

GASTROINTESTINAL BLEEDING

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Intern Boot Camp

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Objectives

- Outline key information to have when calling GI bleeding consults
- Discuss and Provide Background information on Upper and Lower GI bleeding
- Identify Goals of Care, History, and Physical Exam findings in GI Bleeding
- Identify key points to Resuscitation and workup of GIB
- Discuss utility of NG Tube in the evaluation of GI Bleeding
- Discuss therapy and treatment for Upper and Lower GI bleeding

Calling GI Bleed Consults

- Information you'll need:
 - Presentation (including risk factors), H & P in the chart
 - NG lavage (Color ?, Did it clear ?, How much did it take ?)
 - Stool characteristics - "See the stool" (yes, **YOU** have to see it)
 - Hemodynamics including ****orthostatics****
 - PT/INR, PTT – INR needs to be <1.4-1.5 (WHY ???)
 - Evidence of cirrhosis? Previous AAA repair ?
 - CBC – with ****baseline****
 - Previous endoscopy reports (Sunrise, Portal, Mainframe, CPRS)
 - **A differential diagnosis and a plan**
 - Call the consult **as EARLY in the day** as possible (after 8am)

Background

- **Incidence**
 - 100 hospitalizations per 100,000 adults per year (UGIB)
 - 250,00 – 300,000 hospitalizations/year
- M>F
- Risk increases with age
- Mortality
 - 5-10%
- \$\$\$\$- 2.5 billion / year
- Acute –
 - arbitrarily defined as less than 3 days duration
 - Results in hemodynamic instability
 - Requires blood transfusion
- **Definitions:**
 - Upper vs Lower: Determined by Ligament of Treitz
 - Overt
 - Occult
 - Obscure –
 - can be occult or overt
 - Melena vs Melanic vs Melenotic

“The Stool Guaiac was Positive”

Causes of False-Positive Fecal Occult Blood Test Results

Extraintestinal blood loss

Epistaxis
Gingival bleeding
Tonsillitis/pharyngitis
Hemoptysis

Medications causing gastric irritation

Aspirin
Nonsteroidal anti-inflammatory drugs
Vitamin C

Exogenous peroxidase activity

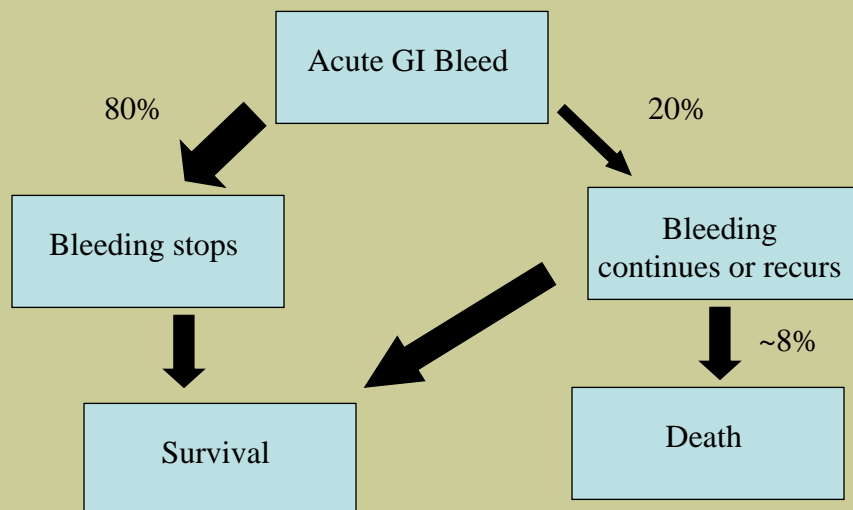
Red meat consumption (nonhuman hemoglobin)
Fruit consumption (cantaloupe, grapefruit, figs)
Uncooked vegetable consumption (radish, cauliflower, broccoli, turnip, horseradish; less likely: cucumber, carrot, cabbage, potato, pumpkin, parsley, zucchini)

Upper GI vs. Lower GI

- UGI vs LGI location determined by the **Ligament of Treitz**:
 - **UGI – proximal to LT**
 - *Esophagus, *stomach, *duodenal bulb, 2nd/3rd portion of duodenum
 - **LGI – distal to LT**
 - Small bowel, *colon

Goals of Care

1. Immediate assessment and stabilization of the patient's hemodynamic status (Triage)
2. Determination of the source
3. Stop active bleeding
4. Treat underlying cause
5. Prevent recurrence



Adapted from the AGA slide set Acute GI bleeding, second edition

Presentation

- Hematemesis – Likely UGI source
 - Bright Red
 - Clots
 - Coffee grounds
 - Prior retching
- Stool color, consistency, frequency (“**see the stool!**”)
 - **Melena** –
 - TAR
 - Requires at least 50cc of blood in GI tract
 - Up to 100cc of blood in the GI tract may be clinically silent
 - **Typically suggests upper GI source, but 5% can be LGI**
 - Occasionally source is small bowel or proximal colon
 - **Hematochezia**
 - Consider brisk UGIB if hemodynamically compromised
 - **Brown stool or “no stool” (last bowel movement)**
 - Aggressive bleed unlikely

Presentation

- Determine the urgency of the clinical situation:
 - **Is the patient in shock?**
 - 40% loss of circulating blood volume
 - Agitation, pallor, tachycardia, hypotension
 - **Is the patient orthostatic?**
 - 20% loss of circulating blood volume
 - Postural hypotension
 - **Never rely on initial H/H** values to assess amount of blood loss (hemoconcentration)

Initial Management

- **Initial management of GI bleeding:**
 - History/physical exam
 - Replace intravascular volume
 - Nasogastric intubation
 - Supplemental nasal oxygen
 - Laboratory evaluation:
CBC/platelets/INR/PTT/BUN/creatinine
 - Determine need for admission to ICU

History

- Age
 - Higher mortality in elderly
 - Differential diagnosis
 - Meckle's
 - AVM's, diverticula
- Previous bleed
- Previous surgery
 - **AAA repair**
- Comorbidities
 - Heart Failure, CAD
 - **Liver disease**
- Previous endoscopies
 - **Previous reports**
- Symptoms/ROS
 - Pain
 - Intestinal angina
 - Diarrhea
 - **Retching**
 - Anorexia, weight loss
 - N/V
 - Early satiety
 - Dysphagia/odynophgia
 - Epistaxis/hemoptysis
- **Medications**

NSAIDS

- **Overall** relative risk of NSAIDS for any GI complication = 2.7
- **Age** > 50 y/o - Relative risk = 5.67
- **Previous GIB** + NSAIDS = 4.7
- **Steroids** + NSAIDS = 4.7
- **Steroids alone** = no increased risk
- NSAIDS + **anticoagulation** = 12.7
- **PPI** reduces risk of NSAIDS as does **misoprostol**
- ASA and NSAIDS **must be held**

Physical Exam

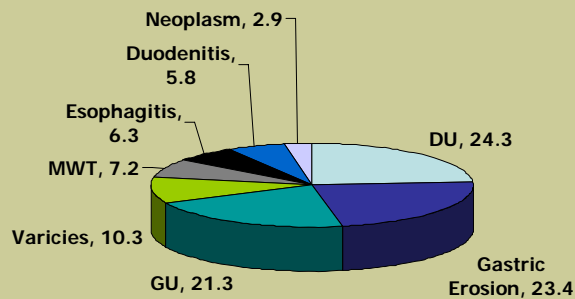
- **Stigmata of the "LIVER BOMB"**
 - Spider angiomata
 - Splenomegaly
 - Ascites/edema
 - Caput
 - Asterixis
 - Other
 - Jaundice
 - Dupuytren's contractures
- **Abdominal tenderness**
- **Other**
 - Telengectasias – Osler-Weber-Rendu
 - Pigmented lip lesions -Peutz-Jehger's
 - Purpura - vasculidites
- **Stool exam**
 - Visualization of stool color and character is essential
 - RECTAL EXAM
 - RECTAL EXAM
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 - Blood
 - Maroon or "Brick"
 - Melena
 - No stool in vault
- **"The ER said it was heme positive"**

Differential Diagnosis: UGI Bleeding

- **UGI bleeding (2225 patients):**

– Diagnoses:	%
• <u>DU</u>	24.3
• <u>Gastric erosion, “itis”</u>	23.4
• <u>GU</u>	21.3
• Varices	10.3
• M-W tear	7.2
• Esophagitis	6.3
• Duodenitis	5.8
• Neoplasm	2.9
• Esophageal ulcer	1.7
• Other	8.0

Upper GI Bleeding Sources



- **Rare causes**

- AVM, Dieulafoy's lesion, watermelon stomach (GAVE), Hemobilia, Aortic enteric fistula, surgical anastomosis, other

Differential Diagnosis: LGI Bleeding

- Major LGI bleeding:

– Diagnosis	%Diagnoses
• <u>Diverticulosis</u>	43
• <u>Angiodysplasia (avm's)</u>	30
• <u>Neoplasia</u>	9
• Colitis	9
• Other	7
• Undetermined	12

*** RESUSCITATION ***

- **Fluids of choice?**
 - Crystalloid
 - PRBC's
 - FFP/platelets if massive GI bleed
 - Recheck orthostatics
- **Access?**
 - **Two large bore IV's** if hemodynamically compromised or active bleeding
 - Triple lumen catheter
 - **Cordis**
- **Adequate BP** is needed for sedation

LABS ?

Labs

- **Coagulopathy**
 - PTT and PT/INR
 - **Reverse with FFP, Vitamin K** unless contraindicated
 - This typically does NOT include atrial fibrillation
 - **Goal INR** –
 - <1.5
- **BUN/Creatinine ratio**
 - Increase in BUN secondary to **absorbed blood proteins**
 - Ratio associated with UGIB
 - 20:1

Labs

- **Hgb/HCT-**
 - How often?
 - Goal Hgb/Hct?
 - May take up to 72 hours to equilibrate
- **Platelet count**
 - Goal platelet count?
 - Important for cessation of bleeding as well as endoscopic therapy
- **LFT's**
- **Iron studies**
 - May help differentiate chronic vs. acute

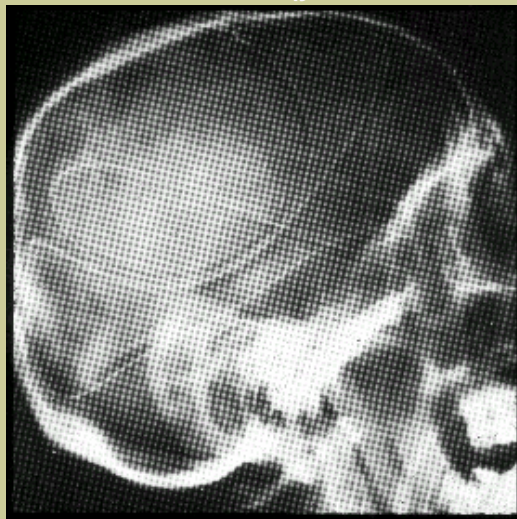
Upper or Lower?

- **History –**
 - **Risk factors and presentation are essential**
 - NSAIDS, post prandial epigastric discomfort
 - Intestinal angina
 - Hypotension preceding BRBPR
 - Painless “gush” of BRBPR
 - Retching prior to hematemesis
 - Cirrhotic with hematemesis
- **Stool exam**
- **Labs**
- **NG lavage**
- **11%** of patients initially suspected as LGIB are found to have UGI source

The NG Tube (your best friend:)

- **Indication**
 - UGI signs/symptoms
 - Unclear source – particularly if considering brisk UGIB
- **Procedure**
 - NG is placed either nasally or occasionally orally and confirmed in place
 - 250cc in → 250 out (can be attached to wall suction)
 - Continue until clear or 2L total
 - REMOVE ONCE CLEAR
- **Contraindications?**
 - Esophageal varices is NOT a contraindication
 - Neither is “The patient didn’t want it”
 - Facial injury / Nasal bone fracture

The NG Tube (your best friend:)



The NG Tube (your best friend:)

- **Nasogastric aspirate:**
 - **Determines the status of UGI bleeding and gives indirect information in LGI bleeding**
 - Bright red/clots – active UGI bleed
 - Coffee-grounds – slow bleeding, oozing, stopped
 - Clear – indeterminate (16% still bleeding)
 - Bilious – UGI bleeding has stopped

The NG Tube Aspirate

		Outcome	
		Active Bleeding	Death
NG Aspirate	Clear	10%	6%
	Coffee Grounds	13%	10%
	Red blood	23%	18%

Adapted from the AGA slide set Acute GI bleeding, second edition

Mortality

Stool Color

NG
Aspirate

	Black	Red
Clear	5%	7%
Coffee Grounds	9%	20%
Red blood	12%	30%

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The NG Lavage

- Bloody **nasogastric** aspirate
 - high-risk lesions (odds ratio 4.82: 95% CI[2.3, 10.1] vs. clear/bile; and odds ratio 2.8: 95% CI[1.8, 4.3] (Aljebreen, GIE 2004)
- **Bottom line**
 - NGT lavage is clinically useful in selected patients
 - Clear lavage **does not exclude** UGI source
 - The presence of **bile is reassuring**
 - Coffee grounds **do not indicate active bleeding** but due help localize to UGI source

Triage

- **Indications for ICU**
 - Hemodynamic instability – despite adequate resuscitation (2L)
 - Coagulopathy (Coumadin, Plavix, cirrhosis)
 - History suggestive of cirrhosis and potential variceal bleeding
 - NG **lavage does not clear** with 2L
 - History of AAA repair in the past – AE fistula
 - Ulcers with high risk stigmata

Adverse Clinical Predictors

- Age > 60y
- Severe or multiple comorbidities
 - 5-6 comorbid conditions = ~50% mortality
 - 3-4 = ~25% mortality (The entire ECKLE Team!!)
- Onset of bleeding in the hospital
- Recurrent bleeding
- **Persistent hypotension or shock**
- **Hematochezia (if upper source)**
- Red blood hematemesis
- Severe coagulopathy or thrombocytopenia
- Portal Hypertension

Bleeding from Varicies

- Treatment
 - **Octreotide**
 - 100mcg IV followed by 50mcg/hr gtts
 - **Banding**
 - Bleeding is controlled 90%
 - Rebleeding rate 30%
 - **Sclerotherapy**
 - **TIPS**
 - **Empiric antibiotics**
 - **PPI (IV route)**

Acid Suppression

- A higher gastric pH can facilitate **platelet aggregation**. Goal pH 6-7.
- H2 blockers- NO proven value in acute GI bleed
- PPI
- Available in PO or IV forms

Acid Suppression

- **NEJM 1997:**
- Omeprazole was associated with significant reductions in **recurrent bleeding** and surgery in patients with **nonbleeding, visible vessels** or adherent clots, but not in those with arterial spurting or oozing.

PPI

- PPI therapy is only beneficial in select subgroups of acute GI bleed (**endoscopic evidence of stigmata**)
- Many of these patients will require **8 weeks** of daily therapy for healing of ulcer or other underlying pathology
- **Not everyone needs a PPI** on the gold form
 - \$\$\$\$\$
 - C. diff.

Lower GI Bleeding

- Epidemiology
 - 27 cases per 100,000
 - About 1/3 of GIB presentations
 - Increases 200 fold with increase age
 - M>F

Lower GI Bleeding

Etiology of acute lower intestinal bleeding

Study	Diverticulosis No. (%)	Angiodysplasia No. (%)	Cancer/polyp No. (%)	Colitis/ulcers* No. (%)	Anorectal† No. (%)	Others‡ No. (%)	Unknown No. (%)	Totals
Jensen and Machicado (1988) ²	13 (20)	24 (37)	9 (14)	7 (11)	3 (5)	3 (5)	5 (8)	64
Longstreth (1997) ³	91 (41)	6 (3)	20 (9)	35 (16)	10 (5)	31 (14)	26 (12)	219
Farrands and Taylor (1987) ¹³	30 (29)	6 (6)	38 (36)	20 (19)	5 (5)	5 (5)	1 (1)	105
Bramley et al (1996) ¹²	60 (24)	17 (7)	25 (10)	52 (21)	22 (9)	11 (4)	64 (25)	251
Colacchio et al (1982) ¹¹	98 (55)	13 (7)	14 (8)	11 (6)	5 (3)	5 (3)	32 (18)	178
Richter et al (1995) ¹	51 (48)	13 (12)	12 (11)	6 (6)	3 (3)	7 (6)	15 (14)	107
Rossini et al (1989) ¹⁴	60 (15)	16 (4)	122 (30)	92 (22)	0 (0)	47 (11)	72 (18)	409
Totals	403 (33)	95 (8)	240 (19)	223 (18)	48 (4)	109 (8)	215 (16)	1333

*Includes inflammatory bowel disease, infectious colitis, ischemic colitis, radiation colitis, vasculitis, and inflammation of unknown origin.

†Includes hemorrhoids, anal fissure, and idiopathic rectal ulcers.

‡Includes postpolypectomy bleeding, aortocolonic fistula, trauma from fecal impaction, and anastomotic bleeding.

Zuckerman et al, GIE 1998

Colonoscopy

- **Urgent colonoscopy**
 - Jensen, NEJM 2000
 - 121 patients over 10 years
 - Severe hematochezia and history of diverticulosis
 - Urgent colonoscopy within 6-12 hours
 - Rapid purge
- **Results**
 - 23% had definite diagnosis of GIB
 - 10 pts received endoscopic tx without rebleed
- Clinical utility is controversial
- Majority of patients can undergo **colonoscopy within 36 hours**

Tools to Diagnose LGI Bleeding

- **Tagged RBC scan**
 - Tc labeled RBC's
 - 24-48 hour use
 - Detects bleeding rates as low as 0.1 ml/min
 - 45% positive in certain centers
 - Timing is critical
 - Immediate vs delayed positivity (61% vs 7% on angio)
 - Poor localization
 - ~10% false positive rate
- **Angiography**
 - Requires > 0.5ml/min
 - Limited use in UGIB
 - Immediate angiography

Key Points for LGIB

- LGIB is **less common** than UGIB and tends to have a **less severe** clinical course.
- Separation of LGIB to colonic and small bowel may reveal differences in clinical presentation, course, and outcome.
- Objective testing of stool color may be beneficial
- **Early colonoscopy** can be diagnostic and therapeutic
- Final diagnosis may be “presumptive”

Final Tips

- All ICU patients that may require endoscopy overnight have to be **seen by the GI Fellow that same night.**
- Patients on the floor who are admitted with UGIB:
 - **Keep them NPO after midnight**
 - **Notify the GI fellow at 8am** – the earlier they know about the patient – the better the chances are that endoscopy can be done that day.
 - For **patients who cannot give consent** – get a phone number and availability of a person to give consent.

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Thanks !
Questions?

