

II. Acute Gastrointestinal Bleeding:

Roshini Pinto-Powell
Dartmouth Medical School

Meenakshy Aiyer
University of Illinois College of Medicine at Peoria

Learning objectives

Knowledge

Subinterns should be able to:

- 1) Describe common causes for acute gastrointestinal bleeding in the hospitalized patient including:
 - a) Upper GI bleeding (varices, Mallory-Weiss tears, peptic ulcer disease and gastritis)
 - b) Lower GI bleeding (diverticular disease, arterial venous malformations, infectious diseases, colorectal carcinoma, hemorrhoids and inflammatory bowel disease)
- 2) Describe the contribution of co-morbidities, medications, reasons for hospitalization, recent or remote surgical procedures in the differential diagnosis for the inpatient with acute GI bleeding
- 3) Delineate appropriate resuscitative measures
- 4) Understand the role of therapeutic endoscopy in upper GI bleeds
- 5) Understand the indications for using blood products
- 6) Describe the appropriateness of interventions for localization of lower gastrointestinal bleeding
- 7) Recognize situations in which it is necessary to seek support from resident emergently.
- 8) Recognize indications for transfer to higher care units (e.g. the intensive care unit).

Skills

Subinterns should demonstrate the ability to:

1. Conduct a targeted history & focused chart review.
2. Evaluate the patient for clinical stability; potential source of the abdominal pain and for the presence of any peritoneal signs.
3. Develop a management plan:
 - a. Provide appropriate resuscitative measures
 - b. Order appropriate laboratory and radiologic studies for the patient
 - c. Perform nasogastric lavage on a patient with a suspected upper gastrointestinal bleed
 - d. Request consultation from gastroenterology and surgical services as appropriate
 - e. Write orders for blood products and pre-medication as indicated
 - f. Provide appropriate nutritional support for patients who are unable to eat
 - g. Re-evaluate the patient frequently to assess response to treatment and progression of disease

Attitudes and professional behavior

Subinterns should demonstrate:

1. An understanding and respect of the patient's wishes with regards to the administration of blood products and provide alternate options for resuscitation
2. The ability to communicate effectively with patients, family and consultants regarding the patient's condition

Case I: Acute GI Bleeding

Your senior resident sends you the emergency department to evaluate a 66 year old female who presents with hematemesis.

Patient is a 66 year old female who presents with 2-3 episodes of vomiting bright red blood. Patient has a history of hypertension and osteoarthritis. Her current medications include Ibuprofen and atenolol. Patient is a smoker and drinks about 6-8 beers every day for the past 25 years. Patient denies, abdominal pain, recent loss of appetite or loss of weight.

Question 1

What are some of the critical elements to focus on during your initial assessment of this patient?

- Hemodynamic status of the patient; this helps assess the severity of the blood loss
 - Signs of hemodynamic instability include: tachycardia, thready pulse, hypotension, orthostatic hypotension
 - Assess for signs of shock
 - Cold clammy extremities, poor mentation
- Physical exam and history data to assess the potential location of the bleeding: upper versus lower GI bleeding; and between variceal vs. non variceal causes of GI bleeding
 - Historical clues – history of alcoholism, emesis before hematemesis, h/o GERD, abdominal pain, history of renal failure, history suggestive of malignancy, prior history of GI bleeding and their cause (60% of UGI bleed is from the same etiology that previously bled)
 - Chronic stigmata of liver disease, presence of ascites, jaundice on physical exam can increase like hood of a variceal bleed
 - NSAID use or aspirin use- risk of bleeding from PUD is increased up to fivefold with administration of NSAIDs
 - Social history – alcoholism, smoking
- Basic laboratory investigations to assess underlying coagulopathy
- Resuscitative measures
 - Fluid resuscitation
 - Need for Blood transfusion
- Determination of the need of emergent interventions

You arrive in the emergency department. Physical examination reveals, BP of 90/50, HR 110, RR 18, pulse ox 95% on room air. Patient is awake; oriented to place and person. Neck no JVD, no nodes palpable. Cardiac exam reveals normal S1 and S2, Lungs are clear to auscultation. Patient has no stigmata of chronic liver disease. Abdomen is soft non tender without organomegaly. There is no free fluid in the abdomen. Rectal exam reveals brown stool that is heme positive.

Laboratory data already obtained by the ED reveal:

Hemoglobin 12.3, Hematocrit 36.0; WBC 11.6, platelets 230,000
BUN 36, creatinine 0.5, rest of the electrolytes are within normal limits
PT/INR – 12.3/1.1
PTT – 24
Liver enzymes are within normal limits
Urine analysis is within normal limits

Patient has been started on IV normal saline by the ED resident and has been typed and crossed for 2units of PRBCs. The NG placed in the ED reveals coffee grounds without active bleeding.

Question 2

What differential diagnosis of upper GI bleed would you entertain in this patient?

Causes of Upper GI Bleed

- Peptic ulcer disease
- Esophageal and gastric varices
- Gastritis
- Esophagitis
- Duodenitis
- Mallory-Weis tear
- Malignancy
- Dieulafoy lesion
- Portal gastropathy
- Aortoenteric fistula
- Angiodysplasia
- Upper GI malignancy

The most common conditions you would consider in this patient would be Gastritis given the NSAID use, peptic ulcer disease and variceal bleed.

Question 3

Based on the initial assessment of this patient and baseline laboratory data, what are your next considerations?

- The first step in the management of acute GI bleed is patient resuscitation. This includes fluid aggressive fluid resuscitation. IV access needs to be at least two or more sites with 18 gauge or larger catheters.
- Cardio respiratory support also needs to be addressed especially in patients with altered mental status, active massive hematemesis, or hypoxia.
- Insertion of NG tube may be helpful with initial triage of patients. Presence of bright red blood in the NG tube is usually an adverse prognostic indicator
- Make patient NPO because of the need for future procedures

Next steps in the treatment process include consideration of the following:

General supportive measures:

- Transfuse packed erythrocytes or not:
 - Transfusion of packed red cells should be considered in older patients with co-existing illness and if tachycardia or hypotension is present or if the hemoglobin is less than 10g/dL
- Transfuse other blood products or not (indicated if patient has underlying coagulopathy)
- Proton Pump inhibitors
- Indications for octreotide therapy
 - Usually considered in patients with significant liver disease, or history of variceal bleeding

Bed placement/need for consults:

- Decision to admit the patient to ICU vs. non ICU bed
 - ICU bed should be considered if the patient has multiple adverse prognostic factors, hemodynamic/cardiopulmonary instability
- Emergency versus routine GI consult
 - GI consult indicated in all patients with UGI bleed
- Assess need for surgical consult
 - Indicated in patients with uncontrolled bleeding, bleeding associated with abdominal pain, abdominal findings suggestive of acute abdomen, recurrent bleeding or in patients who might not tolerate recurrent or worsening bleeding

After receiving 1 liter of IV fluid, patient's BP was 120/70, HR 95/min. Patient is an elderly patient with few adverse prognostic factors, hence she was admitted to the Intermediate Medicine Surgical Unit. A GI consult was called to evaluate the patient. EGD performed revealed acute gastritis with multiple gastric erosions.

Question 3

What are your next steps based on the findings on the EGD?

- Discontinue NSAIDs, find an alternative agent for management of her osteoarthritis
- Continue oral proton pump inhibitors
- Check for H.pylori and if positive treat for H pylori
- Advance diet as tolerated

Question 4

What are your next steps if the EGD showed the following?

i) Nonbleeding visible vessel at the base of a 3cm duodenal ulcer

Endoscopic appearance of a bleed ulcer can predict prognosis. The Forrest classification is used for risk stratification. Active bleeding or nonbleeding visible

vessel are high risk lesions for rebleeding (Forrest grade IA, IB, IIA). Adherent clot (Forrest IIB) are also considered high risk

If this is found on endoscopy:

- Perform endoscopic hemostasis (GI consultant)
- Admit patient to monitored bed or ICU
- Continue IV proton pump inhibitor (80mg bolus followed by a continuous infusion at 8mg/hour)
- Perform H.pylori testing and treat if positive
- Initiate oral intake of clear liquids 6 hours after endoscopy if patient is clinically stable

ii) Duodenal ulcer with a flat clean base

This is Forrest grade IIC, or III. If found:

- No indication for endoscopic hemostasis
- Consider early hospital discharge if patient is clinically stable and stable home environment
- Perform H pylori testing and treat is positive

Case II: Acute GI Bleeding

Scenario: You are on call on the general Medicine Inpatient red team and are cross covering for the Blue team. As you are settling into bed at 3AM after a busy night of admissions, your beeper goes off – it is a nurse from 1E (the general medicine floor) calling you about Mr. AG, a patient on the Blue team who has suddenly begun passing bright red blood per rectum. You try to ask a question but he says, “Sorry doc got to go – the patient is calling again”, and hangs up.

Question 1: *What questions would you have liked to ask the nurse?*

- Answers: i) Assess patient stability: BP, heart rate, level of consciousness
ii) Additional symptoms to help formulate a differential:
 abdominal pain
 rectal pain
 fever
 diarrhea
iii) Additional questions: Is the patient on heparin/coumadin
 (will determine initial labs you may want drawn)

As you hurriedly tumble out of bed (the tone of the nurses voice making you acutely aware of his concern), you do not recall there being a GI bleeder on your sign out sheet. You try to run through the differential diagnosis of bright red blood per rectum (BRBPR).

Question 2: *What are the major causes of BRBPR?*

- Answers: Diverticular bleed, AVM's, colorectal cancer, inflammatory bowel disease, ischemic colitis, hemorrhoidal bleed, fissures
less likely small bowel and rapid transit upper GI bleeds

You arrive on the cardiac floor and quickly run into the patient's room. The nurse is by his bedside taking vital signs. The patient looks pale, but is talking to the nurse. You decide you have time to briefly review the chart.

Question 3: *What specific information would you look for when you arrive at the patient's bedside?*

Answers: i) Focused chart review – patients age, admitting diagnosis, comorbid conditions, last H&H, quick glance at the med sheets to look for medications that put the patient at risk for bleeds (ASA, NSAIDs, COX 2 inhibitors, IIaIIIb inhibitors, coumadin, heparin).

Physical examination:

You go into the room to examine Mr. AG. He is a 54 year old gentleman with history of coronary artery disease, and hypertension who was admitted 36 hours earlier for chest pain. His initial cardiac enzymes were normal, but because of his

history and highly suggestive story, he was placed on IV heparin. Patient has no prior history of GI bleed.

He is pale, slightly diaphoretic, but denies abdominal or chest pain. He has had another episode of a large amount of BRBPR since you have arrived on the floor. Vitals: Afebrile, BP lying down 110/60 (was 130/70 on admission), P 100 regular, patient unable to sit up to check for orthostatics since he is too woozy. RR 18, Oxygen saturation on 2L nasal canula at 97%

JVP 6 cm, Chest is clear. Heart tachycardic without murmurs. Abdominal exam shows a nondistended, nontender abdomen with normal bowel sounds, no organomegaly; Rectal exam reveals bright red blood on the gloved finger, but no hemorrhoids, masses or stool in the rectal vault. Extremities are cool with thready pulses, no edema.

Question 4: What are the next steps in patient management?

Answer:

1. Stabilize the patient (assess for IV access, IV fluid resuscitation)
2. Work up the patient (EKG, CBC, check last set of enzymes, type and cross match possibly PT/INR/PTT)
3. Call in reinforcements (notify your resident, ICU staff in event patient needs transfer to ICU, GI consult, interventional radiology (bleeding scan, angiography)

The patient's second set of enzymes are also negative and his EKG shows tachycardia, but no acute ST-T changes and otherwise looked the same as on admission. STAT labs show a H&H of 7.5/21.0 (down from 10.0 /32.0 on admission), platelets were 350K, electrolytes, BUN/ creatinine were normal, PTT 120

Question 5

i) Should you transfuse packed erythrocytes in this patient? Why or why not?

You should transfuse this patient with packed erythrocytes. The indications for blood transfusion in a patient with acute GI bleed needs to be individualized. Transfusion requirements are determined by factors including patient's age, underlying cardiovascular status, baseline hemoglobin, and rapidity of blood loss along with current hematocrit level.

Given this patient's ongoing bleeding associated with hemodynamic instability and underlying history of coronary artery disease, he will benefit from transfusion.

ii) Should you stop the heparin?

Yes, this patient's heparin should be stopped and his underlying coagulopathy needs to be corrected. Patient's cardiac enzymes are within normal limits without any change in his EKG. It might be wise to consider getting a cardiology evaluation as well in this patient. But the current critical issue is to stabilize the patient.

iii) What are the diagnostic studies available for the evaluation of lower GI bleed? What is indication for a bleeding scan?

The initial diagnostic test to consider in the evaluation of a patient with lower GI bleed is a colonoscopy. The advantages of a colonoscopy include ability to localize the site of bleeding, intervene therapeutically whenever indicated and also to perform other diagnostic procedures such as a biopsy.

The other diagnostic tests include: radionuclide scanning and Angiography. The radionuclide scanning detects bleeding occurring at a rate of 0.1 to 0.5 mL/minute. It is more sensitive and less specific than angiography. The major disadvantage of this procedure is that it localizes the bleeding to an area of the abdomen rather than the specific site of bleeding.

Angiography detects bleeding that occurs at a rate of 1 to 1.5ml/minute. This test is very specific. Colonoscopy is usually recommended prior to angiography in evaluation of patients with LGI bleeding. However, angiography can be considered in patients in whom endoscopy is not feasible, patients with persistent or recurrent bleeding or a non diagnostic colonoscopy. The main advantages of this procedure include lack of bowel preparation and accuracy of anatomic localization.

iv) Any other thoughts/ plans?

Anticipate procedures

Keep patient NPO

Document your assessment and plan in the cross coverage note

Reevaluate if patient develops recurrent chest pain

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