Approach to acute lower gastrointestinal bleeding

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Definition

Acute lower gastrointestinal bleeding:

blood loss of recent onset originating from a

site distal to the ligament of Treitz

Presentation

Hematochezia:

Passage of maroon or bright red blood or

blood clots per rectum

Notice

Melena can be seen with LGIB from the right colon or small intestine and in patients with slow GI motility

Hematochezia can be seen with UGIB in hemodynamically unstable patients with massive bleeding

Etiology

Anatomic: Diverticulosis

Vascular: Angiodysplasia, Hemorrhoids, Ischemic, Post biopsy or polypectomy, Radiation-induced telangiectasia

Inflammatory: Infections, IBD, Ulcer

Neoplastic: Polyp, Carcinoma

Diverticulosis

most common source of LGIB

LGIB is a rare complication of this common disease

Bleeding typically occurs in the absence of diverticulitis

Bleeding is more common in right-sided diverticula because of having wider necks and domes

Bleeding is usually painless except for mild abdominal discomfort and cramping

Diverticulosis

Risk factors for diverticular bleeding:

Aspirin and NSAIDs

Advanced age

Obesity

Physical inactivity

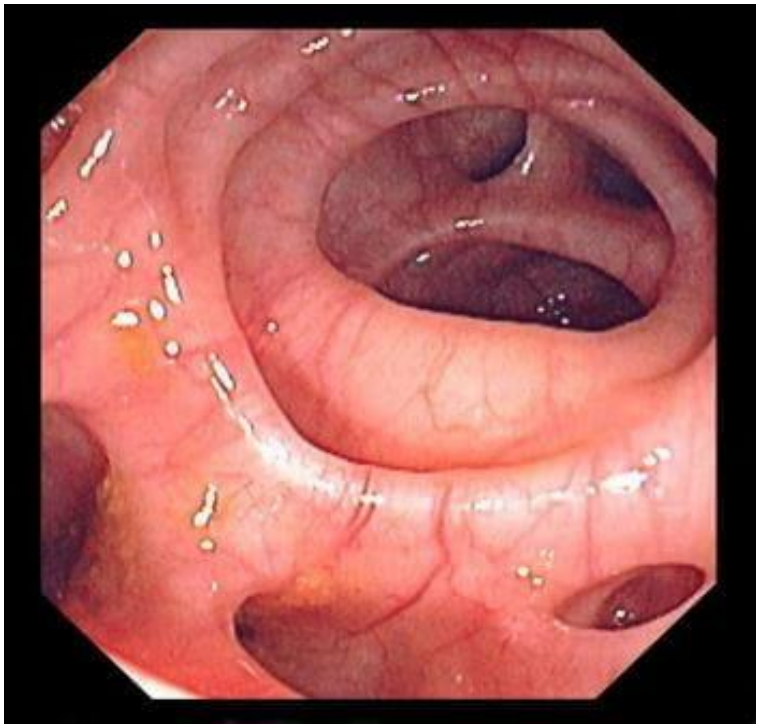
HTN

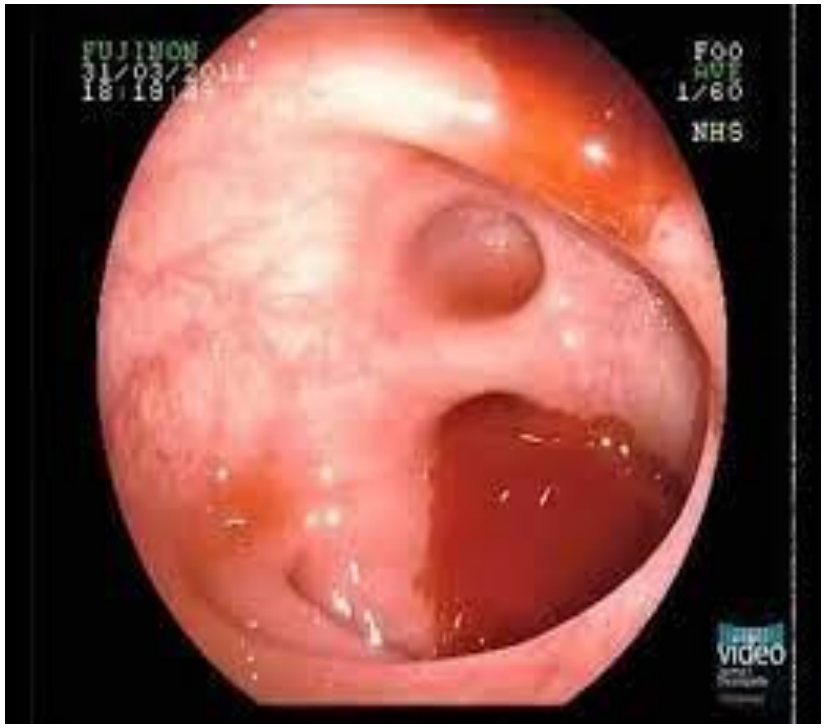
IHD

CKD

Hyperlipidemia

Diverticulosis





Angiodysplasia

Dilated, tortuous submucosal vessels

Appears endoscopically as peripherally expanding dilated capillaries with a central origin measuring between 0.1 to 1 cm in diameter

They are not visualized by barium enema

LGI angiodysplasia is uncommon

Bleeding most occurs from cecum or ascending colon

Angiodysplasia

Risk factors:

Advanced age

Aortic stenosis (AS)

Von Willebrand disease (VWD)

Chronic renal failure

Angiodysplasia

Bleeding from angiodysplasia and diverticular disease tend to be episodic and self-limited

Blood loss can be overt (painless hematochezia or melena)

But is more often occult (OB positive or IDA)

Bleeding from angiodysplasia is venous in origin (in contrast to arterial bleeding with diverticula) and tends to be less massive than diverticular bleeding

Treatment: Endoscopic coagulation (bipolar probe or heater probe), Injection sclerotherapy, and argon laser coagulation (but re-bleeding may occur)

Angiodysplasia

Colitis (mucosal inflammation)

Is the common response to acute injury, resulting in activation of the immune system and inflammatory cascade

Can present initially with hematochezia

Present with abdominal pain, hematochezia (with or without diarrhea), fever and dehydration

Blood loss tends to be mild and endoscopically, appears as edema, friability, erythema and ulceration

Colitis (mucosal inflammation)

Infectious colitis:

Most common=> Salmonella, Shigella, Campylobacter

Bleeding due to infectious causes can sometimes be distinguished from other causes of LGIB because of the clinical setting

Colitis (mucosal inflammation)

Ischemic colitis:

Risk factors=> Advanced age, Hypotension, Heart failure, arrhythmias, Hypercoagulable state

Patients classically have associated abdominal pain, although its absence dose not preclude the diagnosis

Tends to be continuous, left-sided, associated with mucosal friability (resemble ulcerative colitis)

Differences with UC=> Clear demarcation between involved and normal mucosa, Rectal sparing, and a single longitudinal ulcer

Worse outcomes than other source of bleeding

Ischemic Colitis

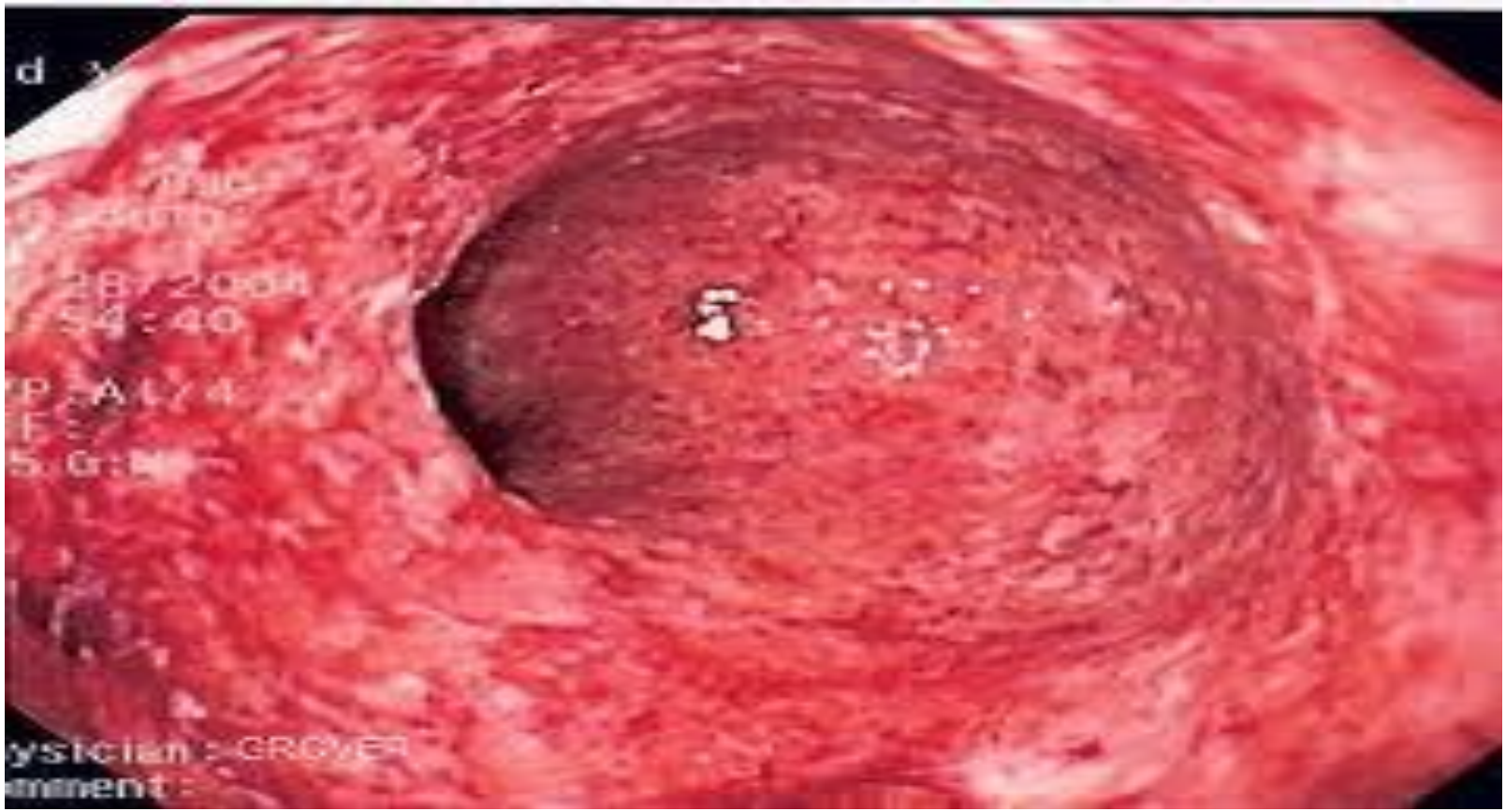
Colitis (mucosal inflammation)

Inflammatory bowel disease (IBD):

Hematochezia is a more common initial presentation with the ulcerative colitis than CD and tends to occur in the setting of active inflammation

It is important not to misdiagnosis IBD as infectious colitis or ischemic colitis since the therapy is different

Ulcerative Colitis



Colon Cancer

CRC is a less common but serious cause of LGIB

Bleeding tends to be low-grade and recurrent

Bright red blood suggests left-sided lesions; maroon blood and melena suggest right-sided lesions

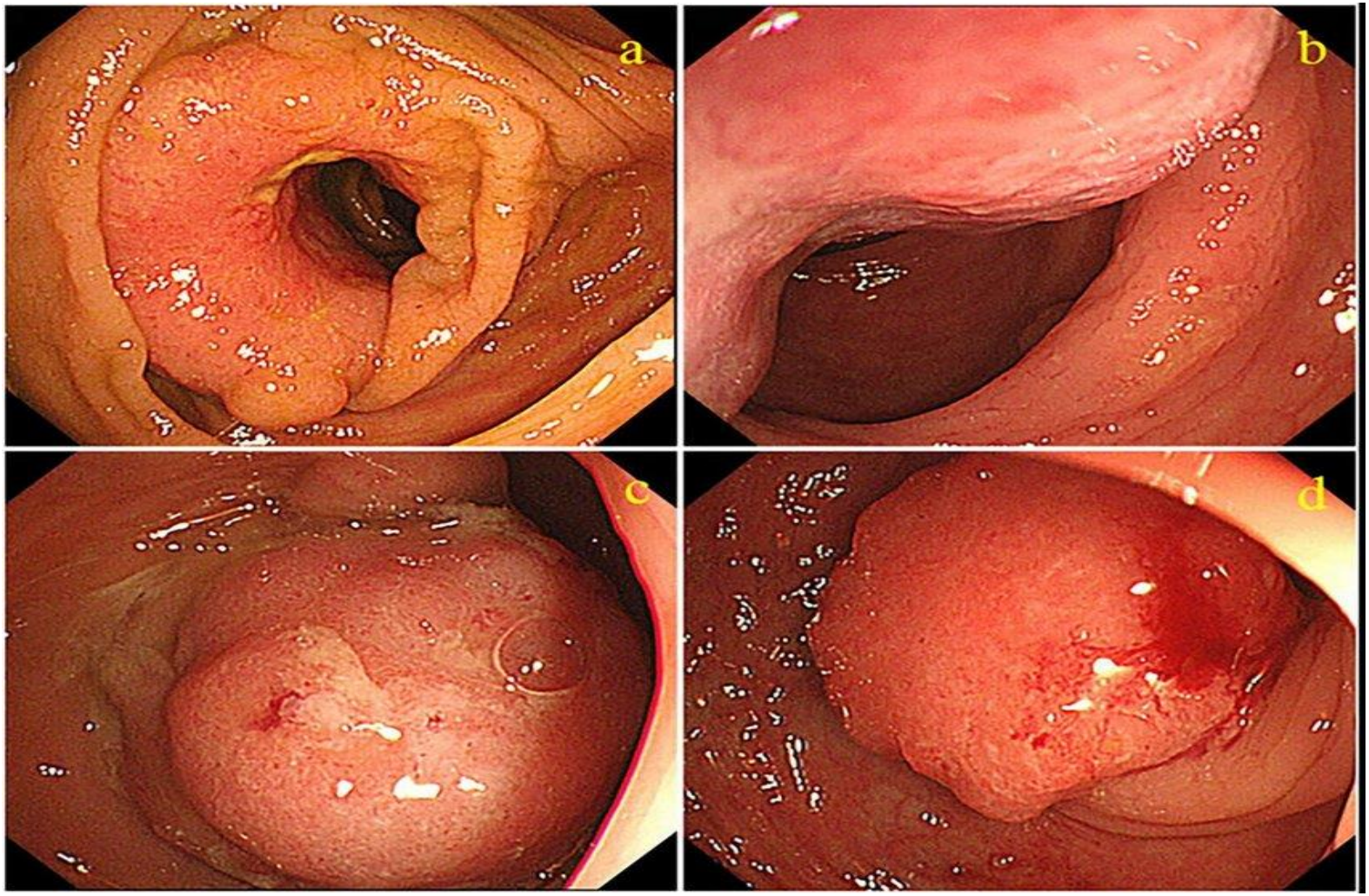
Colon Cancer

Endoscopic therapy of CRC presenting with rectal bleeding is limited because of risk of inducing more bleeding or causing a perforation due to the friability and size of the lesions

Endoscopic hemospray is a promising agent for treatment of bleeding from diffuse, friable sources such as colon cancer

Rectal bleeding is a rare presentation of ovarian cancer

Colon Cancer



Endoscopic Hemospray

Radiation telangiectasia or proctitis

Risk factors=> Immobilization of the bowel in the recto-sigmoid area, arteriosclerosis, and concomitant chemotherapy

Acute radiation injury=> within six weeks of therapy. Symptoms include diarrhea, rectal urgency or tenesmus, and uncommonly, bleeding

Chronic radiation proctosigmoiditis=> 9 to 14 months following RT, but may develop after 2 years and rarely up to 30 years after exposure

Radiation telangiectasia or proctitis

Following biopsy or polypectomy

Bleeding is usually self-limited, although active arterial bleeding can occur acutely

Immediate bleeding=> Bleeding that persist for more than 1 minute after polypectomy or that begins before the patient is discharged from the endoscopy unit

Risk factors=> Polyp size, polyp location and shape, use of anticoagulants

Notice: ASA and NSAIDs increase risk of delayed bleeding

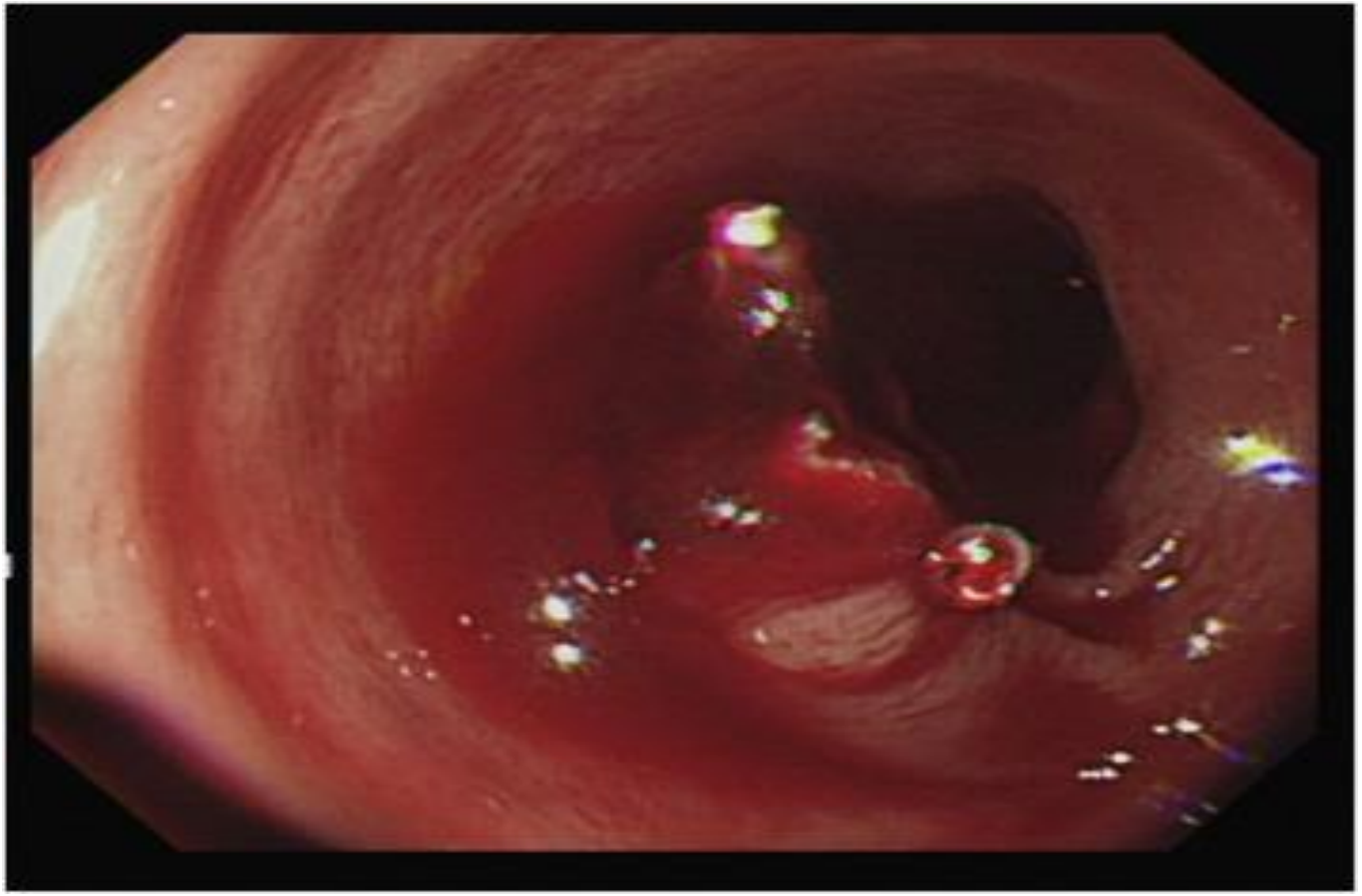
Following biopsy or polypectomy

Delayed bleeding=> Present in 5 to 7 days after procedure, but the timing of bleeding can range from several hours to 4 weeks

Risk factors=> Polyp size, polyp location, use of anticoagulant, use of ASA or NSAIDs

Etiology=> Sloughing of eschar, Increasing zone of necrosis (Induced by the thermal energy used to resect the polyp and cauterize the polypectomy site)

Following biopsy or polypectomy



Other anorectal disorders

Hemorrhoids=>

Dilated submucosal veins in the anus (usually asymptomatic)

Internal=> Above dentate line

External=> Below dentate line

Hematochezia (bright red blood coats the stool at the end of defecation, blood may also drip into the toilet or stain toilet paper) results from rupture of internal hemorrhoids

Other anorectal disorders

Hemorrhoids=>

Common cause of LGIB in patients < 50 years

Bleeding is almost always painless (occasionally can be copious and distressing for the patient)

Significant LGIB (hemodynamic instability or anemia) is uncommon

Risk factors of serious bleeding=> coagulopathy and anticoagulant therapy

Other anorectal disorders

Other lesions in the anorectum associated with LGIB=>

Solitary rectal ulcers

Anal fissure

Rectal varices

Dieulafoy’s lesions

Initial evaluation

History=>

Prior episodes of GIB

Past medical history (to identify potential bleeding sources and comorbidities that may influence subsequent management)

Medication use (particularly NSAIDs, anticoagulants, and antiplatelet agents)

Symptoms

Initial evaluation

Physical examination=>

Assessment of hemodynamic stability

Signs of hypovolemia:

Mild to moderate=> resting tachycardia

Loss of at least 15%=> **orthostatic hypotension (a decrease in SBP of more than 20mmhg and/or an increase in HR of 20 beats/min when moving from recumbency to standing**)

Loss of at least 40%=> supine hypotension

Initial evaluation

Physical examination=>

Examination of patient's stool (hematochezia or melena)

Presence of abdominal pain (suggests the presence of an inflammatory bleeding source such as ischemic or infectious colitis or a perforation)

Notice: a perforated peptic ulcer should be considered in a patient with severe upper GIB

Initial evaluation

Laboratory tests=>

CBC, serum chemistries, liver tests, coagulation studies

The initial Hb level should be monitored every 2 to 12 hours (depending on severity of the bleeding)

In the setting of acute LGIB, Hb values should be at their baseline, with normocytic RBC indices (provided the patient did not have preexisting anemia)

Initial evaluation

Consider an UGIB source=>

10% to 15% of patients with severe hematochezia have an upper GI source

Findings that are suggestive of an upper GI source:

Hemodynamic instability, orthostatic hypotension, an elevated BUN-to-Cr > 20-30:1, and history of prior PUD

Notice: blood clots in the stool decrease the likelihood of an upper GI source

Initial management

Triage and consultations=>

The timing and setting of the evaluation depend upon the severity of bleeding and the patient's comorbid illnesses

Gastroenterology consultation should be obtained early

General surgery and IR should be involved in cases of massive hematochezia or those who are at high risk for complications

Initial management

Triage and consultations=>

Outpatient management=> Some low risk patient (a young, otherwise healthy patient with minor, self-limited rectal bleeding and no hemodynamic instability)

ICU cases=> High risk features (shock, orthostatic hypotension, persistent bleeding, significant comorbidity)

Regular medical ward=> Most other patients (receive ECG monitoring)

Initial management

High-risk features that predict the risk of complications=>

Hemodynamic instability (hypotension,tachycardia, orthostasis, and syncope), Persistent bleeding, Significant comorbid illnesses, Old age, Bleeding that occurs in a patient who is hospitalized for another reason, Prior history of bleeding from diverticulosis or angiodysplasia, Current aspirin use, Prolonged PT, Hypoalbuminemia, Non-tender abdomen, No diarrhea, Anemia, Elevated BUN, Abnormal WBC count

Initial management

General supportive measures=>

Supplemental O2 by nasal cannula (if needed)

NPO in the event urgent upper endoscopy is needed

Two large caliber (18 gauge or larger) IV catheters or a CV line

Pulmonary artery catheter in some patients (hemodynamic instability or history of heart failure)

Initial management

Fluid resuscitation=>

Active bleeding=> 5oo cc of N/S or lactated Ringer's over 30 minutes while being typed and cross-matched for blood transfusion

If BP fails to respond to initial IV fluid, the rate of fluid administration should be increased and urgent intervention (such as angiography) considered

Patients at risk of fluid overload may require intensive monitoring with a pulmonary artery catheter

Initial management

Blood transfusion=>

Hemodynamically stable patients without comorbid illness=> Hemoglobin < 7 g/dL

Older patients with severe comorbidity (such as active coronary disease)=> Maintain hemoglobin 9 to 10 g/dL

Notice: We do not have an age cutoff for determining which patients should have a goal hemoglobin of >= 9 g/dL (base the decision on the patient's comorbidity)

Active bleeding and hypovolemia=> may require transfusion despite apparently normal hemoglobin

Initial management

Management of coagulopathies and anticoagulants=>

Should be individualized

INR > 1.5 => Warfarin and DOACs should be withheld

INR > 2.5 => 4-factor PCC should be considered in patients on warfarin (FFP can be given if PCC is not available)

INR of 1.5-2.5=> Endoscopic hemostasis can be performed before or concomitant with reversal agents

Initial management

Management of coagulopathies and anticoagulants=>

INR > 2.5 => Reversal agents should be administered before endoscopy

Reversal agents (idarucizumab for dabigatran and andexanet alfa for apixaban and rivaroxaban should be used if reversal is needed)

In all cases, the risk of reversing or holding anticoagulation should be weighed against the risk of continued bleeding without reversal

Initial management

Management of antiplatelet agents & thrombocytopenia=>

Maintain plt > 30,000 in severe LGIB and plt > 50,000 in patients who require endoscopic management

Platelet should not be transfused in patients with normal plt counts who are on antiplatelet medications

Antifibrinolytic agents such as tranexamic acid should not be used in the setting of acute LGIB

Initial management

Management of antiplatelet agents & thrombocytopenia=>

Aspirin (for primary prophylaxis) => Discontinue

Aspirin (for secondary prophylaxis in high-risk CVD) => Continue

Dual antiplatelet therapy should not be discontinued without cardiology consultation in high-risk patients

(high-risk patients=> ACS within the past 90 days or a bare-metal stent placed within the past 6 weeks or a drug-eluting stent placed within the past 6 months)

Initial management

Management of antiplatelet agents & thrombocytopenia=>

If low-dose aspirin or antiplatelet agents are withheld, they should be resumed, preferably within 5 days, or earlier if hemostasis has been achieved or there is no further evidence of bleeding

Notice:

Platelet and FFP transfusions should be considered in patients who receive massive RBC transfusions (>3 units of packed RBCs within 1 hour)

Diagnostic Studies

Hemodynamically stable=>

Colonoscopy=> Source identified=> Specific treatment

Colonoscopy=> Source was not identified and the episode was isolated, self-limited, and not associated with IDA=> Expectant management

Colonoscopy=> Source was not identified and the episode was not isolated or self-limited, and/or associated with IDA=> Upper endoscopy (If source was not identified, evaluate for small bowel bleeding)

Diagnostic Studies

Colonoscopy=>

Bleeding source is visualized in 45% to 90% of patients

Colonoscopy should be performed after adequate colon preparation (< 24 h from presentation in the setting of hemodynamic instability)

Administer 4-6 liters of PEG over 3-4 hours (Split-dose and/or low-volume preparations may also be used)

Colonoscopy W/O preparation reduces cecal intubation rates, and blood or stool can obscure the bleeding source

Diagnostic Studies

Hemodynamically unstable/severe bleeding=>

First: Resuscitate, consult surgery and/or IR

Second: EGD once hemodynamically stable

If source was not identified and severe bleeding continue=> CT angiography (If source was not identified)=> colonoscopy

If source was not identified W/O severe bleeding=> colonoscopy

Diagnostic Studies

Radiographic imaging=>

Advantage=> Ability to diagnose bleeding throughout the GI tract, including small bowel sources and treatment of the bleeding site can be attempted during angiography

Require active bleeding at the time of the study

CT angiography may be used to select patients with active bleeding for subsequent angiography or to localize the source prior to surgery

Diagnostic Studies

Radiographic imaging=>

CT angiography=>

Bleeding at a rate of 0.3 to 0.5 mL/minute can be detected

Patients with extravasation on a CT angiography should undergo prompt trans-catheter arteriography and possible embolization (ideally within 90 minutes)

Diagnostic Studies

Radiographic imaging=>

Angiography=>

Bleeding at a rate of 0.5 to 1 mL/minute can be visualized

Angiography is reserved for patients in whom EGD is not feasible due to severe bleeding with hemodynamic instability (CT angiography is commonly used to identify and localize the bleeding source prior to angiography)

Diagnostic Studies

Radiographic imaging=>

RBC scintigraphy=>

Bleeding at a rate of 0.1 to 0.5 mL/minute can be detected

RBC scan has limited accuracy in identifying the location of the bleeding site, so it is not recommended

Diagnostic Studies

Additional testing if the bleeding site is not identified=>

Push enteroscopy (using a pediatric colonoscope or a dedicated enteroscope) allows visualization of the proximal 60 cm of the jejunum

Capsule endoscopy

Deep small bowel enteroscopy

Meckel's scan

THANK YOU

For Your Attention!