

LOS ANGELES

COLON AND RECTAL SURGICAL ASSOCIATES

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GASTROINTESTINAL BLEEDING

All Bleeding Stops... Eventually.

USUALLY UPPER OR LOWER. NOT MIDDLE.

Gastrointestinal bleeding is a common condition and can vary in degree from mild to life threatening. As the name implies, bleeding can be anywhere along the GI tract, but is most common from an upper GI source (esophagus, stomach or duodenum), followed by lower GI bleeding from the colon or rectum. A small intestinal source of GI bleeding is exceedingly rare. Management of the bleeding is dependent on correct identification of the exact source of the bleeding.

Overall acute upper GI bleeding is twice as common as acute lower GI bleeding in the general population (60/100,000 vs 30/100,000 respectively). Correct localization and management of lower GI bleeding is generally more difficult and may require a variety of diagnostic techniques, as it can occur anywhere distal to the ligament of Treitz, although again, small intestinal bleeding is uncommon.

WHERE TO LOOK FIRST.

Causes of upper GI bleeding include esophageal inflammation or cancer, a Mallory Weiss tear or esophageal varices, gastric ulcers (especially common in the antrum), gastritis, a malignant gastric neoplasm or a duodenal ulcer. A duodenal ulcer occurs most commonly in the first portion of the duodenum.

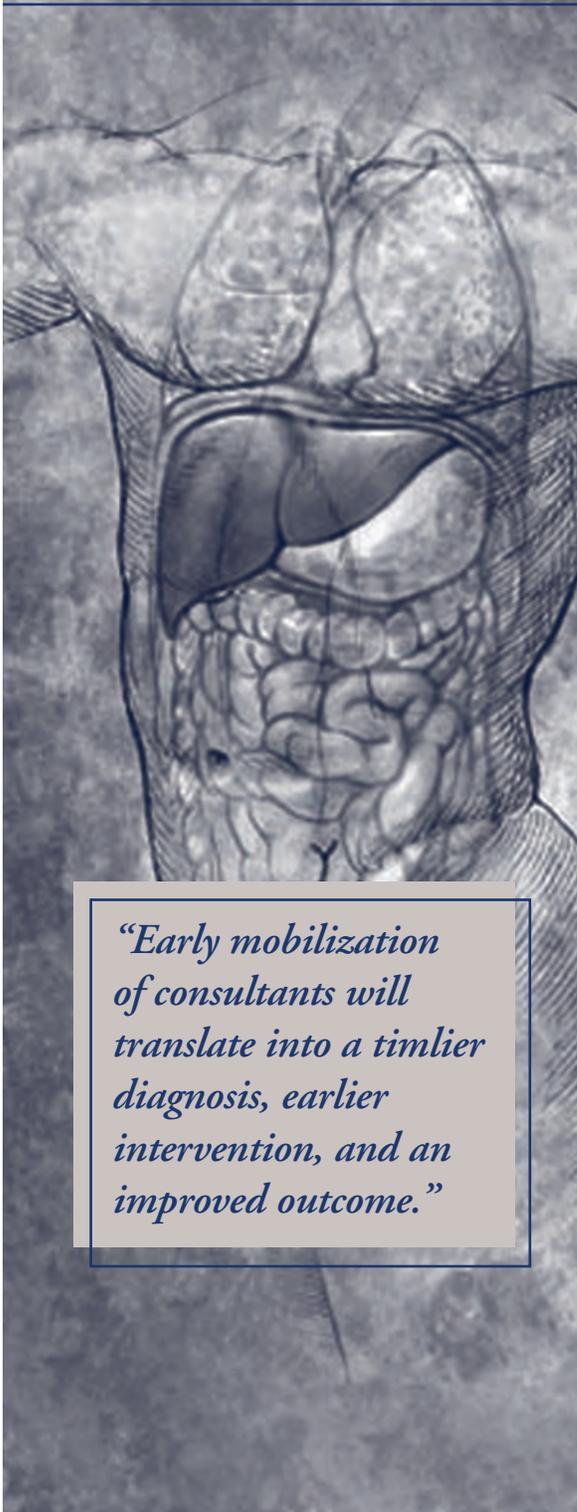
Common causes of lower GI bleeding include diverticulosis, vascular ectasia, ischemic colitis, neoplasm, inflammatory bowel disease, or an anorectal source. The incidence of each changes depending on age of the patient, as younger patients are more likely to have bleeding from inflammatory bowel disease or from a small intestinal source, such as a Meckel's diverticulum.

A thorough history and physical exam is critically important, and can provide important clues regarding the location of bleeding. Typically, the presence of melena or maroon blood

per rectum, or hematemesis will localize the bleeding to an upper GI source. In rare instances, however, upper GI bleeding may be so brisk as to appear similar to a lower GI bleed. Lower GI bleeding is most often bright red in color, but may be associated with maroon blood and blood clots. A history of prior bleeding episodes,

information about underlying medical issues (cirrhosis, peptic ulcer disease, diverticulosis, hemorrhoids, bleeding disorders) as well as prior evaluations (upper or lower endoscopy) can help narrow the diagnosis and, in turn, expedite appropriate testing and management. Pay close attention to aspirin use or non-steroidal anti-inflammatory use, as well as anti-platelet and anticoagulation therapies, as either of these can precipitate gastric bleeding, either from gastritis or an ulcer.

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“Early mobilization of consultants will translate into a timelier diagnosis, earlier intervention, and an improved outcome.”



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STABILIZE, THEN INVESTIGATE.

The first step in management of acute GI bleeding involves stabilizing the patient. Early placement of large bore IVs and resuscitation with fluids and, if indicated, blood products, are crucial in this process. With rapid and overwhelming bleeding, rapid transfusion of blood or blood products, especially if unwarmed, can set off a bleeding diathesis, such as DIC, and exacerbate the problem. **Early mobilization of consultants will translate into a timelier diagnosis, earlier intervention, and an improved outcome.**

BEGIN THE HUNT FOR THE SOURCE.

Digital rectal examination and bedside anoscopy or proctoscopy can quickly identify or rule out hemorrhoidal bleeding. Presence of and location of abdominal tenderness can also help in localization, although most patients have a benign abdominal exam. Placement of a nasogastric tube with lavage and return of bilious aspirate can comfortably rule out a bleeding source proximal to the second portion of the duodenum.

INDIRECT VISUALIZATION.

Radionuclide Scan: Technetium-labeled red blood cell scanning involves injection of a patient with their own technetium labeled red blood cells, followed by nuclear scanning to evaluate for accumulation of markers in a precise location of the intestinal tract. The scan can detect bleeding rates as low as 0.05-1 mL per minute and can be very sensitive, as the extended half-life allows scanning for 24 hours after injection. However, as scanning requires accumulation of the marker over time, specificity in localizing the bleeding is low, and false localization rates can be greater than 25%. Therefore, surgical intervention should not be based solely on the results of a nuclear scan.

Angiography - Percutaneous injection of dye in the mesenteric vasculature (celiac artery, superior mesenteric artery, or inferior mesenteric artery) can localize bleeding at rates of 0.5 mL per minute. It is highly specific if a bleeding source such as a blush, or extravasation is visualized. Additionally, the source can be controlled via trans-catheter infusion of vasopressin or selective embolization of the bleeding vessel. Success rates with selective embolization have been reported in 66%-100% of cases, with a mesenteric ischemic risk of approximately 20%. Drawbacks include the invasive nature of the procedure, the rare iodine allergy, a potential for renal compromise from iodine injection, prolonged time to mobilize resources to perform the procedure, and ischemic changes that may require surgery. It is most successful in controlling diverticular bleeding, as rebleeding rates of 40% have been reported for non-diverticular bleeds. Use of CT angiography may allow for more rapid scanning while maintaining specificity and avoiding the invasive nature of traditional angiography. Obviously, no therapeutic measures can be taken with CT angiography and any findings would require further intervention.

DIRECT VISUALIZATION.

Esophagogastroduodenoscopy (EGD)- An EGD can provide rapid and direct visualization of an upper GI source of the bleeding. Therapeutic intervention can be instituted through epinephrine injection, hemoclips, laser coagulation or variceal banding.

Colonoscopy - Endoscopic visualization of the lower GI tract and the terminal ileum is highly valuable for both diagnostic and therapeutic purposes. When found, bleeding can be controlled directly with a variety of techniques including submucosal injection of epinephrine or saline, direct coagulation, or placement of endoscopic hemoclips. Additionally, the area of concern can be tattooed for future identification as well as for surgical localization. Challenges however, include time for mobilization of resources, poor visualization in an unprepared colon and non-visualization of the bleeding source due to the intermittent nature of bleeding. All stable patients should undergo colonoscopy at some time during evaluation of the bleed, especially to rule out an underlying malignancy.

THE ROLE OF THE SURGEON. EARLY CONSULTATION.

Early involvement of surgical consultants in the evaluation and treatment of GI bleeding is important, as acute bleeding can quickly become life threatening. Recurrent or ongoing bleeding without source control can lead to significant morbidity and mortality. Patients requiring 4 or more units of blood in 24 hours have a 50% chance of requiring operative intervention. An old, but still useful surgical rule of thumb includes surgical intervention in patients requiring more than 8 units of packed red blood cells, irrespective of the bleeding rate.

In upper GI bleeds, especially those due to a Dieulafoy lesion (an exposed arteriole, also known as *exulceratio simplex Dieulafoy*, usually located on the lesser curve of the stomach, within 6 cm of the gastroesophageal junction), surgical ligation may be the only successful option. In lower GI bleeding, 10-25% of patients will require surgical intervention, and accurate localization is key to successful surgery. Angiography and colonoscopy are the most accurate localizing tools for colonic bleeding. And, if unable to control the bleeding medically, surgery can be tailored to a segmental resection. In rare circumstances where localization

is not possible or the patient is hemodynamically unstable despite resuscitative efforts, emergent total abdominal colectomy, with or without primary anastomosis, is indicated. Segmental resection without accurate localization should be avoided, and is associated with 33% bleeding recurrence.

ACT QUICKLY AND THOROUGHLY. USE YOUR ENTIRE TOOLBOX OF INTERVENTIONS.

GI bleeding can be life threatening. A multimodality, multispecialty approach is important in care of these patients. Accurate localization and early involvement of consultants should be able to stop the bleeding safely and successfully.

