Review Article

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Approach to Obscure Gastrointestinal Bleeding

Rungsun Rerknimitr, M.D.

EXTRACT

Obscure gastrointestinal bleeding (OGB) means the bleeding from gastrointestinal tract that can not be detected by conventional investigations. The amount of bleeding can be only scanty amount of blood loss causing anemia or heavy bleeding like hematochezia. Currentl, the standard investigations include optimal esophagogastroduodenoscopy and colonoscopy. Currently, there are many new techniques available to help for establishing diagnosis such as capsule and double balloon endoscopy. However, many radiological studies such as angiogram and bleeding scan still have a place to facilitate and treat OGB.

Key words : Obscure, Gastrointestinal, Bleeding

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Definition

Obscure gastrointestinal bleeding (OGB) means the bleeding from gastrointestinal tract that can not be detected by conventional investigations. The amount of bleeding can be only scanty amount of blood loss causing anemia or heavy bleeding like hematochezia. Currently, the standard investigations include optimal esophagogastroduodenoscopy and colonoscopy. However, additional tests such as a small bowel follow trough, repeat endoscopy, CT scan, etc. may be included before the diagnosis of OGB can be established.

In this review, we can classify OGB into 2 patterns

1) Occult obscure gastrointestinal bleeding (occult OGB). In this condition, there is no visible bleeding detected from clinical examination. However, patient may present with iron deficiency anemia without significant source of bleeding. In addition, if that person presents very early, there may be only positive study from a stool occult blood test without significant anemia.

2) Overt obscure gastrointestinal bleeding (Overt OGB). In this condition, there is a significant volume of bleeding. Clinical presentations include; melena, hematemesis and hematochezia. In some patients, signs of hemodynamic instability may be observed. Generally, the source of bleeding can be esophagus, stomach and colon since the original investigations could miss many lesions such as Dieulafoy lesion, Cameron's ulcer, ulcer in the blind spot of end view upper endoscope, etc[1-3]. However, there are significant numbers of patients that have bleeding site in the small bowel.

Gastroenterology Unit, Chulalongkorn University, Bangkok 10330, Thailand.

Tips for history taking in patients with OGB

There are many special groups of patients that specific site and cause of bleeding have to be addressed during a routine history taking

1) Angiodysplasia is common in elderly population, chronic renal failure group and patients with underlying of connective tissue disease.

2) Post bowel anastomosis such as Billroth I-II, Whipple, Reux-en-Y and choledochoenteral anastomosis surgeries are prone for anastomosis ulcer and fistula.

3) Small bowel ulceration is the cause of bleeding in many Crohn's patients and NSAID users.

4) Hereditary disorders and congenital anomalies such as hereditary telangiectasia and Meckel's diverticulum are more frequently discovered in the young.

5) Some patients may have disorder that can be detected by careful skin examination such as blue rubber nevus syndrome, Cowden syndrome, KTW, Puetz-Jegher syndrome, etc

6) Color of stool is also very important for estimation of bleeding source. Bright red blood with normal stool color is specific for rectal bleeding. Hematochezia in general means bleeding below ligament of Treitz. However, torrential bleeding from upper tract may present with hematochezia as well. Blood from patient with upper tract bleeding when react to Hcl in the stomach will become coffee ground and melena. However, patient with slow right sided colonic bleeding may present with passing melena due to bacterial fermentation of blood.

Investigations in patients with OGB

Apart from conventional upper and lower endoscopies that need to be performed before OGB can be established, there are many radiologic studies and new techniques for endoscopy that can enhance diagnostic yield in this condition.

1) Small bowel follow trough (SBFT). Technically, it is easy to perform, however the sensitivity of

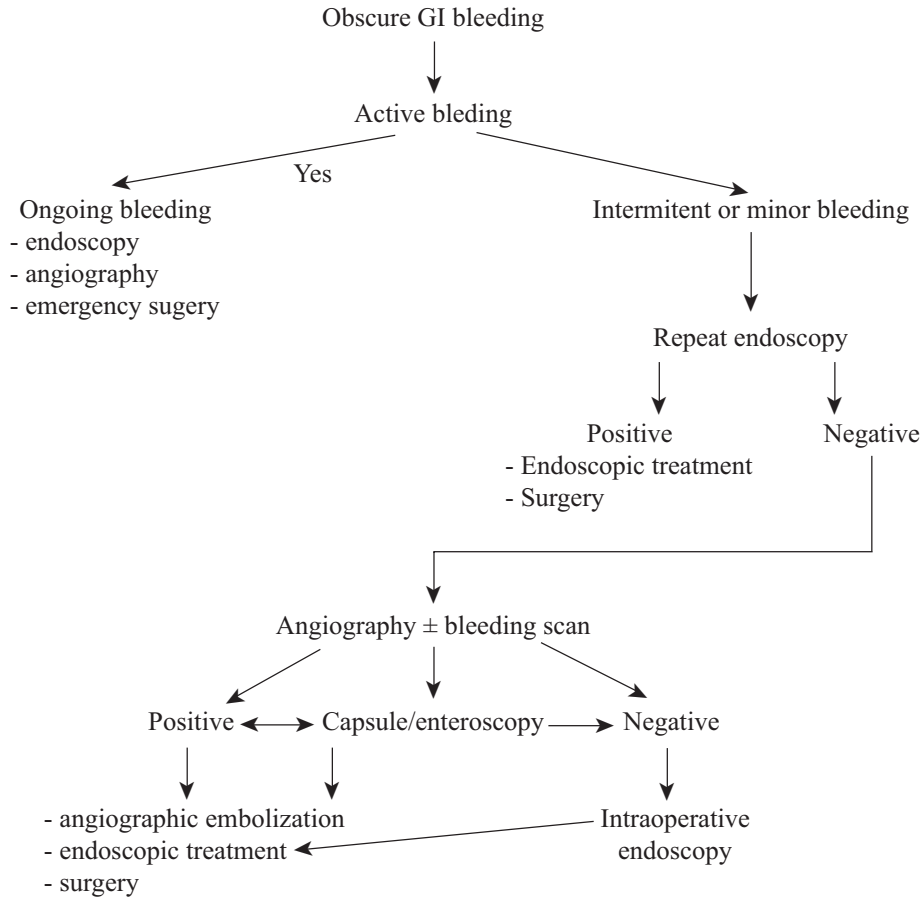

Diagram 1 Algorithm for management of obscure GI bleeding

this test is very low (6%)[4]. Lesions that can be diagnosed by this study are small bowel ulcer, diverticulum and cancer[5-8]. One of the major disadvantages of SBFT is the barium used form this test may obscure the view for further studies such as angiogram and CT scan.

2) Small bowel enteroclysis. Although it has the same idea as SBFT, the technique is significantly different. The use of gastric tube to instill the contrast, air and/or methylcellulose directly into the small bowel increases the sensitivity of this test up to 21%[9,10].

3) Bleeding scan is one of the tests from nuclear medicine. It only works for overt gastrointestinal bleeding. Currently, there are two popular substances to use; technetium 99^{mm}-RBC and sulfur colloid scan. Many centers prefer to use technetium 99^{mm}-RBC since this technique can detect intermittent bleeding during 24 hours better than the other. The overall sensitivity of bleeding scan is 15-70%[11-16]. The slowest bleeding volume that can be discovered from the test is at 0.1cc/minute. Practically, when the result of bleeding scan is negative, there is no need for an angiogram. However, many experts argued that the golden time to detect bleeding from other studies may be loss while performing bleeding scan.

4) Meckel scan. Meckel's diverticulum as a cause of bleeding, found more commonly in pediatrics population than adults. The location of Meckel's diverticulum is closer to terminal ileum and it usually contains gastric epithelium. Meckel scan can detect ectopic gastric epithelium very well especially in children (sensitivity = 90%)[17,18]. Unfortunately, the sensitivity is much lower in adult patients (62%)[19,20]. Therefore, pentagastrrin or H2RA stimulation may be required to enhance the sensitivity.

5) Angiogram. It is not only a good diagnostic tool for overt OGB but it also can offer therapeutic benefit especially in a patient who is a poor candidate for surgery. Generally, angiogram will be performed after negative standard endoscopy or positive bleeding scan. However, the bleeding rate has to be at least 0.5 cc/minute and the best diagnostic value will achieve if the rate is >1 cc/minute. Another limitation is only the arterial system can be demonstrated from angiogram (Figure 1). Patient with ectopic variceal bleeding will not receive any benefit from the angiogram. The overall sensitivity of the test is anywhere from 40 to 80% and depended on with or without positive screening from bleeding scan[21-23]. The incidence of complication is around 10%, including acute renal failure, bowel infraction and arterial dissection[24,25]. There are many techniques that can improve the diagnostic yield of the angiogram such as vasodilator (papaverine) injection or anticoagulant (heparin) administration. However, only special centers with interventional radiologists who familiar with these techniques dare enough to perform these special angiograms.

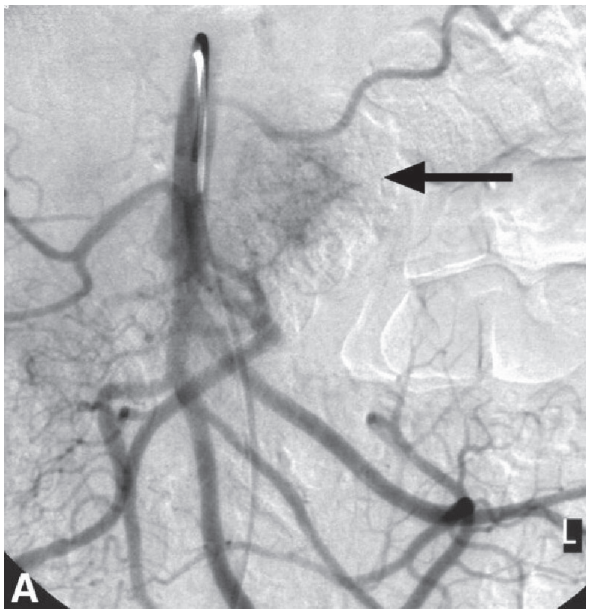

Figure 1 Abnormal vascular pattern of jejunal artery from angiogram

Figure 2 Hook worm as a cause of small bowel bleeding diagnosed by capsule endoscope

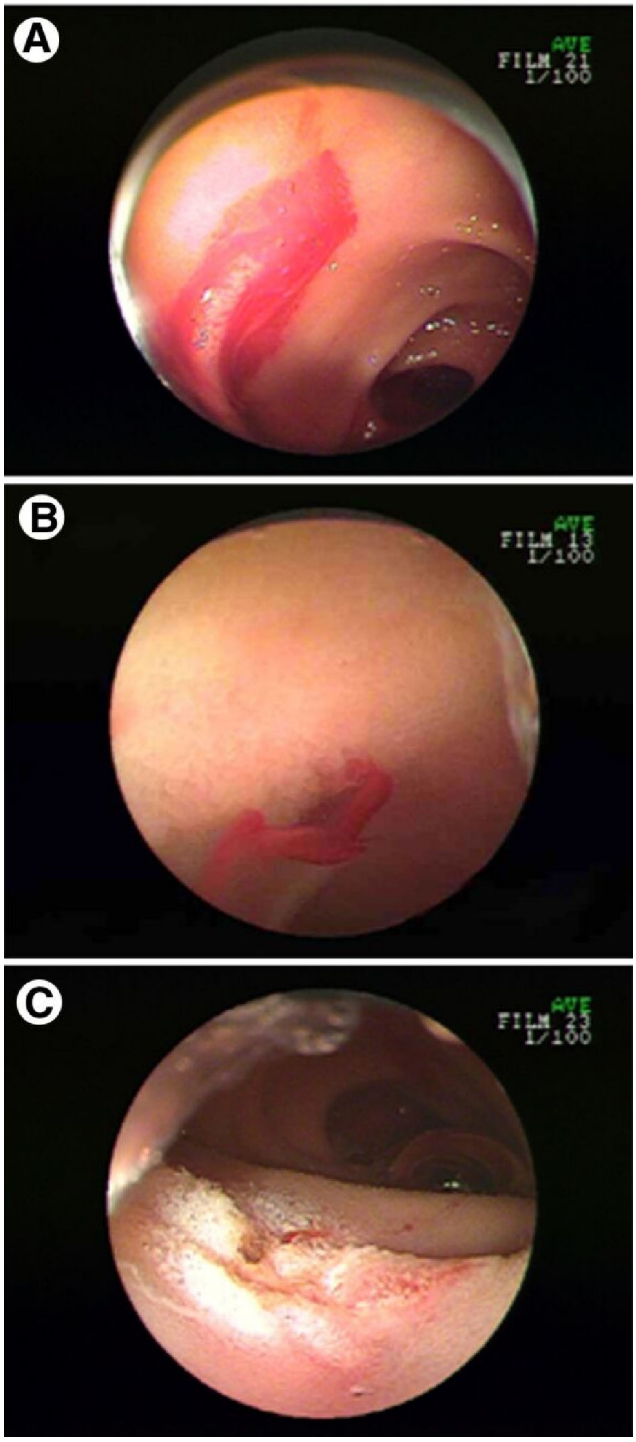

Figure 3 Bleeding Dieulafoy lesion in the jejunum diagnosed and treated by double balloon endoscope

Endoscopic modalities for diagnosis and treatment of obscure GI bleeding

1) Repeat endoscopy There have been many reports confirmed that repeat endoscopy in patient whose recent upper and lower endoscopies were negative can help to establish diagnosis in 25% of all repeated cases[26,27]. Lesions that can be missed are angiodysplasia, Cameron ulcer and ulcer in the duodenal bulb.

2) Enteroscopy Generally, push enteroscopy with a longer tube than colonoscopy can find a positive lesion in 13-78% of the cases. However, the major limitation is the length of examination. Only mid jejunum is the farthest site that this scope can reach. Although over tube has been applied to straighten the dept of endoscopy, the scope can gain only 2-4 feet in addition. Recently, capsule endoscope has been introduced to complete the small bowel examination. Many reports showed many positive findings from this modality (50-70% for the sensitivity)[27,28]. However, patient improvement after specific treatment after positive capsule endoscopy could be confirmed in only 15-20% of cases[27,28].

3) Double Balloon Endoscopy (DBE). DBE is the latest advanced technique to diagnose OGB. The advantage of this scope is the ability of treatment after finding positive lesion. The recent studies have confirmed the benefit of DBE over the conventional push enteroscopy[29,30]. Currently DBE is also available for pediatric patients.

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