

Lower Gastrointestinal Bleeding

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KEYWORDS

• Hematochezia • Melena • Diverticulosis • Angiodysplasia

KEY POINTS

- Lower gastrointestinal bleeding is likely under-reported and remains a common causes of emergency department visits.
- Localization of bleeding is key to forming an appropriate treatment plan.
- Whether the bleeding is occult, moderate, or severe dictates the workup.
- Hemodynamically unstable patients require immediate intervention.
- Although minimally invasive techniques are often sufficient to stop the bleeding, there is still a role for surgery in certain patient populations.

INTRODUCTION

Lower gastrointestinal (GI) bleeding has an annual incidence of about 20 to 27 cases per 100,000 population in developed countries. However, it is thought that this number is falsely low because of the substantial number of patients who do not seek medical care.¹ Although lower GI bleeding is not as common as upper GI bleeding, it remains a frequent cause of hospital admissions and carries a mortality of up to 10% to 20%.

Lower GI bleeding can be classified into 3 groups based on the severity of bleeding: occult lower GI bleeding, moderate lower GI bleeding, and severe lower GI bleeding.

Patients of any age can present with occult lower GI bleeding. Because the bleed tends to be slow and chronic, patients have microcytic, hypochromic anemia. Stool guiac will be positive.

Often presenting with melena or hematochezia, moderate bleeding can occur in patients of any age. Despite the obvious bleeding, patients remain hemodynamically stable.

Patients with severe lower GI bleeding present hemodynamically unstable with heart rates greater than 100 and systolic blood pressure less than 90. They have associated low urine output and decreased hemoglobin levels. Hematochezia is

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Surg Clin N Am 94 (2014) 55–63

<http://dx.doi.org/10.1016/j.suc.2013.10.005>

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prominent. This tends to occur in elderly patients older than 65 years and has an associated mortality of 21%.²

BLOOD SUPPLY

Lower GI bleeding is defined as any bleed that occurs distal to the ligament of Treitz. Although the colon is the most likely source of bleeding, small bowel disease can occur. In addition, upper GI sources must always be considered in a patient who presents with bleeding per rectum.

Midgut

The midgut is defined as all structures between the foregut and the hindgut. This includes the distal duodenum, jejunum, ileum, appendix, cecum, ascending colon, hepatic flexure, and proximal transverse colon. The superior mesenteric artery (SMA) and its branches provide the blood supply to the midgut. Venous drainage is via the portal system.

Hindgut

The hindgut includes the distal one-third of the transverse colon, the splenic flexure, descending colon, sigmoid colon, and rectum. Blood supply is mainly via the inferior mesenteric artery (IMA), with rectal perfusion through the superior, middle, and inferior rectal arteries. Venous drainage is via the portal system, with the exception of the lower rectum, which drains into the systemic circulation.

The SMA and IMA are connected by the marginal artery of Drummond. This vascular arcade runs in the mesentery close to the bowel and is almost always present. As patients age, there is increased incidence of occlusion of the IMA. The left colon stays perfused, primarily because of the marginal artery (**Fig. 1**).

PATHOPHYSIOLOGY

Lower GI bleeding has multiple causes, each with its own morbidity attributed to the underlying pathophysiology. Multiple studies of the incidence and etiology of lower GI bleeding found that diverticulosis was the most common at 30%, followed by anorectal disease (14%–20%), ischemia (12%), inflammatory bowel disease (IBD) (9%), neoplasia (6%) and arteriovenous (AV) malformations (3%).^{3,4}

Diverticulosis

With age, the colonic wall weakens and develops diverticula. These saclike protrusions generally occur where the penetrating vessel perforates through the circular muscle fibers, resulting in only mucosa separating the vessel from the bowel lumen. It is estimated that approximately 50% of adults over the age of 60 have radiologic evidence of diverticula, most commonly in the descending and sigmoid colon, and 20% of these patients will go on to develop bleeding. Despite the majority of diverticula being on the left side of the colon, diverticular bleeding originates from the right side of the colon in 50% to 90% of instances.⁵ This bleeding stops spontaneously in the most patients; however, in about 5% of patients, the bleeding can be massive and life-threatening.

Anorectal Disease

Anorectal disease encompasses many etiologies, including hemorrhoids and anal fissures.

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