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REVIEW

The management of lower gastrointestinal bleeding



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Available online 24 April 2014

KEYWORDS

Lower gastrointestinal bleeding;
Angiography;
Endoscopy;
Video capsule endoscopy;
Enteroscopy;
Surgery

Summary Lower gastrointestinal (LGI) bleeding is generally less severe than upper gastrointestinal (UGI) bleeding with spontaneous cessation of bleeding in 80% of cases and a mortality of 2–4%. However, unlike UGI bleeding, there is no consensual agreement about management. Once the patient has been stabilized, the main objective and greatest difficulty is to identify the location of bleeding in order to provide specific appropriate treatment. While upper endoscopy and colonoscopy remain the essential first-line examinations, the development and availability of angiography have made this an important imaging modality for cases of active bleeding; they allow diagnostic localization of bleeding and guide subsequent therapy, whether therapeutic embolization, interventional colonoscopy or, if other techniques fail or are unavailable, surgery directed at the precise site of bleeding. Furthermore, newly developed endoscopic techniques, particularly video capsule enteroscopy, now allow minimally invasive exploration of the small intestine; if this is positive, it will guide subsequent assisted enteroscopy or surgery. Other small bowel imaging techniques include enteroclysis by CT or magnetic resonance imaging. At the present time, exploratory surgery is no longer a first-line approach. In view of the lesser gravity of LGI bleeding, it is most reasonable to simply stabilize the patient initially for subsequent transfer to a specialized center, if minimally invasive techniques are not available at the local hospital. In all cases, the complexity and diversity of LGI bleeding require a multidisciplinary collaboration involving the gastroenterologist, radiologist, intensivist and surgeon to optimize diagnosis and treatment of the patient.

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Introduction

Lower gastrointestinal (LGI) bleeding is defined as bleeding whose origin is located downstream of the duodeno-jejunal junction at the ligament of Treitz, thus including the small intestine, colon, rectum or anus. Clinical manifestations are melena or hematochezia. We speak of obscure LGI bleeding when one or more episodes of bleeding occur for which no site of origin is identified by standard endoscopy, and of occult gastrointestinal bleeding when no gross blood is observed by the patient or clinician yet there is evidence of bleeding manifested by iron-deficiency anemia with no identified extra-intestinal source of blood loss.

In recent years, diagnostic and treatment modalities have developed considerably for use by gastroenterologists, radiologists and surgeons. However, the main problem of LGI bleeding remains the identification of the source rather than the treatment of bleeding.

General

Epidemiology

LGI bleeding represents 20% to 25% of all gastrointestinal bleedings [1]. Epidemiological studies are rare. North American studies have estimated the annual incidence in adults at 21–27 per 100,000 population [2,3]. LGI bleeding occurs more frequently in men than in women (24.2% vs. 17.2%, $P < 0.001$) and more often in the elderly than in young subjects (~200-fold increase in the 9th decade compared to the 3rd decade of life) [3]. This increased incidence is explained by the increasing prevalence of diverticulosis and angiodysplasia with age [2]. The mortality of LGI bleeding is estimated at 2–4% in various series [2,4].

A prospective epidemiological study carried out in France in 2007 by the National Association of General Hospital Gastroenterologists identified 1333 patients with LGI bleeding. The mean age was 72 ± 16 years; ASA (American Society of Anesthesiologists) score was 2.5 ± 0.9 and 50% of patients had an ASA of 3. Use of a predisposing medication was found in nearly 75% of patients (34% antiplatelet agents, 22% anti-vitamin K agents, 11% non-steroid anti-inflammatory drugs [NSAID], 7% heparin) [5].

Severity criteria

The gravity of LGI bleeding is generally less severe than that of UGI bleeding; hemorrhage ceases spontaneously in 80% of cases [6]. Currently, there is no consensus definition of the severity of LGI bleeding. Severity is assessed according to its hemodynamic consequences, laboratory findings and underlying patient condition [2,6]:

- systolic blood pressure < 100 mmHg;
- pulse > 100 /min;
- hemoglobin < 10 g/dL;
- need for more than six units of red blood cell transfusion to restore satisfactory hemodynamics;
- co-morbidities and associated use of anticoagulants.

The assessment of severity is very important because it is a determining factor in the plan of management.

Etiologies

In specifying the frequent and problematic causes, the prevalence of various etiologies is purely illustrative given the great variability of results in the literature [1,6–8]. Moreover, despite all diagnostic testing, the source of bleeding cannot be identified in approximately 10% of patients [9].

Colorectal lesions

Between 60 and 80% of LGI bleeding originates in the colon and rectum [1,6,7,9,10].

Diverticular bleeding

Diverticular bleeding, which accounts for 20–50% of LGI bleeding, occurs due to erosion of small arteries in the wall of the diverticulum [2,5]. Diverticular bleeding stops spontaneously with conservative medical treatment in 85% of cases. The incidence of re-bleeding is low, less than 15% after an initial episode, but as high as 50% after a second episode. In recent years, the location of the bleeding diverticulum is more commonly described in the sigmoid and descending colon in contrast to earlier descriptions implicating the right colon [11].

Angiodysplasia

Angiodysplasia consists of single or multiple abnormalities in the gastrointestinal wall consisting of vascular ectasia of the mucosal capillaries communicating with dilated and tortuous submucosal veins. The typical endoscopic appearance is a 2–5 mm flat bright red lesion with regular contours and a round or stellate shape. They are located mainly in the right colon and cecum (80%) but may also affect the small intestine (15%) or stomach. The pathophysiology of their formation is poorly understood at present [12].

They are responsible for 3–10% of cases of LGI bleeding in various series [1,12], but account for 50–60% of bleeding of small bowel origin, especially among the elderly [13]. Bleeding stops spontaneously in approximately 90% of cases, but the risk of re-bleeding is high: 26% at 1 year and 45% at 3 years in the series of Richter et al. and Junquera et al. [14,15].

Ischemic colitis

Ischemic colitis includes all secondary erosive lesions due to arterial or venous hypoxia of the wall of the colon and/or rectum, whether acute or chronic. It accounts for 3–9% of LGI bleeding [1].

Inflammatory colitis

This designation encompasses chronic inflammatory bowel disease (IBD) (6–30% of LGI bleeding), infectious colitis, and non-specific inflammatory colitis.

Other colonic etiologies

These include polyps and colorectal cancers, iatrogenic causes (post-polypectomy), radiation proctitis and colitis, colonic endometriosis, colorectal varices, among others.

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