Gastroenterology Approach to GI Tract Blood Loss

Heather Kohout, BS,BMS,MPA,PA-C DHSc Candidate

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Requests for additional gastroenterology & hepatology resources than were provided, as well as any requests for use of the intellectual material presented in this presentation can be sent to the following contact information:

Heather Kohout, BS,BMS,MPA,PA-C,DHSc Candidate 45 Nicola Road, St.Albert, AB, T8N 7M7 <u>badgerpa8704@gmail.com</u> <u>www.linkedin.com/heatherkohout</u>



Disclosures PAEA®





I have no financial, commercial, or educational relationships or interests to disclose.

I am a Canadian Association of Physician Assistants (CAPA) member participating on the CAPA Conference Planning Committee. I am also a member of the Canadian Physician Assistant Education Association (CPAEA), the American Academy of Physician Assistants (AAPA), & the Physician Assistant Education Association (PAEA).

Figure 1. Logo. Canadian Association of Physician Assistants. Retrieved from https://capa-acam.ca/; Figure 2. Logo. American Academy of Physician Assistants. Retrieved from https://aapa.org/; Figure 3. Logo. Physician Assistant Education Association. Retrieved from http://www.paeaonline.org/; Figure 4. Canadian Physician Assistant Education Association. Retrieved from https://capa-acam.ca/



I have provided at the end of this lecture a list of resources for use in gastroenterology & hepatology specialized PA practice. These include published references & professional organizations with available memberships, conferences, & informative materials.

I recommend these resources due to my professional experience. I do not have any financial, commercial, or educational conflicts of interest in offering recommendation of these resources.

Figure 5. Logo. From Canadian Association of Gastroenterology. (n.d.). Retrieved from https://www.cag-acg.org/; Figure 6. Logo. From Canadian Liver Foundation. (n.d.). Retrieved from http://www.liver.ca/; Figure 7. Logo. From Canadian Association for the Study of the Liver. (n.d.). Retrieved from http://www.hepatology.ca/; Figure 8. Logo. From American College of Gastroenterology. (n.d.). Retrieved from http://gi.org/; Figure 9. Logo. From American Gastroenterology Association. (n.d.). Retrieved from http://www.gastro.org/; Figure 10. Logo. From American Association for the Study of Liver Diseases. Retrieved from http://www.aasld.org/

Disclosures

Practice experience within family practice & internal medicine, prior to specializing in gastroenterology & hepatology.

Practice experience in Wisconsin, Illinois, Kentucky, & Colorado. I live in Alberta, but I do not have practice experience within Canada.

Practice experience in rural, suburban, & metropolitan areas, as well as in a solo-physician private family practice, a small-group private family practice, a large private health organization, two large private specialty practices, & a large non-for-profit health organization.

Objectives

After attending this lecture the attendee should be able to:

- Distinguish between upper, lower, & occult GI tract sources of blood loss with estimation of etiology prevalence.
- Identify evaluative methods for diagnosis & treatment of upper, lower, & occult GI tract blood loss etiologies.
- Interpret clinical scenarios demonstrating upper, lower, & occult GI tract blood loss presentation.
- Locate & share professional resources for GI & liver disease.

Types of GI Tract Blood Loss

• Upper GI Tract Blood Loss

Lower GI Tract Blood Loss

Occult GI Tract Blood Loss

Esophagus Etiologies:

- Mallory Weiss Tear
 Foreign Body
 Esophagitis
- Esophageal Varices
 - Cameron's Ulcers
- Esophageal Cancer
- Aortoenteric Fistula
- Boerhaave's Esophagus



Figure 11. Esophagus. From OrgansoftheBody.com. (2014). Esophagus definition, information, and location. Retrieved from http://www.organsofthebody.com/esophagus/

• Mallory Weiss Tear

- Non-penetrating mucosal tear, common at GE junction.
- Presents with recent hx emesis &/or retching, followed by hematemesis/coffee ground emesis.
- UGI endoscopy, i.e. esophagogastroduodenoscopy (EGD), confirms dx & rules out alternative ddx.
- Usually self-limiting, monitor Hgb, hydrate.

(Friedman, McQuaid, & Grendell, 2003).

• Foreign Body

- Commonly large unchewed food boluses (dry chicken, steak) or pills.
- Presents when eating with food bolus that won't pass, possibly with small amount hematemesis.
- EGD to remove food bolus, necessary to prevent esophageal rupture, followed by supportive care usually at home

• Esophagitis

- Mucosal injury from either ingestion of caustic substances (bleach), large pills (Potassium), infectious etiologies (*Candida*, HSV/CMV), radiation exposure, or due to esophageal dysmotility/stasis of food boluses (achalasia, Zenker's diverticulum).
- Presents after caustic ingestion, pill or food bolus unable to pass, recent thoracic radiation exposure, common in immunocompromised patients; with hematemesis/coffee ground emesis, &/or melena.
- EGD confirms dx, removes pills or food, & obtains bx for infx dx if endoscopic findings indicative. Contrast studies dx, but can't bx or tx.
- Caustic, pill, & food bolus injuries usually self-limiting. Dysmotility & Zenker's need f/u depending on severity. *Candida* & viral infx tx according to guidelines w/antifungals & antivirals. (Friedman, McQuaid, & Grendell, 2003).

Esophageal Cancer

- Adenocarcinoma & squamous cell carcinoma (SCC), most common esophageal cancers worldwide, SCC is 5th most common GI malignancy globally, 5-yr survival 2-26% depends on presenting dx stage.
- Strongest risk factor for adenocarcinoma is Barrett's esophagus, with advancing age, male sex, chronic GERD, Caucasian ethnicity, & obesity.
- SCC risk factors include environmental exposure to tobacco, Etoh, nitrosamines, & radiation (i.e. breast ca or Hodgkin's tx), consumption of hot or caustic substances, chronic esophageal food stasis (achalasia), nutritional deficiencies (i.e. Vit C), & geographic area.
- Presents with solid-food dysphagia (early), mixed dysphagia (late), odynophagia, unintentional weight loss, & possibly hematemesis/coffee ground emesis, &/or melena.
- EGD confirms & obtains bx for dx. Contrast studies dx, but can't bx. Oncology & surgery tx depends on staging. (Hauser, Pardi, & Poterucha, 2008).

• Cameron's Ulcers

• Esophageal shallow mucosal ulcerations in a hiatal hernia (HH), present with hematemesis/coffee ground emesis, &/or melena. EGD finding, f/u reflux tx & HH recommendations. (Friedman, McQuaid, & Grendell, 2003).

Boerhaave's Esophagus

• Traumatic (distal location) or iatrogenic instrumentation (*rare*, cervical location) caused esophageal rupture. Presents hx emesis & retching, w/hematemesis/coffee ground emesis [or after recent EGD], then severe chest & abdominal px. Dx STAT CXR. Contrast esophagram or Chest CT confirms & thoracic surgical correction. <u>No EGD</u>! (Friedman, McQuaid, & Grendell, 2003).

Aortoenteric Fistula

• Aorta & GI tract direct tract communication, <u>very rare</u>, presents with hematemesis. Caused by aortic aneurysm, syphilitic or Tb-associated infectious aorititis, prosthetic aortic graft eroding infection, penetration of an ulcer, tumor, trauma, radiation exposure, or foreign body. Tx surgical (Friedman, McQuaid, & Grendell, 2003).

UGI Tract Blood Loss: Case Study

• What is the DDx?

Foreign Body (pill or food), MW (maybe), Esophagitis (pill, infectious, reflux, motility), Esophageal Ca (Adeno & SCC risk factors).

What should you do?
Keep pt NPO, consult GI for
EGD, DDx concerning for foreign
body warranting urgent EGD.





Source: Fault Ali, Kasper DL, Braunvald E, Hauser SL, Longo DL, Jameson XL, Loncalas JI Hannes's Principles of Downal Medicine, 17th Edition. http://www.accessmedicine.com Copyright © The McGrae-Hill Companies, Inc. All rights received.

Severe: Paul AS, Kasper DL, Brautvald E, Hauser EL, Longo DL, Jameson JL, Loosder Namen's Antiples of Internal Medicine, 17th Edition: http://www.antacomedicine.com. Copyright © The McGraw-Hill Companies, Inc. All rights reserved.

Figure 12. Esophagitis. From Harrison's Principles of Internal Medicine, 17th ed. (2008). Endoscopy images A, B, C, and D. New York, NY: McGraw-Hill Companies, Inc.

Upper GI Tract Blood Loss Esophagus Etiologies:

- Mallory Weiss Tear • Foreign Body
 - Esophagitis
- Esophageal Varices
 - Cameron's Ulcers
- Esophageal Cancer
- Aortoenteric Fistula
- Boerhaave's Esophagus

Gastric Etiologies:

- Gastritis
- Peptic Ulcer Disease (PUD)
- Portal Hypertensive Gastropathy
 - Dieulafoy's Lesion
 - Angiodysplasia
 - Gastric Antral Vascular Ectasia
 - Gastric Carcinoma



Figure 13. Stomach. From OrgansoftheBody.com. (2014). *What is stomach, stomach functions, and facts*. Retrieved from http://www.organsofthebody.com/stomach/

Upper GI Tract Blood Loss Gastritis

- Mucosal *injury & erosions* from Rx (NSAIDs, ASA), Etoh, GERD/bile reflux, dysmotility.
- Presents w/repeated Rx usage or Etoh consumption, w/hematemesis/coffee ground emesis, &/or melena.
- EGD or contrast study to dx. Usually self-limiting, conservative tx, no NSAIDs/ASA or Etoh, monitor Hgb, hydrate. (Friedman, McQuaid, & Grendell, 2003).

Peptic Ulcer Disease (PUD)

- Gastric (& duodenal) mucosal *ulcers* from Rx, *H. <u>pylori</u>, hyperacidic (GERD, bile reflux) & hypersecretory states (ZES, gastrinoma), dysmotility, ischemia, stress i.e. ICU hospitalization.*
- Presents w/chronic Rx/Etoh usage, +/- abdominal pain, GERD sxs, with hematemesis/coffee ground emesis, &/or melena
- EGD confirms dx, cauterizes vessel, & bx ulcers for *H. <u>pylori</u>* to prevent recurrent PUD. **Tx IV PPI 24-48 hrs then PO 4-8wks**, **tx** *H. <u>pylori</u> per guidelines*; no NSAIDs, ASA, Etoh, or steroids, monitor Hgb.

Dieulafoy's Lesion & Angiodysplasia (AVMs)

- Bleeding vessel *not* associated with mucosal injury or ulceration.
- Presents with recurrent GI bleed, **melena** or **heme+ stools**, iron deficient anemia. EGD w/cautery tx, monitor Hgb. Tagged RBCs scan if *vigorous* bleed not found via EGD. (Friedman, McQuaid, & Grendell, 2003).

Gastric Antral Vascular Ectasia (GAVE)

- Longitudinal erythematous mucosal rows from the pylorus to the antrum, with a *watermelon* appearance, confirmed w/EGD.
- Presents with recurrent GI bleed, **melena** or **heme+ stools**, iron deficient anemia.
- EGD visible or bx confirmation, tx w/heater probe cautery or coagulation or antrectomy, monitor Hgb. (Friedman, McQuaid, & Grendell, 2003).

Gastric Carcinoma

- Adenocarcinoma 95%; also lymphomas, stromal & neuroendocrine tumors, & metastatic dz. Common presentation is late stage dx.
- Adenocarcinoma risk factors are diet high in nitrate compounds, salt, processed meats, fried foods, & Etoh, low in raw fruits & vegetables, hx tobacco usage, s/p Billroth **II**/I, EBV or *H. pylori* infx, FHx, gastric polyps, & pernicious anemia.
- Presents w/vague sxs: epigastric px, early satiety, bloating, dyspepsia; unintentional weight loss, nausea, & anorexia (late); distal antrum/pylorus w/gastric outlet obstructive (GOO) sxs; cardia/GE junction w/dysphagia; LAD & ascites w/distal spread; occult or acute bleeding stage depending.
- EGD dx. EGD & contrast studies for staging. Oncology & surgery tx depends on staging. (Hauser, Pardi, & Poterucha, 2008).

UGI Tract Blood Loss: Case Study

• What is the DDx? Gastritis, PUD, Gastric Carcinoma.

• What do you do?

Transfuse, stabilize BP, start IV PPI, consult GI for urgent EGD with bxs.



Figure 14. Gastric Ulcer. From Gastrolab - the Gastrointestinal Site. (n.d.). *Prepyloric ulcers* & erosions due to NSAID's. Retrieved from http://www.gastrolab.net/pa-207.htm

Figure 15. Duodenal Ulcer. From Gastrolab - the Gastrointestinal Site. (n.d.). *Duodenal ulcer disease*. Retrieved from http://www.kolumbus.fi/hans/gastrolab/e033.htm

Upper GI Tract Blood Loss Gastric Etiologies:

• Gastritis • Peptic Ulcer Disease Portal Hypertensive Gastropathy Dieulafoy's Lesion Angiodysplasia Gastric Antral Vascular Ectasia • Gastric Carcinoma

Other Etiologies:

- Duodenal VaricesHemobilia
- Hemosuccus Pancreaticus
- Cancer (duodenal, biliary, pancreatic, abdominal)
- Crohn's Disease (see IBD lecture)



Figure 16. Small Intestine. From Organsofthebody.com. (2008). *Small intestine function, parts with facts*. Retrieved from http://www.organsofthebody.com/small-intestine/

Portal Hypertension (Portal HTN)

- Dx increased portal venous pressure gradient (PVPG) from hepatic & portocollateral resistance of cirrhosis. <u>Hepatic resistance</u> of vasoconstriction from increased intrahepatic endothelin & decreased intrahepatic nitric oxide. <u>Systemic vasodilation</u> (esophagus, gastric, duodenal, & rectal blood vessels) from systemic increased nitrous oxide levels. Portal HTN leads to increased plasma volume expansion & cardiac output, lessened autonomic nervous system response, & increased systemic levels of glucagon, prostaglandins (PGs), tumor necrosis factor alpha (TNFa), & cytokines.
- Tx <u>vasoconstrictors</u> (*nonselective* beta blockers [prevention], somatostatin [IV drip w/bleed], vasopressin [refractory resuscitation]) decrease splanchnic blood flow & PVPG.
- Tx <u>vasodilators</u> (nitroglycerin, long-acting nitrates, prazosin) decrease endothelin resistance w/side effects. (Friedman & Keefe, 2004).

Upper GI Tract Blood Loss Variceal GI Bleed

- Presents with large volume hematemesis &/or coffee ground emesis, melena &/or hematochezia with hypotension requiring emergent volume expansion via pRBCs, FFP, & IVFs (NS & ½NS). Possibly Vitamin K &/or Platelets. Possibly Recombinant Activated-Factor VII. Consider antibiotic prophylaxis (to reduce risk of spontaneous bacterial peritonitis (SBP)).
- Dx & Tx w/emergent EGD w/band ligation, +/- sclerotherapy of varices, IV PPI drip (to maximize healing of ulcerations w/vessels) & IV octreotide drip (for vasoconstriction of varices). (Lee, Larson, & Stravitz, 2011; Friedman & Keefe, 2004).
- Follow AASLD guidelines for management. Pressor support (**dopamine**, **epinephrine**, **norepinephrine**) likely needed, reserve vasopressin for volume & norepinephrine resuscitation failure. Avoid nephrotoxicity, consider continuous hemodialysis as necessary. Consider enteral feedings or TPN. Follow glucose, potassium, magnesium, & phosphate closely.

(Garcia-Tsao, Sanyal, Grace, Carey, AASLD, & ACG, 2007; Lee, Larson, & Stravitz, 2011; Friedman & Keefe, 2004).

Variceal GI Bleed Co-Morbidities

• Variceal bleed complications include death & acute/chronic liver failure comorbidities, i.e. SBP, hepatic encephalopathy (HE), hepatorenal syndrome (HRS). Consider Transjugular Intrahepatic Portosystemic Shunt (TIPS) for failure of variceal bleed to all above tx options according to AASLD guidelines.

Liver Disease Evaluation

• DDx includes Etoh, NAFLD, Chronic Hepatitis C (HCV Ab, HCV viral load & genotype), Chronic Hepatitis B (HBVcIgM, HBVcTotal, HBVsAg, HBVsAb), Hemachromatosis (Iron studies, ferritin level, HFE gene), Autoimmune (AMA, ASMA, ANA, Anti-LKM Ab), Alpha-1-Antitrypsin Deficiency (Alpha-1 *phenotype*), Wilson's Disease (ceruloplasmin & copper serum levels, 24 hr urine copper level, & slit lamp eye exam by ophthalmologist). Dx via Hx, FHx, SHx, labs, abdominal U/S or CT scan, &/or liver bx. HCC screening per AASLD guidelines.

(Garcia-Tsao, Sanyal, Grace, Carey, AASLD, & ACG, 2007; Lee, Larson, & Stravitz, 2011; Friedman & Keefe, 2004).

UGI Tract Blood Loss: Case Study

• What is this?

Cirrhotic Esophageal Variceal Bleed

• What do you do? STAT GI consult, volume expanders (pRBCs, FFP, IVFs) pressors, antibiotic prophylaxis, IV PPI & octreotide drips, http: Vit K, & EGD w/banding.



1S, Figure 17. Esophageal Variceal Bleed. From Gastrointestinalatlas.com (2015). Esophageal and gastric varices. Retrieved from h http://www.gastrointestinalatlas.com/english/varices.html

Figure 18. Esophageal Varix Banded. From Gastrointestinalatlas.com (2015). Variceal banding V. Retrieved from http://www.gastrointestinalatlas.com/english/ nl variceal_banding_v.html

Upper GI Tract Blood Loss Hemobilia

- Biliary system source of bleeding (gallstone(s), trauma, hepatic or biliary tumor(s) or abscess, hepatic artery aneurysm), presents as biliary colic, obstructive jaundice, & occult or acute GI bleed triad.
- Dx with side-viewing EGD. Tx underlined etiology, ERCP to remove biliary tree stone. (Friedman, McQuaid, & Grendell, 2003).

Hemosuccus pancreaticus

- Pancreatic duct source of *rare* bleeding (pseudocyst(s) or tumor(s) erosion into vessel).
- Dx & tx with endoscopic retrocholangiopancreatography (ERCP), surgical vessel ligation, or mesenteric arteriography with coil embolization. (Friedman, McQuaid, & Grendell, 2003).

Cancer

- Gastrointestinal malignancy of the duodenum, biliary system, pancreatic duct, or invasion from adjacent abdominal structures
- May present with **occult or acute** GI bleeding & other sxs depending on involvement.
- Endoscopic evaluation via EGD with bx, endoscopic ultrasound (EUS) with bx or fine needle aspiration, or endoscopic retrocholangiopancreatography (ERCP) with bx or stent placement.
- Tx underlined etiology.

(Friedman, McQuaid, & Grendell, 2003).

Upper GI Tract Blood Loss Other Etiologies:

- Duodenal Ulcers (see PUD)
 Duodenal Varices
 Hemosuccus Pancreaticus
 Hemobilia
- Cancer (duodenal, biliary, pancreatic, abdominal)
 Crohn's Disease (see IBD lecture)

Small Intestinal Etiologies:

Crohn's Disease (see IBD lecture)
Arteriovenous Malformations (AVMs)

Small Bowel Vascular Ectasias (AVMs)

- Bleeding vessel not associated with mucosal injury or ulceration.
- Presents with recurrent GI bleed, **melena** or **heme+ stools**, iron deficient anemia. EGD or Small Bowel Push Enteroscopy or Colonoscopy into distal small bowel, w/cautery tx, monitor Hgb. Tagged RBCs scan if *vigorous* bleed not found endoscopically.

(Friedman, McQuaid, & Grendell, 2003).

Distal Small Bowel Crohn's Disease

• (see IBD lecture)

Lower GI Tract Blood Loss Colon Etiologies:

• Infectious Colitis • Mesenteric Ischemic Colitis • Diverticular Bleed Postpolypectomy Bleed Radiation Colitis • Meckel's Diverticulum Colon Cancer Arteriovenous Malformations • Crohn's Disease • Ulcerative Colitis



Figure 21. Colon. From OrgansoftheBody.com. (2014). *The large intestine information and facts*. Retrieved from http://www.organsofthebody.com/large-intestine/

Lower GI Tract Blood Loss Infectious Colitis

- Mucosal injury & ulcerations due to infection (Campylobacter jejuni, Salmonella, Shigella, invasive E.coli, or C. difficile). Presents w/acute diarrhea, **hematochezia**, abdominal pain, & fever.
- Dx stool studies/cultures, colonoscopy w/bx. Tx underlined etiology.

(Friedman, McQuaid, & Grendell, 2003).

Mesenteric Ischemic Colitis

- Intramural vessel hypoperfusion of segmental colon mucosa w/watershed regions affected, commonly splenic flexure & rectosigmoid junction.
- Presents w/sudden onset LLQ crampy abdominal pain, diarrhea, & hematochezia. Dx w/thumbprinting on X-ray, colonoscopy w/submucosal hemorrhage, ulceration, & necrosis.
- Tx self-limiting, transfusion & antibiotics, or resection. Tx underlined etiology of hypotension. (Friedman, McQuaid, & Grendell, 2003).

Lower GI Tract Blood Loss Diverticular Bleed

- Colon mucosal, submucosal, & muscle layer herniations, i.e. diverticula, ranging few millimeters to centimeters long, result from increased intraluminal pressure, common on left-side of colon, asymptomatic.
- Presents as *painless* hematochezia. Self-limiting, but if severe dx & tx with colonoscopy or mesenteric angiography or tagged RBC scan.

(Friedman, McQuaid, & Grendell, 2003).

Postpolypectomy Bleed

- Bleeding, hematochezia, persisting hours to days after colonoscopy with polypectomy, particularly large polyps greater than 2 cm in size. Can occur due to usage of NSAIDs, ASA, or anticoagulant medications too soon after polypectomy performed.
- Most self-limiting. Dx & tx if necessary with colonoscopy.

Radiation Colitis

- Mucosal injury & ulceration up to 6-18 months after radiation exposure.
- Presents with rectal pain and recurrent **hematochezia**. Dx with colonoscopy or barium studies. Often self-limiting, but if tx then iron supplementation & w/colonoscopy & either bipolar coagulation, heater probe, laser, or commonly argon plasma coagulation (APC).

(Friedman, McQuaid, & Grendell, 2003).

Meckel's Diverticulum

- GI tract congenital anomaly w/ileal diverticulum containing gastric mucosa, 1-10cm long, occurring w/in 100cm of ileocecal valve. Presents in children with painless **melena** or **hematochezia**.
- Dx with Meckel's (technetium) scan. Tx resection. (Friedman, McQuaid, & Grendell, 2003).

LGI Tract Blood Loss: Case Study

• What is the DDx?

Ischemic colitis or infectious colitis.

• What do you do?

X-ray reflects thumbprinting. GI consulted for colonoscopy reflective of ischemic colitis, no necrosis. Broad spectrum antibiotics & conservative treatment measures provided.



Figure 22. Ischemic Colitis. From Gastrolab-the Gastrointestinal Site. (2014). *Ischaemic colitis*. Retrieved from http://www.gastrolab.net/pa-069.htm

Colon Etiologies:

- Infectious Colitis
- Mesenteric Ischemic Colitis
 - Diverticular Bleed
 - Post Polypectomy Bleed
 - Radiation Colitis
 - Meckel's Diverticulum
- Colon Cancer (see Occult Blood loss)
- Arteriovenous Malformations (AVMs)
 - Crohn's Disease (see IBD lecture)
 - Ulcerative Colitis (see IBD lecture)

Rectal Etiologies:

- Rectal Fissure
 Hemorrhoidal Bleed
 - Crohn's Disease (see IBD lecture)
 - Rectal Varices (see portal HTN)



Figure 23. Rectum. From OrgansoftheBody.com. (2014). *What is rectum, rectum function with parts*. Retrieved from http://www.organsofthebody.com/rectum/

Hemorrhoidal Bleed

- Dilated internal & inferior venous plexus above & below the dentate line produced by chronic pelvic floor straining.
- Presents with hematochezia due to bleeding vessel or ulceration.
- Tx for internal hemorrhoids is with dietary & stool softening measures &/or rubber band ligation, but 3rd & 4th degree internal hemorrhoids hemorrhoidectomy. Tx for external hemorrhoids is dietary & stool softening measures, but if severe pain then thrombectomy & hemorrhoidectomy. (Ehrenpreis, 2003).

Rectal Fissure

- Anal canal mucosal tear, crack, or ulceration usually along posterior midline, produced from passage of large &/or hard stool. Presents as hematochezia with BM and pain during & after defecation.
- Dx identified upon anal examination. Tx with dietary & stool softening measures, topical anesthetics (lidocaine, benzocaine, or topical nitroglycerin compound), & sitz baths. (Ehrenpreis, 2003).

Rectal Etiologies:

- Rectal Fissure
- Hemorrhoidal Bleed
- Crohn's Disease (see IBD lecture)
 - Rectal Varices (see portal HTN)

Occult GI Tract Blood Loss • Colon Cancer

Diverticula (small & large intestine)
Vascular Ectasias

• Extraesophageal varices (gastric, small bowel, colonic)

- Small bowel neoplastic lesions
 - Hemosuccus pancreaticus
 - Hemobilia
 - Aortoenteric fistula
 - Dieulafoy's lesions
 - Meckel's diverticulum

Occult GI Tract Blood Loss Colon Cancer

- Cancer growth, 85% initiated via adenomatous polyps, of the inner lining (0), inner wall (I), involving the muscle layer (II), spreading to at least one lymphnode (III), or w/metastatic spread (IV). The 5yr survival of 39% of early stage pts is 90%, but late stage pts w/mets is 19%. (Greenberger, Blumberg, & Burakoff, 2011; Hauser, Pardi, & Poterucha, 2008).
- Risk factors include FHx colorectal ca, age > 50yo, pt hx colorectal ca, adenomatous polyps, ovarian/endometrial ca <50 yo, hx IBD, obesity, physical inactivity, exposure to longstanding tobacco, Etoh, & dietary red meat, as well as low dietary calcium, fiber, fruits, & vegetables. (American Cancer Society, 2015; American College of Gastroenterology, 2015).
- Presents w/painless, **occult blood** or **hematochezia**. Advanced staging often w/hematochezia. Unintentional weight loss & iron deficiency anemia. Change in bowel habits often associated w/left-sided colon cancer.
- Dx gold standard w/colonoscopy & bx, tattooing; surgical resection. Tx pending endoscopic, imaging, surgical, & pathology findings & per Oncology recommendations.
 (Hauser, Pardi, & Poterucha, 2008; Friedman, McQuaid, & Grendell, 2003).

Occult GI Blood Loss: Case Study

- What is it?
- Colon Cancer
- What do you do?

Dx with colonoscopy & biopsy, resection, await pathology, image for more information. Tx according to Oncology recommendations. Encourage family screening per Canadian Cancer Society screening guidelines.



Figure 24. Colon Cancer Stages. From MedicineNet.com. (2015). *Understanding cancer of the colon*. Retrieved from http://www.medicinenet.com/colorectal_cancer_pictures_slideshow/article. htm





While practicing gastroenterology and hepatology, consider the following published references:

- Current's Diagnosis & Treatment Gastroenterology, Hepatology, & Endoscopy, Second Edition
- Sleisenger & Fordtran's Gastrointestinal & Liver Disease: Pathophysiology, Diagnosis, Management
- Mayo Clinic Gastroenterology & Hepatology Board Review

Figure 25. Library Books. MoneyCrashers.com. (n.d.). 8 ways to save money on college textbooks. Retrieved from http://www.moneycrashers.com/save-money-college-textbooks/

Figure 26. Bookstack. Huffingtonpost.com (n.d.). Texas textbook publishers say no to creationism: Watchdog report. Retrieved from http://www.huffingtonpost.com/2013/10/18/texas-textbooks-creationism_n_4124692.html





Association Canadienne

While practicing gastroenterology and hepatology, consider using the following professional organizations:

- Canadian Association for the Study of the Liver (CASL)
- Canadian Association of Gastroenterology (CAG)
- Canadian Liver Foundation (CLF)

Figure 5. Logo. From Canadian Association of Gastroenterology. (n.d.). Retrieved from https://www.cag-acg.org/; Figure 6. Logo. From Canadian Liver Foundation. (n.d.). Retrieved from http://www.liver.ca/; Figure 7. Logo. From Canadian Association for the Study of the Liver. (n.d.). Retrieved from http://www.hepatology.ca/







- CASL has extensive online information & guidelines for liver disease management.
- CAG provides the CDDW annual conference, with the CAG/CASL Postgraduate Course very appropriate for PAs practicing in GI. CDDW in Canada combines the presentation of GI & liver research.
- CLF is a good site w/global GI conferences including CASL, as well as AASLD & EASL (2 of 3 global liver annual mtgs presenting liver disease research).

Figure 5. Logo. From Canadian Association of Gastroenterology. (n.d.). Retrieved from https://www.cag-acg.org/; Figure 6. Logo. From Canadian Liver Foundation. (n.d.). Retrieved from http://www.liver.ca/; Figure 7. Logo. From Canadian Association for the Study of the Liver. (n.d.). Retrieved from http://www.hepatology.ca/





Association Canadienne

While practicing gastroenterology and hepatology, consider using the following professional journal publications:

- The Canadian Journal of Gastroenterology and Hepatology, the journal of the CASL and CAG
- Annuals of Hepatology
- Liver International

Figure 5. Logo. From Canadian Association of Gastroenterology. (n.d.). Retrieved from https://www.cag-acg.org/; Figure 6. Logo. From Canadian Liver Foundation. (n.d.). Retrieved from http://www.liver.ca/; Figure 7. Logo. From Canadian Association for the Study of the Liver. (n.d.). Retrieved from http://www.hepatology.ca/







While practicing gastroenterology and hepatology, consider using the following professional organizations:

- American Association for the Study of Liver Diseases (AASLD)
- American College of Gastroenterology (ACG)
- American Gastroenterology Association (AGA)

Figure 8. Logo. From American College of Gastroenterology. (n.d.). Retrieved from http://gi.org/; Figure 9. Logo. From American Gastroenterology Association. (n.d.). Retrieved from http://www.gastro.org/; Figure 10. Logo. From American Association for the Study of Liver Diseases. Retrieved from http://www.aasld.org/







- AASLD provides a Postgraduate Course, a Hepatology Associates Course, & a General Hepatology Update for GI & hepatology PAs & NPs, & a NP/PA Clinical Hepatology Fellowship program. (No GI Post-Graduate Program yet.)
- ACG provides a Postgraduate Course for PAs practicing in GI. ---AGA provides a Principles of GI for NPs & PAs mtg. DDW annual conference present GI & hepatology research similar to the CDDW.
- AASLD, ACG, & AGA all have extensive online info & guidelines for GI & liver dz mgt promoting EVM.

Figure 8. Logo. From American College of Gastroenterology. (n.d.). Retrieved from http://gi.org/; Figure 9. Logo. From American Gastroenterology Association. (n.d.). Retrieved from http://www.gastro.org/; Figure 10. Logo. From American Association for the Study of Liver Diseases. Retrieved from http://www.aasld.org/



American Association for the Study of Liver Diseases



While practicing gastroenterology and hepatology, consider using the following professional journal publications:

- Hepatology, the journal of the AASLD
- The American Journal of Gastroenterology, the journal of the ACG
- Gastroenterology and the Clinical Gastroenterology and Hepatology, journals of the AGA

Figure 8. Logo. From American College of Gastroenterology. (n.d.). Retrieved from http://gi.org/; Figure 9. Logo. From American Gastroenterology Association. (n.d.). Retrieved from http://www.gastro.org/; Figure 10. Logo. From American Association for the Study of Liver Diseases. Retrieved from http://www.aasld.org/

Conclusion

After attending this lecture the attendee should be able to:

- Distinguish between upper, lower, and occult GI tract sources of blood loss with estimation of their prevalence.
- Identify evaluative methods for diagnosis and treatment of upper, lower, and occult GI tract blood loss etiologies.
- Interpret clinical scenarios demonstrating upper, lower, and occult GI tract blood loss presentation.
- Locate and share professional resources for GI & liver disease.

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GI Track Blood Loss Questions?





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