Endoscopic Management of Nonvariceal, Nonulcer Upper Gastrointestinal Bleeding

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KEYWORDS

• Nonvariceal • Dieulafoy • Arteriovenous malformation • Mallory-Weiss tear
• Hemostasis • Malignant gastrointestinal bleeding • Topical spray hemostasis
• Over-the-scope clip

KEY POINTS

- Nonulcer acute upper gastrointestinal hemorrhage (UGIH) is a less common cause for UGIH compared with ulcer-related bleeding.
- The mainstay of endoscopic management of acute UGIH remains a combination of submucosal epinephrine injection with coaptive coagulation and/or hemostatic clips.
- A new modality of diagnosing nonulcer UGIH includes endoscopic Doppler probe identification of blood flow.
- Development of new modalities for the treatment of upper gastrointestinal hemorrhage has led to the introduction of topical sprays and over-the-scope clips.

INTRODUCTION

The most common cause for acute upper gastrointestinal hemorrhage (UGIH) is ulcer-related bleeding, which represents nearly 50% of all upper gastrointestinal (GI) bleeding. Nonulcer, nonvariceal bleeding is less common, representing approximately 25% to 35% of all upper GI bleeding.[1,2] The mortality associated with acute UGIH has been decreasing over the past 5 to 10 years with a study-reported mortality range of 2% to 5%. This figure is down from the 5% to 10% mortality observed previously.[1–5] This decrease may be attributable to the advent and increased use of proton pump inhibitor (PPI) medications, efforts to eradicate *Helicobacter pylori* infection, steady improvement in endoscopic equipment, including improvement in diagnostic imaging and available treatment modalities, and the shift to more restrictive blood transfusion strategies. Through the effective endoscopic management of acute UGIH, there is a

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reduction in the risk for recurrent bleeding, blood transfusion, need for surgery, and mortality.[6,7] The focus of this article is endoscopic therapy for nonvariceal, nonulcer-related UGIH.

DIAGNOSIS

Determining if acute GI bleeding is from a source proximal to the ligament of Treitz can be aided by careful assessment of the clinical history, physical examination, and laboratory testing. Initial diagnosis of acute UGIH should focus on good history taking with an emphasis on clinical signs and symptoms related to GI bleeding. History of present illness should include timing of events, with focus on symptoms of blood volume loss (eg, presyncope, syncope, racing heart, chest pain). Specific questions should also include development of hematemesis or coffee grounds emesis, melena, or hematochezia. Alternative causes for the presence of GI blood should also be included, such as swallowed blood from large-volume epistaxis or oropharyngeal bleeding. Other focused questions should include surgical history, history of ulcer disease, history of liver disease or cirrhosis, history of gastroesophageal reflux disease, daily aspirin or nonsteroidal anti-inflammatory use, or chronic anticoagulation with medications, such as warfarin, oral direct thrombin inhibitors, or oral anti-Xa inhibitor medications. Assessing for high-risk clinical and examination features, such as melena, syncope, heart failure, liver disease, hypotension, and tachycardia, may be predictive of acute bleeding, which will likely need endoscopic intervention.[8]

Physical examination should initially focus on patient vital signs with special attention to hypotension, tachycardia, and orthostasis. Assessment for conjunctival pallor may indicate severe anemia, and assessment of the abdomen should include peritoneal signs, abdominal pain, and prior scars from previous surgeries. Careful assessment for stigmata of occult cirrhosis includes observation for scleral icterus, skin examination for spider angiomata on the chest, palmar erythema, jaundice, gynecomastia, ascites, firm shrunken liver, splenomegaly, and caput medusa. A problem-focused physical examination should also include a rectal examination for melena or hematochezia and possibly nasogastric lavage, which may aid in diagnosis of upper GI bleeding and in visualization at the time of endoscopy.[9]

Initial laboratory testing should include complete blood count, chemistry, and liver profile, biochemical, and coagulation studies. Blood testing may also include studies for type and cross-match in case transfusion is required. Special attention should be paid to the blood urea nitrogen level, the elevation of which is associated with increased need for endoscopic intervention and which may be elevated in acute upper GI bleeding because of small intestinal absorption of blood products.[8]

TREATMENT

Initial treatment is similar for all types of presumed acute UGIH and includes resuscitative efforts to correct hemodynamic instability with goal systolic blood pressure greater than 100 mm Hg and pulse rate less than 100 beats per minute. Patients should have intravenous (IV) access preferably via 2 large-bore peripheral IV catheters. If anemia is present, patients should undergo blood transfusion with goal hemoglobin greater than 7 g/dL, or possibly higher for patients with known ischemic cardiovascular disease or Childs class C cirrhosis.[1] Thrombocytopenia should be corrected with goal level greater than 50,000/mm^3 and prothrombin time less than 15 seconds.

Gastroenterology services should be requested by admitting physicians as soon as possible to expedite appropriate care and to determine timing of endoscopic interventions is needed. Initial medical therapy for presumed acute UGIH should include IV