past 90 days or coronary stenting within the past 30 days (strong recommendation, low-quality evidence).
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