TEST QUESTIONS – GASTROINTESTINAL BLEEDING

QUESTION 1. The most frequent cause of UGI bleeding is:

A. Esophageal varices
B. Peptic ulcer disease
C. Angiomata
D. Mallory Weiss tear
E. Gastritis

The recommended response is B.

Peptic ulcer disease is the most common cause of UGI bleeding, accounting for about 50% of cases. Other etiologies are far less common. For example, in one series the final diagnosis in 935 consecutive patients admitted with severe UGI hemorrhage was peptic ulcers in 57%, esophageal or gastric varices in 12%, UGI angiomas in 5%, Mallory Weiss tears in 5%, and gastric or duodenal erosion in 4%.

QUESTION 2. After initial stabilization and resuscitation of the patient, each of the following options should be considered in the management of UGI bleeding except:

A. Determine the source of bleeding
B. Stop acute bleeding
C. Treat the underlying abnormality
D. Prevent rebleeding
E. Emergency surgery.

The recommended response is E.

After a patient with UGI hemorrhage is stabilized, each of the above statements is an appropriate therapeutic goal in the management of UGI bleeding except answer E.

Surgery becomes a therapeutic option for patients with severe UGI hemorrhage if endoscopic hemostasis fails or if there is severe recurrent hemorrhage.
QUESTION 3. Endotracheal intubation for airway protection in the management of UGI bleeding should be considered:

A. in all cirrhotic patients
B. in all patients with UGI bleeding
C. in patients with altered mental status and ongoing hematemesis
D. in patients with stable COPD
E. unless it delays urgent endoscopy

The recommended response is C.

Airway protection in critical and aspiration is a preventable potential complication that markedly increases the morbidity and mortality associated with UGI bleeding. Cirrhotic patients may have altered mental status related to encephalopathy, but not all cirrhotics with UGI bleeding require intubation. Altered mental status and ongoing hematemesis are known risk factors for aspiration, and C is the best option. Stable COPD patients with a mild bleed and normal mental status do not require intubation. Similarly, not all UGI bleed patients need to be intubated for airway protection.
QUESTION 4. A 73 year old man presents with several episodes of hematemesis. Examination shows signs of orthostatic hypotension and melena. What is the first priority in caring for this patient?

A. Nasogastric tube placement and gastric lavage.
B. Resuscitation with adequate IV access and appropriate fluid and blood product fusion.
C. Intravenous infusion of H2-receptor antagonists to stop the bleeding.
D. Urgent upper panendoscopy.
E. Urgent surgical consultation.

The recommended response is B.

In the setting of an UGI bleed, features of orthostatic hypotension should be corrected immediately and resuscitation instituted concurrently with the initial evaluation. IV access should be adequate and appropriate fluid and blood products should be given. Only then should other aspects of the evaluation and care proceed with NG lavage, upper panendoscopy and surgical consultation. IV H2-receptor antagonists have not been shown to stop bleeding or reduce rebleeding.


QUESTION 5. An important risk factor for peptic ulcer hemorrhage includes:

A. Gastric acid hypersecretion
B. Corticosteroid use
C. Cigarette smoking
D. Non-steroidal anti-inflammatory drug use
E. Ethanol consumption

The recommended response is D.

NSAID ingestion has been clearly linked to peptic ulcer bleeding (Choice D). In CURE studies aspirin or NSAID ingestion within two weeks of ulcer hemorrhage was identified as the main risk factor in 53% of duodenal ulcers and 61% gastric ulcer patients. Gastric acid hypersecretion is not essential for ulcer hemorrhage. No significant differences in secretory parameters such as basal, peak, or meal-stimulated acid output and parietal cell sensitivity, have been noted among ulcer patients with and without bleeding. Corticosteroid use alone is not associated with an increased frequency of ulcer hemorrhage. However, concomitant steroid use with NSAIDs increases the chance of UGI bleeding by 10-fold compared to NSAID use alone. Neither cigarette smoking nor ethanol consumption are associated with increased ulcer hemorrhage.


QUESTION 6. Which of the following combinations of stigmata of ulcer hemorrhage should be treated with endoscopic hemostasis?

A. Non-bleeding visible vessel and black slough
B. Pulsatile bleeding and white based ulcer
C. Oozing from an ulcer and a flat red spot
D. Non-bleeding visible vessel and pulsatile bleeding
E. Black slough and white based ulcer

The recommended response is D.

The endoscopic finding of active hemorrhage from an ulcer, either pulsatile or spurting bleeding is an indication for treatment (Choice D). Finding a visible vessel, also called a sentinel clot or pigmented protuberance, is another indication for endoscopic coagulation since there is a 50% chance of rebleeding.

Flat red spots and black slough are minor stigmata of hemorrhage and have about a 7% risk of rebleeding. Patients with a clean ulcer base have a 3% or less chance of rebleeding.


QUESTION 7. For the patient who is now stable after a severe UGI bleed associated with NSAID ingestion, and who is found to be H.pylori positive, what is the most effective management strategy?

A. Stop NSAIDS, eradicate H.pylori, H₂RA full dose or daily PPI maintenance therapy
B. Stop NSAIDs, full dose H₂RA or daily PPI maintenance therapy
C. Stop NSAIDs
D. Eradicate H.pylori, full dose H₂RA or daily PPI maintenance therapy
F. Full dose H2-receptor antagonist or daily PPI maintenance therapy

The recommended response is A.

Since the UGI bleed was associated with NSAID ingestion, these agents should be discontinued if the underlying medical condition allows. Further, since the patient is H.pylori positive, eradication therapy should be initiated. Since H.pylori eradication may not be completely effective and since patients often reuse NSAIDs, full dose H2-receptor antagonist or daily PPI maintenance therapy would provide the most complete protection against recurrent ulcer hemorrhage, at least until the effect of H.pylori eradication can be checked with follow-up urea breath testing or endoscopy.


QUESTION 8. For the patient with an UGI bleed and endoscopic finding shown (Figure 1 - without Legend), the most appropriate management includes:

A. Endoscopic hemostasis with multipolar or heater probe or injection treatment

B. Urgent surgery

C. Medical therapy done in a monitored setting

D. Medical therapy with early refeeding

E. Early feeding, same day discharge

The recommended response is A.

The stigmata pictured is a non-bleeding visible vessel which has a 50% chance of rebleeding. Endoscopic therapy in patients with a non-bleeding visible vessel has been shown to significantly reduce rates of recurrent bleeding, urgent surgery and mortality. Endoscopic hemostasis should be tried first before sending a patient for urgent surgery for treatment of a non-bleeding visible vessel. The other three options are not appropriate for a patient with a non-bleeding visible vessel.


QUESTION 9. For the patient with an UGI bleed and the endoscopic finding of a clean ulcer, the most appropriate management includes:

A. Endoscopic hemostasis with multipolar or heater probe or injection treatment
B. Endoscopic hemostasis with combination therapy
C. Emergent surgery
D. Medical therapy, early refeeding, same day discharge if stable(medically) and reliable
E. Medical therapy alone in a monitored setting for three days

The recommended response is D.

For a patient with an UGI bleed and a clean ulcer base at endoscopy, rebleeding is rare -- 3% or less. Endoscopic therapy is not necessary, and the patient may be fed early and considered for same day discharge.\(^8\) A three-day admission is not necessary in stable patients without severe co-morbid conditions. Endoscopic hemostasis is not indicated nor is emergency surgery.


QUESTION 10. A sixty-four year old Asian American man with chronic shoulder pain and hypertension presents with painless hematemesis and melena. Among his chronic medications are ibuprofen for shoulder pain and aspirin for coronary prophylaxis. The findings on endoscopy are shown in the accompanying illustration (see Figure 4 without a legend). Of the following, the appropriate management is:

A. Endoscopic coagulation and observation in a monitored bed setting
B. Discontinuation of ibuprofen and aspirin and discharge home
C. Triple therapy for H.pylori eradication and treatment with a proton pump inhibitor
D. Stopping NSAIDs, biopsy for H.pylori, and early feeding
E. Epinephrine injection and biopsy for malignancy

The recommended response is D.

Choice D, stopping NSAIDs, doing a biopsy for H.pylori, and early feeding is the best management for this gastric ulcer with a flat spot (Choice D). Endoscopic therapy is not indicated because rebleeding rates on medical therapy are 5-7%. H.pylori may be a risk factor for patients ingesting NSAIDs and biopsies are indicated for diagnosis of infection, before empiric treatment. Recognition of the stigmata, early feeding and consideration for early discharge are recommended. Discontinuation of all NSAIDs and aspirin, substitution of non-NSAID analgesia, and education of the patient about the long-term risk of NSAIDs without co-therapy are recommended also. Epinephrine injection is not indicated and biopsy for malignancy can be deferred until a healing endoscopy is later performed. Malignancy occurs in less than 3% of all benign appearing gastric ulcers and would be very uncommon in this prepyloric gastric ulcer.


QUESTION 11. A sixty-six-year old man presents to the emergency department with a history of one episode of hematemesis and melena. Past history includes coronary artery disease, hypertension and abdominal aortic aneurysm repair. He is on one baby aspirin daily. An urgent upper endoscopy is negative. What is the most appropriate next step?

A. UGI series with small bowel follow-through
B. Colonoscopy
C. Angiography
D. Red blood cell tagged technetium scan
E. Abdominal CT scan with contrast

The recommended response is E.

In this setting, bleeding from an aortoenteric fistula is the most important consideration and the patient's initial presentation may be the "herald" bleed. After an upper endoscopy has failed to show other potential causes of UGI hemorrhage, an abdominal CT series should be done urgently to rule out an aortoenteric fistula. A barium contrast study should not be done in this setting. A colonoscopy would be appropriate with a history of hematochezia, but is unlikely to be of help in this patient with hematemesis. In the absence of acute bleeding, neither scintigraphy nor angiography is likely to have a high diagnostic yield. A push enteroscopy could also be considered for diagnosis and localization, if the CT scan is negative in this patient.
QUESTION 12. The two most common causes of severe hematochezia requiring hospitalization are:

A. Angioma and internal hemorrhoids
B. Diverticulosis and internal hemorrhoids
C. Colon cancer and colitis
D. Angioma and diverticulosis
E. Colon polyps and internal hemorrhoids

The recommended response is B.

In a large recent prospective CURE study, diverticulosis and internal hemorrhoids were the two most common colonic causes of severe hematochezia for patients hospitalized with BRB – bright red blood per rectum.


QUESTION 13. A forty-nine-year old African American female presents to the emergency department because of severe painless hematochezia and dizziness. She has chronic renal failure and requires hemodialysis. Other chronic medical problems are hypertension, moderate obesity, and insulin dependent diabetes mellitus. What is the best approach?

A. Perform an abdominal series which might indicate ischemic colitis
B. Technetium-tagged RBC scan
C. Send the patient for emergency angiography
D. Perform an anoscopy and flexible sigmoidoscopy first to exclude distal colon lesions
E. Recommend urgent colonoscopy as the first test in this patient

The recommended response is D.

Suspect ischemic colitis in a patient who has abdominal pain, diarrhea, and hematochezia. In a patient with painless hematochezia, suspect internal hemorrhoids, angiomas, or an UGI or small bowel source. Tagged RBC scans are used in patients who have had a negative colonoscopy, EGD and enteroscopy in the evaluation of GI bleeding, not as an initial diagnostic test. Emergency angiography has considerable morbidity and a low diagnostic yield in patients with chronic renal failure. Anoscopy should be performed first to exclude bleeding internal hemorrhoids, a common diagnosis in this age group. Flexible sigmoidoscopy with retroflexion in the rectal vault is recommended also after enemas clear the distal colon, to exclude colitis, diverticulosis, and distal polyps. Only if the anoscopy and flexible sigmoidoscopy are negative would urgent colonoscopy be the best approach in this patient. Oral purge could be performed but should be timed with dialysis to prevent fluid overload.

A fifty-eight year old female patient presents to the emergency department with a 24-hour history of several bloody bowel movements. She denies any abdominal pain but complains of light headedness. She is found to be hypotensive and anemic. Resuscitative measures are instituted. What is the most appropriate next step?

A. Nasogastric tube placement
B. Anoscopic examination
C. Colonoscopic examination
D. Scintigraphy
E. Angiography

The recommended response is A.

After initiating appropriate resuscitation and determining that this patient needs to be admitted, nasogastric tube placement would be the most appropriate next step to determine if UGI bleeding is the etiology of the hematochezia. In a series of 300 consecutive patients with severe hematochezia, 15.3% had an UGI source. Unless bilious return is found on NG lavage, an UGI tract lesion may be causing the hematochezia, and an upper panendoscopy should be done to exclude UGI tract lesions. Internal hemorrhoids are unlikely to present a severe LGI hemorrhage.
with hypotension and anemia, and so anoscopy would not be the best next step. Although colonoscopy is an appropriate subsequent test, an UGI tract etiology should be excluded before prepping the patient for colonoscopy. Neither scintigraphy nor angiography are appropriate next steps in the evaluation of this patient.


QUESTION 15. In the patient described above, question 14, with severe hematochezia, hypotension, and anemia, both the upper panendoscopy and colonoscopy are not diagnostic. The patient continues to pass clots per rectum. Resuscitation has normalized her vital signs and maintained her Hct at 32%. What is the most effective management strategy?

A. Abdominal CT scan with contrast
B. Magnetic resonance imaging
C. Scintigraphy and angiography
D. Emergency surgery
E. Barium enema

The recommended response is C.

In a patient with continuing LGI hemorrhage and upper endoscopy and colonoscopy are non-diagnostic, scintigraphy and angiography should be the next tests. Scintigraphy may be especially useful in small bowel and colonic sites of active bleeding. However, surgery should not be performed based on scintigraphy localization alone. Angiography may be useful for both diagnosis and treatment of UGI, small intestine or colonic lesions. Abdominal CT or MRI imaging studies are important tests in patients with suspected aortoenteric fistula. However, in the absence of a prior abdominal aneurysm repair, or large abdominal aneurysm or severe peripheral vascular disease on exam, these imaging tests are not required in the evaluation of severe hematochezia. A barium enema should not be done since it cannot detect active bleeding and will delay and obscure angiography.

QUESTION 16. A 65-year-old woman has a prior history of hospitalization for UGI bleeding from a duodenal ulcer. Which one of the following therapies is not useful for preventing recurrent ulcer hemorrhage?

A. long-term maintenance therapy with full dose H₂RA or daily PPI
B. H. pylori eradication
C. discontinuation of NSAID intake
D. ulcer surgery
E. bland diet

The recommended response is E.

One study showed that in a patient with a prior documented ulcer hemorrhage, there was a 36% incidence of rebleeding during a follow-up period of about 61 weeks if the patient was not taking maintenance medical therapy. Recurrent ulcer hemorrhage can be decreased by using maintenance full dose H₂RA (i.e., ranitidine 300 mg or famotidine 40 mg hs) or daily PPIs. H. pylori eradication has also been shown to prevent recurrent ulcer hemorrhage. Cessation of NSAID intake is also important in preventing recurrent hemorrhage. Ulcer surgery is required in fewer than 5% of patients with UGI bleeding if endoscopic coagulation is used in high-risk patients. Ulcer surgery for continued or recurrent hemorrhage is appropriate to prevent exsanguination and recurrent ulceration and hemorrhage. Dietary modifications have not been shown to decrease ulcer recurrence or hemorrhage.

QUESTION 17.

Which one of the following patients should be considered for outpatient management of acute UGI bleed?

A. young cirrhotic patient
B. hemodynamically stable, 3 cm ulcer with clean ulcer base
C. no comorbid illness, 1 cm clean ulcer base
D. melena with nonbleeding visible vessel and 0.5 cm ulcer
E. coffee ground hematemesis with ulcer, with overlying active ulcer bleeding at endoscopy.

The recommended response is C.

Clinical and endoscopic criteria are useful in selecting patients at low risk for recurrent bleeding and subsequent outpatient management. Young age, absence of associated medical problems, hemodynamic stability, and absence of active bleeding or a nonbleeding visible vessel at endoscopy are all predictors for low-risk patients.

QUESTION 18. A patient with an NSAID-related gastric ulcer complicated by UGI bleeding requires continued NSAID treatment. Which one of the following is the most effective approach once the index ulcer has healed?

A.  H. pylori eradication
B.  discontinuance of concomitant corticosteroids and/or anticoagulants, if possible
C.  sucralfate maintenance therapy
D.  misoprostol or PPI maintenance therapy
E.  half-dose H₂RA maintenance therapy

The recommended response is D.

After a single episode of ulcer hemorrhage and ulcer healing, the relative risk for recurrent ulcer hemorrhage during long-term follow-up is 10 to 20 times that of a control population. Misoprostol and PPIs have been shown to reduce recurrent ulcers in patients requiring chronic NSAID therapy. Low dose H₂RAs and sucralfate maintenance therapy has not been shown to decrease recurrent ulcers with continued NSAID use. Although H. pylori infection is a risk factor for ulcer development and recurrence, eradication alone is insufficient therapy for a patient with ulcer hemorrhage and continued use of NSAIDs. Discontinuation of corticosteroids and/or anticoagulants would be beneficial but alone would not provide adequate protection against recurrent ulceration or hemorrhage.
QUESTION 19. A 68-year-old healthy woman with a history of duodenal ulcer is placed on low-dose aspirin for coronary prophylaxis. Two weeks later she presents to the emergency room with one episode of melena and lightheadedness. Physical examination on notes a normal blood pressure and resting heart rate of 90 beats per minute without orthostatic changes. Melena is confirmed on rectal examination. Her admission hematocrit is 36%. She is placed on high-dose proton pump inhibitor therapy (omeprazole 40 mg b.i.d.). Due to other complications, endoscopy is not performed until the tenth hospital day, and it shows a small (5 mm) duodenal ulcer with a clean base. Biopsy for CLO test is negative. Which one of the following should be performed now?

A. treat with misoprostol for an NSAID-related ulcer  
B. treat empirically with antibiotics for H. pylori  
C. obtain serum gastrin level to exclude Zollinger-Ellison syndrome  
D. perform another test to exclude H. pylori  
E. continue high-dose proton pump inhibitor therapy

The recommended response is D.

The patient has recently been started on aspirin, which can precipitate bleeding from a preexisting ulceration, particularly if the bleeding occurs shortly after aspirin is instituted. Proton pump inhibitors can cause a false-negative CLO test. This woman has received several days of high-dose proton pump inhibitor therapy. Given her past history of duodenal ulcer, one would clearly need to exclude H. pylori, particularly in this setting, since proton pump inhibitors were instituted. A serology, urea breath test, or stool antigen test should be a confirmatory test for H. pylori, although both breath test and stool antigen tests may be false negative while on
potent acid suppressive medications. Serology and gastric biopsy histologic exam would confirm Hp presence. Although H. pylori is likely present given the history of duodenal ulcer, additional tests would be best to exclude this infection rather than treating with antibiotics empirically. Zollinger-Ellison syndrome must always be considered in a patient with duodenal ulcer, but no other features in this woman suggest that diagnosis, and patients with Zollinger-Ellison syndrome can be H. pylori positive as well. Since this woman has had mild bleeding and no stigmata at endoscopy of her duodenal ulcer, continuation of high-dose proton pump inhibitor therapy is unnecessary. Regular dose PPI (once daily) is adequate.

**QUESTION 20.** A 32-year-old female presents with her third episode of symptomatic peptic ulcer. She has previously undergone multiple upper endoscopies, which have shown a nonhealing-benign-appearing antral ulcer. Multiple biopsies have always been negative for malignancy and gastritis. H. pylori testing with both CLO tests and stool antigen are negative. Serum gastrin is normal. Which one of the following should be considered now?

A. antrectomy  
B. serum salicylate level  
C. high dose misoprostol therapy  
D. high dose H₂ receptor antagonist therapy  
E. sucralfate therapy

The recommended response is B.

In any patient with a nonhealing ulcer, particularly located in the antrum, NSAID use must be excluded. In any patients, particularly young women, salicylate use may be occult. If salicylates are identified in the blood, the patient must be counseled appropriately. Surgery would be an option for symptomatic refractory ulcer disease. However, one would like to exclude NSAID use before surgery, because ulcers commonly recur after surgical therapy if NSAID use continues. Neither misoprostol, high dose H₂ receptor antagonist nor sucralfate have been shown to be effective in the healing of refractory ulcers caused by NSAIDs. The best therapy for these ulcers would be proton pump inhibitor therapy.
QUESTION 21. An 82-year-old debilitated woman with coronary artery disease and breast cancer presents with hematochezia requiring 4 units of blood. Following colonic preparation, colonoscopy demonstrates fresh blood in the left colon with marked diverticulosis. The right colon is normal and bilious material is seen in the cecal pole. Upon withdrawal of the colonoscope, there was active oozing of blood from the neck of a diverticulum in the distal sigmoid colon. The most appropriate management now is

A. supportive care with transfusion requirements as necessary
B. technetium RBC scan
C. angiography
D. endoscopic therapy of the bleeding diverticulum
E. immediate surgical therapy

The recommended response is D.

Recent studies suggest that endoscopy is both effective and safe for the therapy of a bleeding diverticulum. Given this woman’s overall medical condition, endoscopic therapy is appropriate. Since the site of bleeding has been localized by colonoscopy, technetium RBC scan would only likely confirm the bleeding segment of the colon. Angiography would be reasonable in this woman to identify and possibly treat the bleeding diverticulum. However, there is morbidity from this procedure particularly in an elderly woman with known vascular disease. Continued observation is likely to be associated with continued bleeding given the presence of an actively bleeding lesion and significant transfusion requirements. Surgical therapy should be avoided if possible.
**Question 22.** A 65-year-old presents with iron-deficiency anemia, refractory to iron treatment. No history of overt gastrointestinal bleeding, but fecal occult blood tests were positive on 4 of 5 occasions. A previous EGD showed a large hiatal hernia. Two colonoscopies and a small bowel radiographic series were unremarkable. An endoscopic finding of a repeat EGD is shown in Figure 20. Which of the following is the most appropriate management of this condition?

A. Endoscopic ligation  
B. Endoscopic sclerotherapy  
C. Laparoscopic Nissen fundoplication  
D. Distal esophagectomy  
E. Oral administration of a proton pump inhibitor twice daily and iron replacement therapy.

The recommended response is E.

The most likely cause of iron-deficiency anemia is chronic bleeding from Cameron erosions. The endoscopic figure shows a large hiatal hernia with erosions or linear ulcers along the gastric folds at the level of the diaphragmatic hiatus. Mechanical trauma, ischemia, and peptic injury have been proposed as the etiology of these lesions. The prevalence among patients with hiatal hernia has been reported to be about 5%. They are usually an incidental finding but occasionally can cause acute or chronic upper gastrointestinal bleeding and iron-deficiency anemia. The choice of therapy, medical vs. surgical, should be individualized for each patient. Treatment with oral proton pump inhibitors and iron treatment is recommended and may help preventing recurrence of anemia. Despite maximal medical treatment, Cameron erosions may persist or
recur in about one third of patients, in which case surgical repair of the associated hernia may be required.


**Question 23.** A 72-year-old woman with cryptogenic cirrhosis has developed progressive dyspnea for the past 3 months. Her laboratory investigations show hemoglobin of 8.4 g/dL with mean corpuscular volume of 62 μm³ and serum ferritin level of 10 ng/mL. Stool specimens are brown but positive for occult blood. Colonoscopy is normal. An endoscopic view of the gastric antrum is shown in Figure 21. Which of the following is the most appropriate next step in management of this condition?

A. Partial gastrectomy or antrectomy  
B. Argon plasma coagulation  
C. Transjugular intrahepatic portosystemic shunts (TIPS)  
D. Oral administration of proton pump inhibitors twice daily  
E. Oral administration of non-selective beta-blockers

The recommended response is B.
The endoscopic figure shows multiple longitudinal rows of flat, reddish stripes radiating from the pylorus into the antrum, consistent with gastric antral vascular ectasia (GAVE) or watermelon stomach. GAVE is an infrequent cause of upper gastrointestinal bleeding that is often confused with portal hypertensive gastropathy because both can occur in patients with portal hypertension. Most cases are idiopathic, but may be associated with autoimmune or connective-tissue diseases, such as hypothyroidism, systemic sclerosis, atrophic gastritis, or pernicious anemia. The most common clinical presentation is slow gastrointestinal bleeding and iron-deficiency anemia. However, some patients with coagulopathy may present with signs of overt gastrointestinal bleeding. The diagnosis is based on the classic endoscopic appearance, and may be confirmed by biopsy. The typical histology consists of hypertrophy of the antral mucosa, dilation of mucosal capillaries with focal thrombosis, and fibromuscular hyperplasia of the lamina propria.

The initial goal of treatment is relatively superficial coagulation to a depth of 1-2 mm without vaporization or deep coagulation (more than 2-3 mm). Often, several sessions are required to obliterate all of the antral ectasia. Endoscopic coagulation can be performed using heater probe, multipolar (gold) probe, argon plasma coagulation, or laser therapy. Portal decompression with TIPS does not reduce bleeding, highlighting the uncertain relationship of GAVE to portal hypertension. Partial gastrectomy or antrectomy prevents recurrent bleeding, but is usually reserved for patients who fail endoscopic therapies. Oral administration of proton pump inhibitors or non-selective beta-blockers is not effective for GAVE.


**Question 24.** A 62-year-old woman with a past medical history of chronic renal insufficiency presents with iron-deficiency anemia and intermittent melena for 2 months requiring multiple blood transfusions. She underwent multiple endoscopic investigations, including EGD, colonoscopy, CT scan of the abdomen and pelvis, and upper gastrointestinal series. No bleeding source was identified. Wireless capsule endoscopy shows multiple lesions in the jejunum as shown in Figures 22A and 22B. Which of the following is the most like diagnosis?

A. Dieulafoy’s lesions  
B. Anemia from chronic renal failure  
C. Vascular ectasia  
D. Crohn’s disease  
E. Small bowel diverticulosis

The recommended response is C.

The figures from wireless capsule endoscopy show multiple vascular ectasias in several segments of the jejunum. A thorough history and physical examination may help localizing the site of gastrointestinal bleeding and direct the appropriate investigations when evaluating the
patients presenting with gastrointestinal bleeding. Despite multiple endoscopic investigations, the source of bleeding cannot be identified in approximately 5% of patients. Wireless capsule endoscopy has been proposed in the past few years as a modality of choice to evaluate small intestine for patients with obscure gastrointestinal bleeding with a higher yield compared to other modalities.

In patients with subacute or intermittent bleeding, tumors and vascular ectasia are the most commonly identified sources of bleeding in the small intestine. The frequency of these conditions varies depending on age. In patients between 30 and 50 years of age, tumors are the most common abnormalities, whereas vascular ectasias predominate in the older patients. Meckel’s diverticula are the most common source in patients less than 25 years of age. Vascular ectasias are often associated with a variety of condition, including chronic renal failure, cirrhosis, scleroderma, the CREST syndrome, radiation injury, collagen diseases, and von Willebrand’s disease.

Question 25. A 68-year-old man presents with intermittent episodes of hematochezia for several months. His stools are normal, but he passes blood clots a few times per week. His past medical history is significant for prostate cancer, for which he received radiation therapy 4 years ago. He denied any weight loss or diarrhea. Physical examination is unremarkable. An endoscopic view of the rectum is shown in Figure 23. These findings are limited to the distal rectum. Which of the following is the most likely diagnosis?

A. Hereditary hemorrhagic telangiectasia
B. Ulcerative proctitis
C. Ischemic colitis
D. Crohn’s colitis
E. Radiation proctopathy

The recommended response is E.

The endoscopic figure shows friable, erythematous mucosa with multiple telangiectasia limited to the rectum, consistent with radiation proctopathy. This condition is often seen in the patients who have undergone radiation therapy to adjacent pelvic organs for the treatment of malignancies. The type of injury can be divided into 2 categories: acute and chronic. Acute radiation injury occurs within 6 weeks of therapy, affecting more than 75% of patients receiving pelvic radiotherapy. Symptoms include diarrhea and rectal urgency or tenesmus, and, uncommonly, bleeding. These symptoms usually resolve spontaneously within 2-6 months. Treatment with topical butyrate enemas has been shown to accelerate mucosal healing. Up to
20% of patients go on to suffer from persistent radiation-induced proctopathy, with the onset of first signs or symptoms at approximately 9-14 months following radiation exposure. Late radiation injury is due to progressive epithelial atrophy and fibrosis associated with obliterative endarteritis, resulting in chronically ischemic intestinal segment that is prone to stricture and bleeding. Clinical presentations include diarrhea, obstructed defecation (in patients with stricture), bleeding (from mucosal friability and neovascular telangiectasia), rectal pain or urgency, and less commonly fecal incontinence due to decreased rectal compliance and sphincter atrophy. The diagnosis can be established by clinical history, endoscopic findings of pale mucosa with friability, and telangiectasia, which can be multiple, large, and serpiginous. Although mucosal biopsies are not diagnostic, they can help to exclude other causes of proctitis especially infectious and inflammatory bowel disease. There have been no large controlled trials evaluating the treatment of this condition. Thus, the recommendations are based on case reports and small clinical trials. A variety of therapeutic options have been investigated, including pharmacotherapy (oral and topical 5-ASA products, steroids, sucralfate, hormonal therapy, metronidazole, formaldehyde, etc.), hyperbaric oxygen, and antioxidants. In patients with rectal bleeding, endoscopic treatment can be performed by argon plasma coagulation, lasers, or bipolar and heater probes. Surgical treatment should be reserved for patients with intractable symptoms, such as stricture, pain, or bleeding. However, it may be technically demanding because of adhesions and other radiation damage. In addition, the healing process of anastomosis involving radiated tissue can be delayed. The best option is E.


Figures

Figure 1

Non-Bleeding Visible Vessel
Figure 4