Rectal Bleeding: 101

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Lower GI bleeding

- **Definition:** bleeding occurring distal to the ligament of Treitz
- Accounts for approximately 20% of all major GI bleeds
  - The incidence of LGIB requiring hospital admission is approximately 21 cases per 100,000 adults
- 80-90% of cases will stop bleeding spontaneously
- 25% will re-bleed during or after hospital admission
- Mortality ranges from 2-4%
Lower GI bleeding

Common Etiologies:

- **Children & Adolescents:**
  - Meckel’s diverticulum
  - Polyps
  - IBD

- **Adults:**
  - Diverticula
  - Angiodysplasia
  - Neoplasm
  - IBD
  - Benign anorectal disease
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Other Causes:

- Ischemic colitis
- Infectious colitis
- Post-polypectomy hemorrhage (0.2% - 3%)
- Upper GI source (10% - 15%)
- Small bowel source (3% - 5%)
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Diverticular Bleeding:

- The prevalence of diverticula increases with age
- Bleeding is generally result from rupture of vasa recta
- Up to 20% bleed during their lifetime
  - 5% have massive bleeding
  - recurs in 25%
- While the majority of diverticula are located in the sigmoid colon, diverticular bleeding is distributed fairly equally between the right & left colon
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**Angiodyplasia (Vascular ectasia):**

- Can be identified as distinct red mucosal patches consisting of capillaries
- Most common in the cecum and ascending colon
- Only about 15% of patients with vascular ectasia will develop gastrointestinal hemorrhage
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Inflammatory Bowel Disease:

- Bleeding from inflammatory bowel disease usually presents as bloody diarrhea
- Up to 6% of patients with either Crohn's colitis or ulcerative colitis may have severe gastrointestinal hemorrhage
Ischemic Colitis:

- Results from a sudden and often temporary reduction in mesenteric blood flow
- Typically caused by hypoperfusion, vasospasm, or occlusion
- Patients tend to be elderly, often with significant atherosclerosis or cardiac disease
- Clinically, patients present with abdominal pain, usually accompanied with bloody diarrhea
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Management Overview:

• Characterize
  - Character (hematochezia; melena)
  - Severity

• Resuscitation

• Localization

• Treatment
Lower GI bleeding

Characterize:

• Character of blood and severity
• Chronicity
• History
• Risk factors
• PMH, PSH, FH
• Meds
• Exam/Vital Signs
• Laboratory tests
Lower GI bleeding

Resuscitation “ABCs”

- Large-bore IVs
- Aggressive volume replacement
- Cross-match & transfuse as needed
- Coagulation studies
- Arrange admission to a unit with close monitoring
Lower GI bleeding

Localization

• **Upper GI source**
  - NGT lavage—helpful initial procedure to help to rule out upper GI bleed (EGD if positive)

• **Lower GI source**
  - Anoscopy/Proctoscopy—rule out anal outlet bleeding, proctitis, or cancer
  - Colonoscopy
  - Radionuclide Imaging
  - Angiography
  - Capsule endoscopy
  - Enteroscopy
Lower GI bleeding

**Anorectal Sources:**

- Hemorrhoids:
- Fissures:
- Proctitis:
- Rectal Prolapse
- Cancer (rectal CA, anal CA)
Colonoscopy

• **Advantages:**
  - High diagnostic yield
    • 85% of lesions identified
  - Assesses colon & ileum
  - Low complication rate
  - Therapeutic
    • Coagulation
    • Hemoclips
    • Injection (epinephrine)

• **Disadvantages:**
  - Diminished visualization with profuse bleeding
  - Requires bowel prep
Radionuclide Imaging

• **Advantages:**
  - Sensitivity (0.1 ml/min)
  - Can be repeated (24hrs)
  - Low complication rate

• **Disadvantages:**
  - Not a good localizing study
  - Precursor to angiogram
Radionuclide Scan

2-3 min

5 min

10 min

25 min
Mesenteric Angiography

**Advantages:**
- Sensitivity (0.5 ml/min)
- Diagnostic & therapeutic
  - Selective embolization
  - Vasopressors
  - Methylene blue marking

**Disadvantages:**
- Invasive study
- Complications:
  - Pseudoaneurysm
  - Bowel infarction
  - MI (vasopressin)
Mesenteric Angiography
CT Angiography

• **Advantages:**
  - Accessible
  - Quick
  - Sensitive
  - Provides anatomic detail
  - No bowel prep needed

• **Disadvantages:**
  - NOT therapeutic
CT Angiography
Lower GI Bleeding

Other Modalities to Assess Small Bowel Sources:

• Capsule Endoscopy

• Enteroscopy
Lower GI Bleeding

**Surgery:**

- The majority of bleeding will stop spontaneously
- 10-25% of patients will require operative intervention
- **Indications:**
  - Continued or recurrent hemorrhage despite non-operative attempts
  - Ongoing hemodynamic instability
  - Large transfusion requirement in 24 hours
Lower GI Bleeding

Surgery:

• If the site of bleeding is identified:
  - Segmental resection +/- anastomosis (depending on hemodynamic stability, comorbidities)

• If the site of bleeding is NOT identified or unstable patient
  - Total abdominal colectomy & end ileostomy
Lower GI Bleeding

**Surgery:**

- If patient stability allows, *every effort should be made to localize the bleeding source pre-operatively*

- Emergency colectomies for non-localized bleeding can have high morbidity and mortality

- Blind segmental colectomy have a high the risk of re-bleeding (35-75%)
Management—Occult Bleeding

Acute colonic bleeding

Volume resuscitation plus blood transfusion

NG aspirate negative

Proctoscopy
Rule out anorectal bleeding

NG aspirate positive

Gastroduodenoscopy + endoscopic treatment

Bleeding stopped or slowed down

Elective colonoscopy

Positive
Endoscopic treatment

Negative
Observe

Rebleeding

Segmental resection

See moderate bleeding or massive bleeding
Management—Massive Bleeding

Acute colonic bleeding → Volume resuscitation plus blood transfusion

NG aspirate negative

Proctoscopy Rule out anorectal bleeding

NG aspirate positive

Gastroduodenoscopy + endoscopic treatment

Massive life-threatening bleeding → Mesenteric arteriography

Positive: Vasopressin or Emboli
  - Fail: Segmental resection

Negative: Explore, intraoperative endoscopy
  - Positive: Segmental resection
  - Negative: Total colectomy

Management—Moderate Bleeding

Moderate bleeding continued

- $^{99m}$Tc RBC scintigraphy
  - Positive: Mesenteric arteriography
    - Positive: Vasopressin or Emboli
      - Fail: Segmental resection
    - Negative: Explore, intraoperative endoscopy
  - Negative: Observe
- Urgent colonoscopy
  - Positive: Colonoscopic treatment or explore, segmental resection
  - Negative: Observe
Management—Special Situations

Post Polypectomy Bleeding:

• Occurs in up to 6% of cases
  - can either present immediately or can be delayed

• Treated with standard endoscopic techniques
  - injection therapy, electrocoagulation, or endoscopic clipping

• If these methods fail, angiographic embolization and/or surgery may be required (rare)

• When surgery is required, the histology of the polyp is can guide management
Management—Special Situations

Small Intestine Bleeding:

- Account for 3-5% of all cases of LGIB
- Most common cause is angiodysplasia (70-80%), followed by small bowel diverticula, Meckel’s diverticula, neoplasia, Crohn’s disease, and aorto-enteric fistulas
- Diagnosis is difficult because of the long length and relative inaccessibility
  - Capsule endoscopy and double balloon enteroscopy
Anastomotic Bleeding:

- More common after stapled anastomoses
- **Prevention:**
  - Inspect staple line
  - Use antimesenteric border of bowel
- Most cases are mild and self-limited
  - Stabilize, correct coagulopathy, hold meds that may exacerbate bleeding
- More serious bleeding
  - Endoscopy
  - Return to OR
Ms. C

Ms. C is a 60-year-old woman who presents to the ED complaining of bloody bowel movements and left lower quadrant pain for the past 2 days.

You are the surgery consult resident that has been asked to evaluate her.
History, Ms. C

Characterization of Symptoms and Sequence of Events

• Patient noticed bright red blood in her stool beginning 2 days ago, sometimes mixed with mucous. Her bowel movements have been loose but formed.

• She typically has 2 bowel movements daily and often feels an urgent need to defecate. No anal pain

• She has also noticed intermittent LLQ crampy abdominal pain and a decrease in appetite over the past month.
History, Ms. C

Alleviating/Precipitating Factors
• Abdominal pain often worsens with eating
• Nothing alleviates symptoms

Associated Symptoms
• No Nausea or Vomiting
• Decreased Appetite
• Weight loss of about 10-lbs over past month
History, Ms. C

Has this happened before?
• She has experienced these symptoms before 10 years ago. She was hospitalized and transfused 2 units of PRBCs. Colonoscopy showed diverticulosis and angiography showed a bleeding vessel in the middle colic distribution which was embolized.

Sick Contacts and Travel History
• No known sick contacts
• No recent travel out of the country
Additional History, Ms. C

PMH
• HTN, A-fib, Asthma, DJD

PSH
• Appendectomy at age 9

Meds
• Lopressor, Coumadin, Albuterol
Additional History, Ms. C

Family History
• Several family members have had “intestinal problems”

Social History
• Smoked 1/2 pack per day for 10 years until 2 years ago, social ETOH consumption, no other drug use
What is your Differential Diagnosis?

Based on History and Presentation

- Infectious/Ischemic Colitis
- Diverticulitis
- Inflammatory Bowel Disease
  - Crohn’s Disease
  - Ulcerative Colitis
- Colorectal Cancer
- Upper GI bleeding
- Hemorrhoids
Physical Examination, Ms. C

Vital Signs: T = 99, P = 106, BP = 90/76, RR = 14

Appearance: thin, pale, but in no acute distress

HEENT: Sclera anicteric, mucous membranes pink and moist

Heart: RRR

Lungs: mild rales at bases

Abdomen: normoactive BS, non-distended, mildly tender throughout but L>R, no guarding or rebound tenderness

Rectal: stool in vault mixed with bright red blood, no masses, no external anal lesions
Laboratory Tests

What would you obtain?
LFTs WNL
INR-2.8
PTT- normal
Stool O&P negative
*C. difficile* toxin negative
T&C sent
What are the Next Steps in Diagnosis and Management?

• Interventions?
• Imaging?
• Endoscopy?
Abdominal X-Ray

X-ray interpretation

Normal Abdominal film
No colonic dilatation
No signs of small bowel obstruction or ileus
Abdominal CT

- Sigmoid colon thickening and diverticulosis
- Pericolonic stranding
- Trace free fluid
Colonoscopy Findings

Blood in the distal colon without active source of bleeding
Pan-diverticulosis
Terminal ileum intubated and was normal
Final Diagnosis

Diverticular bleeding
Ms. C was eventually discharged after bleeding stopped but presents 2 months later with similar complaints.
- Afebrile with stable vital signs
- INR- 2.0
- Hemoglobin 8.0
- Colonoscopy shows blood in the sigmoid colon, diverticulosis without any active bleeding
She would like to prevent this from happening again and opts for surgery. Which operation would you recommend?

A. Right colectomy  
B. Left colectomy  
C. Sigmoid colectomy  
D. Total abdominal colectomy  
E. Total proctocolectomy
Ms. D

Ms. D is a 30-year-old female who presents to her primary care physician complaining of bloody bowel movements and left lower quadrant pain for the past 4 weeks.
History, Ms. D

Characterization of Symptoms and Sequence of Events

• Patient noticed bright red blood in her stool beginning 4 weeks ago, sometimes mixed with mucous. Her bowel movements have typically been loose.

• She has approximately 6 bowel movements daily and often feels an urgent need to defecate. No anal pain

• She has also noticed intermittent LLQ crampy abdominal pain and a decrease in appetite over the past month.
History, Ms. D

Alleviating/Precipitating Factors
• Abdominal pain often worsens with eating
• Nothing alleviates symptoms

Associated Symptoms
• No Nausea or Vomiting
• Decreased Appetite
• Weight loss of about 10 lbs over past month
History, Ms. D

Has this happened before?
- She has experienced abdominal pain and bloody diarrhea twice in the past year but never lasting more than 2-3 days

Sick Contacts and Travel History
- No known sick contacts
- No recent travel out of the country
Additional History, Ms. D

PMH
- None

PSH
- None

Meds
- None
Additional History, Ms. D

Family History
• Several family members have had “intestinal problems”

Social History
• None
What is your Differential Diagnosis?

Based on History and Presentation

• Infectious Colitis
• Diverticulitis
• Inflammatory Bowel Disease
  • Crohn’s Disease
  • Ulcerative Colitis
• Colorectal Cancer
• Gastroenteritis
• Hemorrhoids
Physical Examination, Ms. C

Vital Signs: T = 99, P = 86, BP = 110/76, RR = 14

Appearance: thin, pale, but in no acute distress

HEENT: Sclera anicteric, mucous membranes pink and moist

Heart: RRR

Lungs: mild rales at bases

Abdomen: normoactive BS, non-distended, mildly tender throughout but L>R, no guarding or rebound tenderness

Rectal: stool in vault mixed with bright red blood, no masses, no external anal lesions
LFTs WNL
PT/PTT WNL
Stool O&P negative
C. difficile toxin negative
What are the Next Steps in Diagnosis and Management?

• Interventions?
• Imaging?
• Endoscopy?
Abdominal CT

- Diffuse colonic wall thickening with submucosal edema
- Pericolic stranding
- Some free fluid
Continuous inflammation involving rectum and extending to the splenic flexure. Mucosa is erythematous, edematous, and friable

**Biopsy** demonstrates distortion of crypt architecture with crypt abscesses
Final Diagnosis

Ulcerative Colitis
How would you manage this patient next?
Medical Management for Mild-to-Moderate Ulcerative Colitis

- 5-ASA agents
  - oral and rectal preparations
- Oral Corticosteroids
- 6-MP/Azathioprine
- Methotrexate
Medical Management of Severe Ulcerative Colitis

- Bowel Rest
- IV corticosteroids
- Cyclosporine
- Anti-TNFα agents
Indications for Surgery

- Perforation
- Uncontrolled Bleeding
- Fulminant Colitis
- Disease refractory to medical management
- Growth Retardation
- Dysplasia/Colorectal cancer
Surgical Options:

Elective:

• Total Proctocolectomy and End Ileostomy
• Total Proctocolectomy and Ileal Pouch–Anal Anastomosis (IPAA)

Emergent:

• Total abdominal colectomy and end ileostomy (proctectomy & IPAA can be performed later)