



# The role of endoscopy in the management of suspected small-bowel bleeding



Prepared by: ASGE STANDARDS OF PRACTICE COMMITTEE

Suryakanth R. Gurudu, MD, FASGE, David H. Bruining, MD, Ruben D. Acosta, MD, Mohamad A. Eloubeidi, MD, MHS, FASGE, Ashley L. Faulx, MD, FASGE, Mouen A. Khashab, MD, Shivangi Kothari, MD, Jenifer R. Lightdale, MD, MPH, FASGE, NASPGHAN representative, V. Raman Muthusamy, MD, FASGE, Julie Yang, MD, John M. DeWitt, MD, FASGE, Chair

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This is one of a series of statements discussing the use of GI endoscopy in common clinical situations. The Standards of Practice Committee of the American Society for Gastrointestinal Endoscopy (ASGE) prepared this text. In preparing this guideline, a search of the medical literature was conducted by using PubMed. Additional references were obtained from a search of Web of Science, SCOPUS, and the bibliographies of the identified articles and from recommendations of expert consultants. Guidelines for appropriate use of endoscopy are based on a critical review of the available data and expert consensus at the time the guidelines were drafted. Further controlled clinical studies may be needed to clarify aspects of this guideline. This guideline may be revised as necessary to account for changes in technology, new data, or other aspects of clinical practice. The recommendations are based on reviewed studies and are graded on the strength of the supporting evidence (Table 1).<sup>1</sup> The strength of individual recommendations is based on both the aggregate evidence quality and an assessment of anticipated benefits the and harms. Weaker recommendations are indicated by phrases such as "we suggest," whereas stronger recommendations are typically stated as "we recommend."

This guideline is intended to be an educational device to provide information that may assist endoscopists in providing care to patients. This guideline is not a rule and should not be construed as establishing a legal standard of care or as encouraging, advocating, requiring, or discouraging any particular treatment. Clinical decisions in any particular case involve a complex analysis of the patient's condition and available courses of action. Therefore, clinical considerations may lead an

Copyright © 2017 by the American Society for Gastrointestinal Endoscopy 0016-5107/\$36.00 http://dx.doi.org/10.1016/j.gie.2016.06.013 endoscopist to take a course of action that varies from these guidelines.

Obscure GI bleeding (OGIB) has been defined as overt or occult bleeding of unknown origin that persists or recurs after an initial negative bidirectional endoscopic evaluation including ileocolonoscopy and EGD. Overt OGIB refers to visible bleeding (eg, melena or hematochezia), whereas occult OGIB refers to cases of fecal occult blood positivity and/or unexplained iron deficiency anemia. Recent advances in small-bowel imaging, including video capsule endoscopy (VCE), angiography, and deviceassisted enteroscopy (DAE), have made it possible to identify a small-bowel bleeding source and therefore manage the majority of patients who present with OGIB.<sup>2</sup> As a result, a recent clinical guideline recommends a shift from the term obscure GI bleeding to small-bowel *bleeding.*<sup>3</sup> The term *OGIB* would be reserved for patients in whom the sources of bleeding cannot be identified anywhere in the GI tract after completion of comprehensive evaluation of the entire GI tract, including the small bowel.

Of all the sources of GI bleeding, only a small percentage (5%) is attributed to small-bowel sources.<sup>4,5</sup> Angiectasias of the small bowel account for 20% to 30% of small-bowel bleeding<sup>6-8</sup> and are more commonly seen in older patients. Small-bowel tumors (eg, GI stromal tumors, carcinoid tumors, lymphomas, and adenocarcinomas) can present with small-bowel bleeding in both younger and older patients.<sup>9,10</sup> Other benign etiologies include erosions and ulcers related to the use of nonsteroidal antiinflammatory drugs (NSAIDs)<sup>11,12</sup> and Crohn's disease.<sup>13</sup> Rare causes of small-bowel bleeding include Meckel's diverticula–associated ulceration (especially in younger patients),<sup>14</sup> radiation enteropathy,<sup>15</sup> Dieulafoy's lesions,<sup>16,17</sup> small-bowel varices, and aortoenteric fistulas.<sup>18,19</sup>

In patients with OGIB, upper and lower GI tract endoscopies often are repeated before small-bowel evaluation

TABLE 1. GRADE system for rating the quality of evidence for guidelines <sup>1</sup>		
Quality of evidence	Definition	Symbol
High quality	Further research is very unlikely to change our confidence in the estimate of effect.	$\oplus \oplus \oplus \oplus \oplus$
Moderate quality	Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.	$\oplus \oplus \oplus \bigcirc$
Low quality	Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.	⊕⊕00
Very low quality	Any estimate of effect is very uncertain.	0000

<code>GRADE</code>, Grading of Recommendations Assessment, Development and Evaluation. Adapted from Guyatt et al.<sup>1</sup>

because substantial initial endoscopic miss rates have been reported.<sup>20,21</sup> Techniques for evaluation of the small bowel include VCE, DAE, multiphase CT enterography (CTE), magnetic resonance enterography (MRE), and, in rare instances, intraoperative enteroscopy. These modalities can recognize small-bowel lesions and may impact therapeutic strategies, often preventing surgical interventions. Despite these advances, the most cost-effective approach to the management of patients with suspected small-bowel bleeding has not been fully determined. This guideline is an update of a prior ASGE document on the management of small-bowel bleeding.<sup>22</sup>

### EVALUATION AND MANAGEMENT OF PATIENTS WITH SMALL-BOWEL BLEEDING

The evaluation and management of patients with smallbowel bleeding depends on clinical factors, such as the age of the patient, quality of the prior endoscopic evaluation, and the overt or occult status of the bleeding. Clinical signs, such as the nature of the bleeding (eg, melena vs hematochezia), can help direct the choice of endoscopic tests. In addition, local availability of procedures, patient preferences, physician expertise, risks, and costs are also important determinants of management.

Hemodynamic resuscitation is key to the management of all patients with GI bleeding.<sup>23</sup> Moreover, patients on antithrombotic therapy should be managed according to recently published guidelines.<sup>24,25</sup> A suggested algorithm for the management of suspected overt and occult smallbowel bleeding is shown in Figure 1.

#### Overt small-bowel bleeding

In patients with overt bleeding and a clinical presentation compatible with upper GI bleeding (eg, hematemesis), early EGD (within 24 hours) should be performed before small-bowel evaluation.<sup>23</sup> If an upper endoscopy has been performed recently and was of sufficient quality, then a repeat upper examination could be performed with push enteroscopy to examine for proximal small-bowel lesions. If this does not reveal a source of bleeding, consideration should be given to repeat colonoscopy with evaluation of the terminal ileum. For hemodynamically stable patients with overt bleeding, after upper and lower endoscopic examinations with normal results, VCE is recommended as the next diagnostic test. DAE can be considered in patients with positive bleeding sources identified on VCE. Multiphase CTE or MRE should be performed first if the patient has potential reasons for capsule retention.

For patients who present with hemodynamically significant bleeding, urgent angiography is recommended for embolization. A CT angiogram (CTA)<sup>26</sup> or red blood cell (RBC) scan can be considered for localization of the bleeding source and to guide timing of the angiogram in hemodynamically stable patients. In patients with surgically altered anatomy in whom portions of the GI tract are bypassed (eg, Roux-en-Y gastrojejunostomy), DAE is the preferred endoscopic modality to assess the excluded luminal segment inaccessible to conventional and capsule endoscopic approaches.<sup>27,28</sup> If these test results are negative, and bleeding recurs, technetium-99m pertechnetate scintigraphy (Meckel scan) can be considered in younger patients. Provocative testing with anticoagulants is rarely considered in patients with recurrent small-bowel bleeding, given safety concerns and limited benefit.<sup>29-31</sup> Intraoperative enteroscopy during laparotomy or laparoscopy is typically used as a last resort in patients with recurrent small-bowel bleeding, such as those requiring multiple transfusions and/or repeated hospitalizations after unrevealing evaluation with VCE and DAE. Because of the high morbidity associated with intraoperative enteroscopy, it is reserved for rare cases in which DAE cannot be performed without lysis of adhesions.<sup>32</sup>

### Occult small-bowel bleeding

In patients with occult bleeding, repeat EGD should be considered when an upper GI lesion is suspected, such as in patients with risk factors for mucosal disease caused by NSAID use or if details of the prior EGD are uncertain. Repeat colonoscopy should be considered when the quality of the bowel preparation on the initial examination was suboptimal or when other questions about the quality of the examination exist. Additionally, when there is clinical suspicion for missed colon lesions, repeat colonoscopy may be performed.<sup>33</sup>

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