

Gastrointestinal Emergencies

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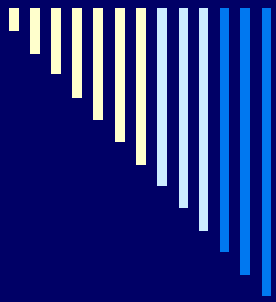
Objectives

- List four gastrointestinal emergencies and complications.
 - Identify signs and symptoms of a variety of gastrointestinal emergencies.
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What's coming up

- Perforations
 - Obstructions
 - Pancreatitis
 - GI Bleed
 - Variceal Bleed
 - Adverse Drug Reaction
 - Respiratory arrest
 - Cardiac Arrest
 - Shock
-



Perforations.....

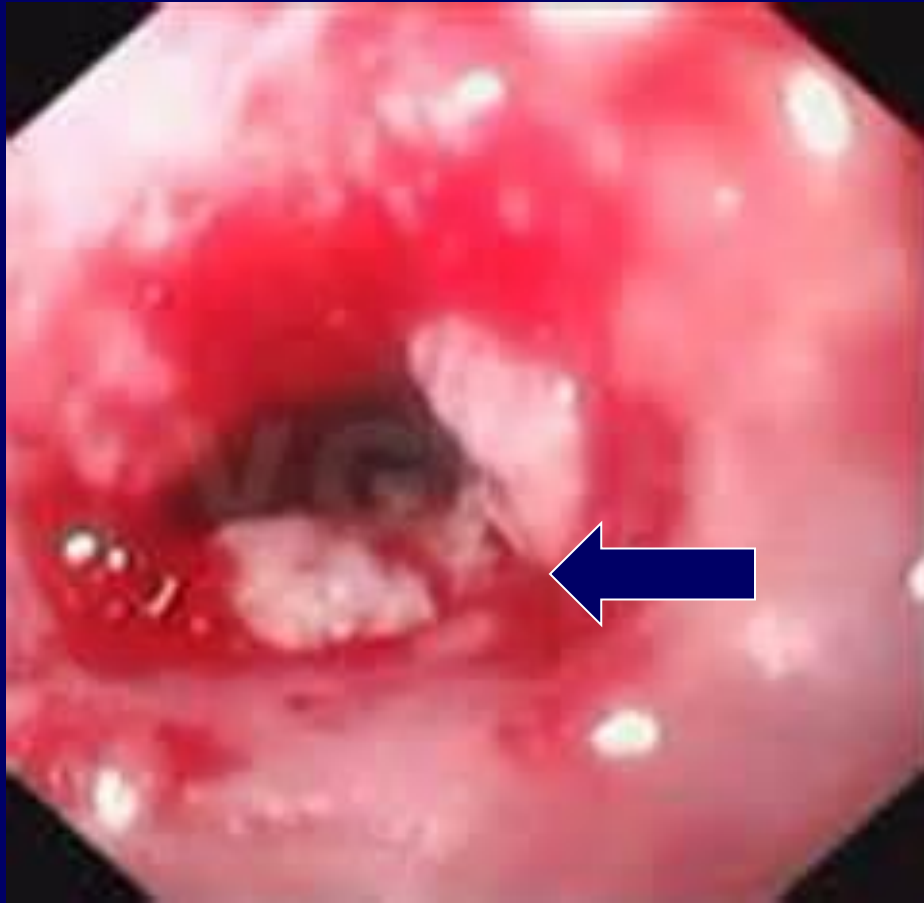


Perforation

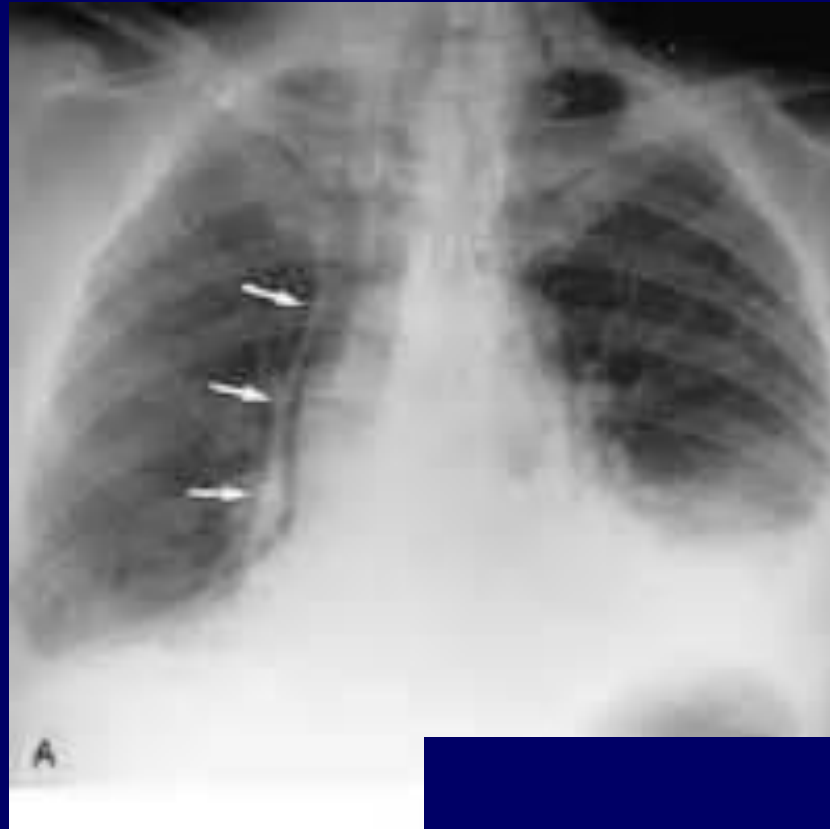
□ Upper GI tract

- Cervical Esophagus
 - Crycopharyngeal
 - Thoracic Esophagus
 - Distal Esophagus
 - Boerhaave's Syndrome
 - Gastric
 - Duodenal
-

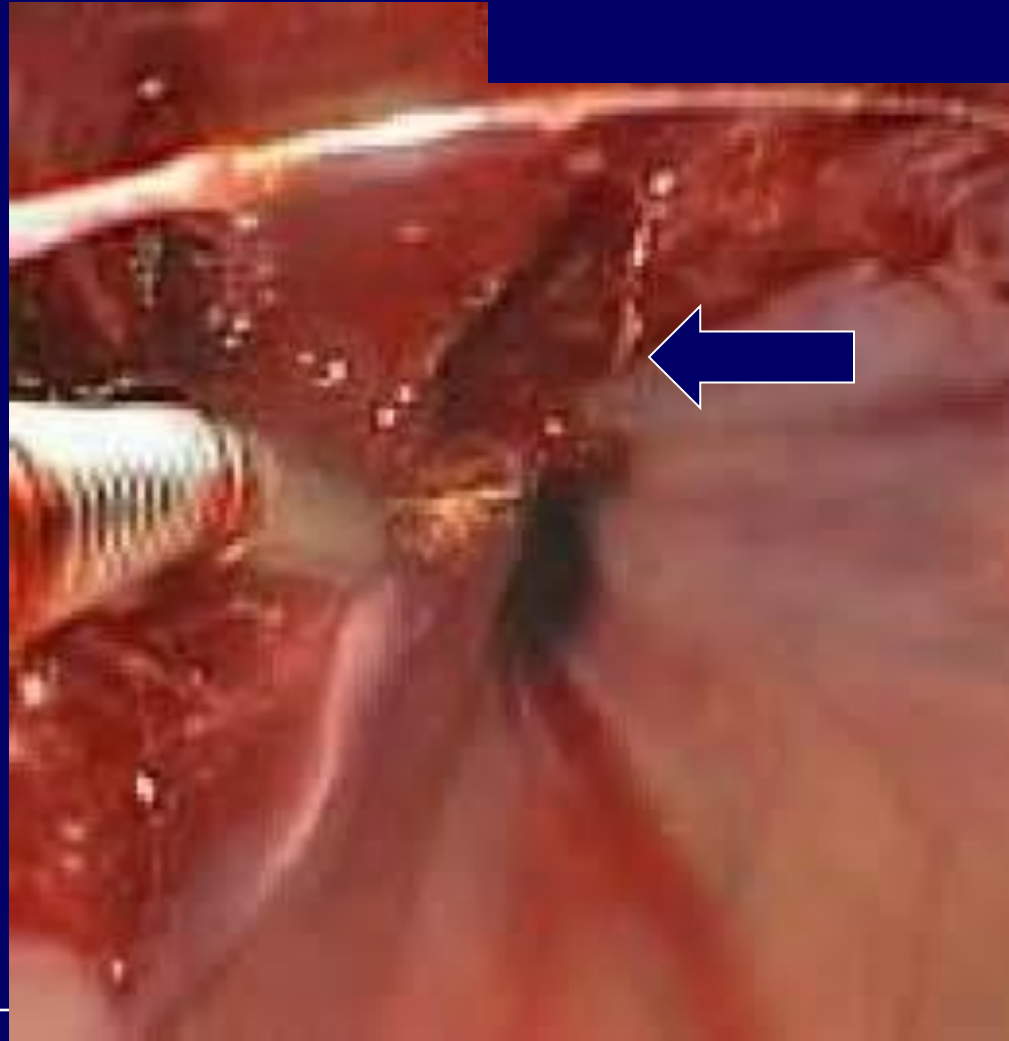
Crycopharyngeal tear



Boerhaave's



Boerhaave's



Treatment algorithm for Boerhaave's Syndrome

Early Diagnosis <48 hrs

Late Diagnosis >48 hrs

Sepsis
Pleural cavity
involved

No Sepsis or
pleural cavity
involvement

Conservative
Treatment

Thoracotomy with
resection of tear.
Hemifundoplication and
pleura/mediastinal
drainage.
Laparotomy if intra-
abdominal leakage

Endoscopic
treatment
without pleural
drainage.

Sepsis

No
Sepsis

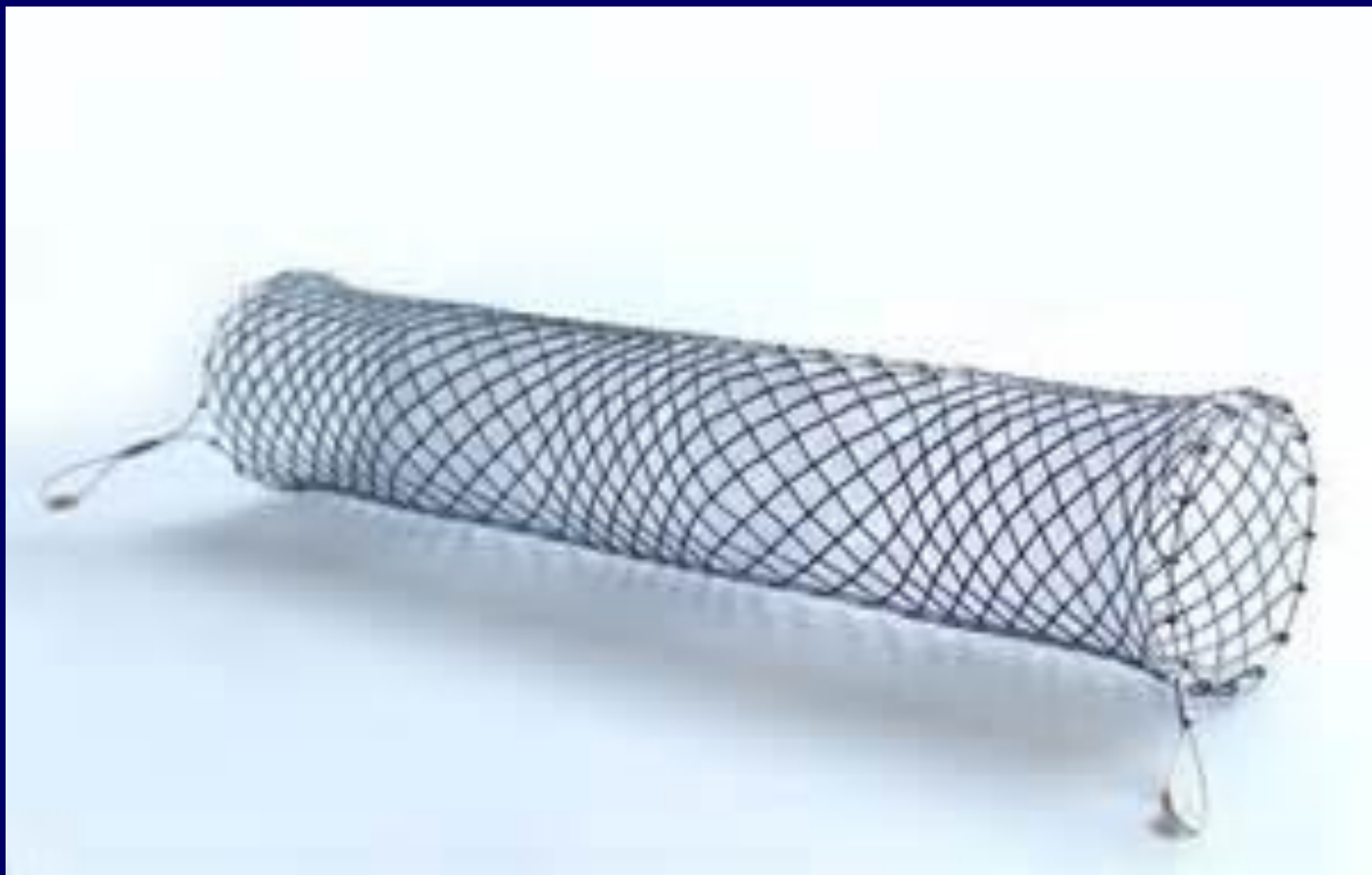
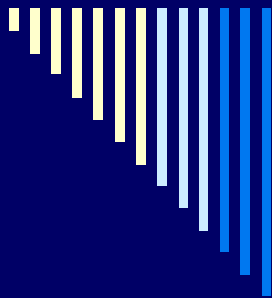
Esophageal Tear





Tear/Fistula

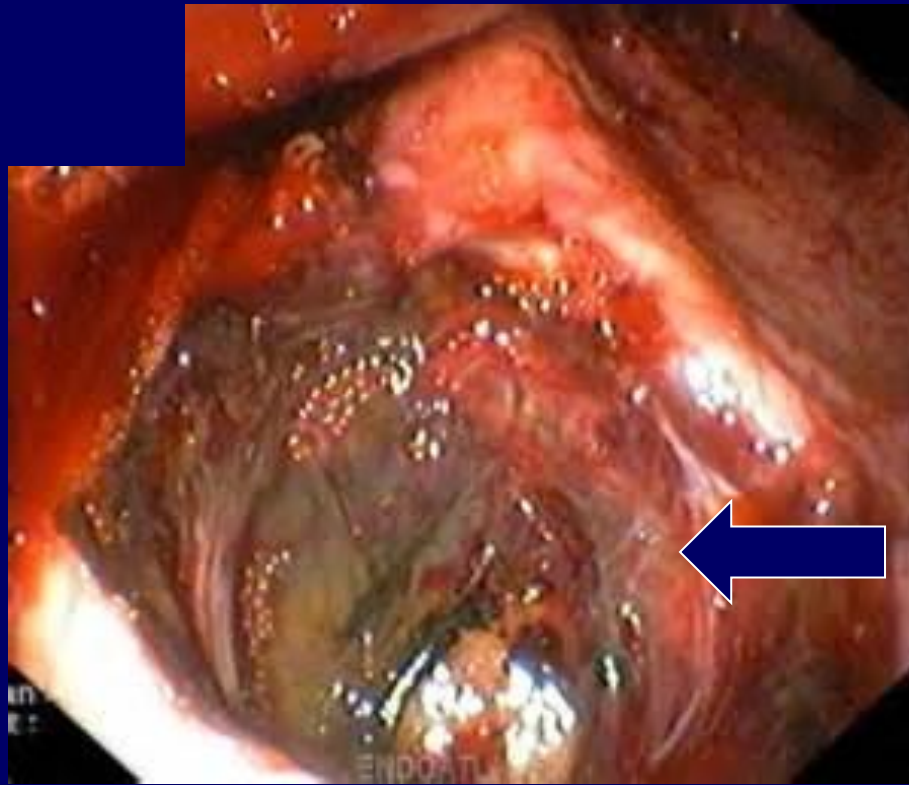




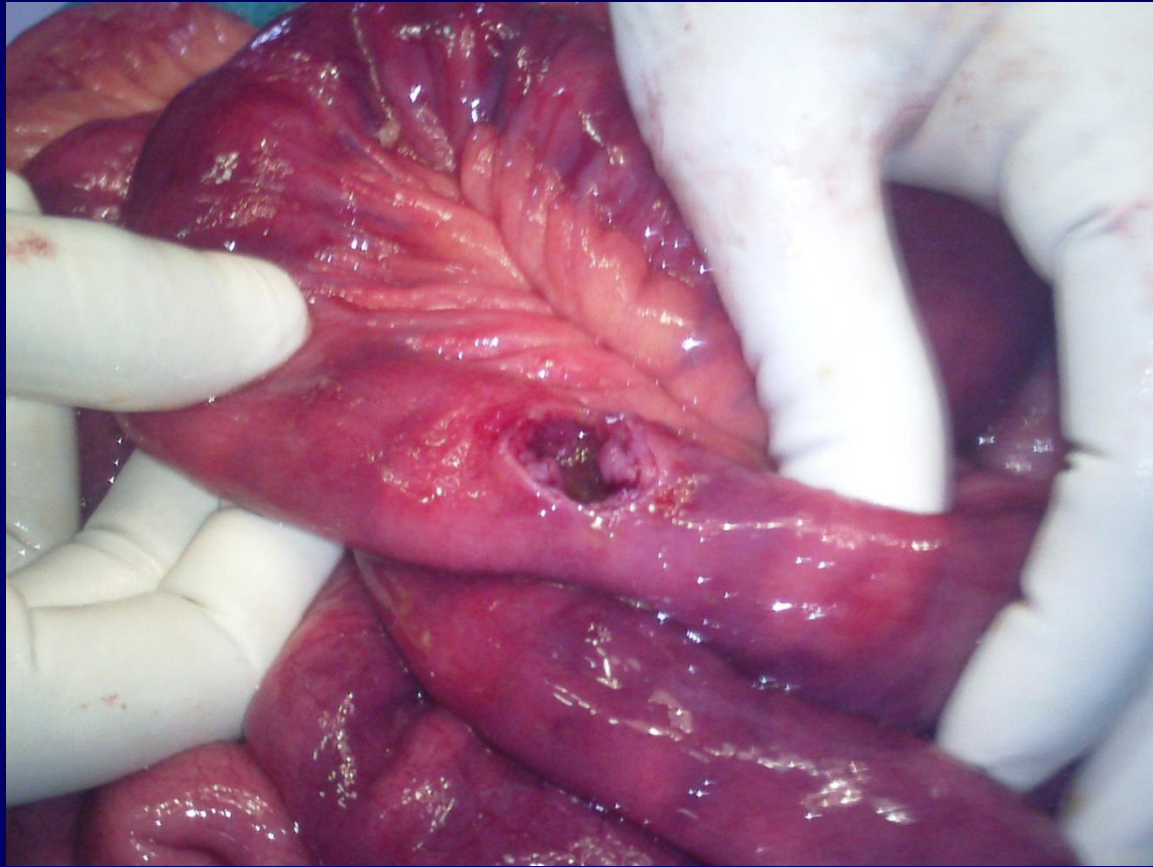
Gastric Ulcer to Perforation



Gastric perforation

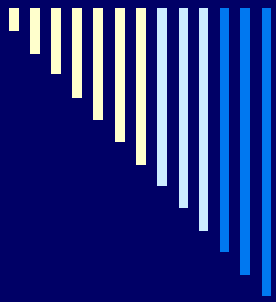


Small Bowel perforation



Colon Perforation with Ischemic Bowel





Obstructions





Esophageal Obstruction

Causes of Obstructions of Esophagus:

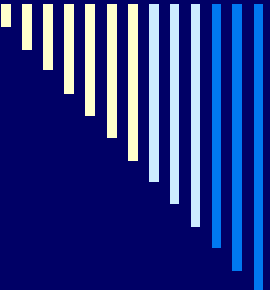
Strictures

Cancer

Bacterial/viral infections

Foreign body

Anatomy anomalies



Esophageal Obstruction due to Achalasia

Achalasia (peristalsis is absent with increased LES pressures and incomplete esophageal relaxation) Eventually esophagus dilates above LES storing large volumes of food and liquids.

Occurs 1 in 100,000 Americans most often between the ages of 20 and 60.



Achalasia

- Symptoms include dysphagia, painful swallowing, substernal chest pain, bad breath, difficulty burping, weight loss and malnutrition
 - Patient will swallow by stretching neck back and lifting shoulders to help get food down.
-



Achalasia

- Diagnosis: Chest Xray can reveal dilated esophagus and empty stomach, but does not confirm

Barium swallow good screening tool

Esophageal manometry confirms diagnosis

Endoscopy allows physician to see.

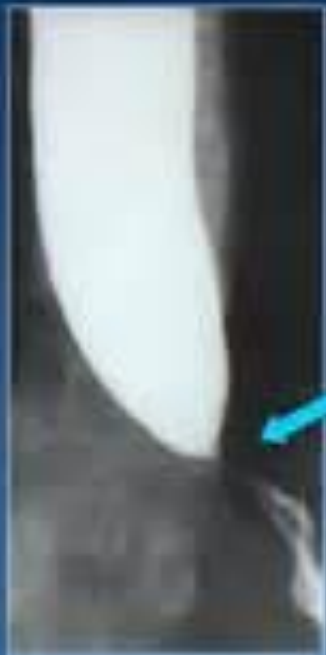


Achalasia

- Treatment : Aim is to weaken LES.
 - Drugs: Nitrates and calcium channel blockers
 - Balloon Dilation of LES
 - Surgery: Myotomy – good success
 - Botox: paralyzes the nerves
-

Achalasia

Preoperatively



Postoperatively





Gastric Outlet Obstruction

Obstruction of the pyloric sphincter at the outlet of the stomach blocks the flow of gastric contents into the duodenum

Symptoms:

Vomiting partially digested food

Gastric pain especially with eating

Satiety relieved by vomiting

Metabolic alkalosis as a result of frequent vomiting



Gastric Outlet Obstruction

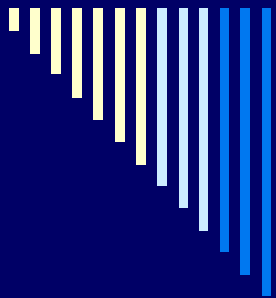
Treatment:

Restoration of fluid and electrolytes

Decompression of the stomach

Pyloric dilatation

Surgery if necessary



Bezoars

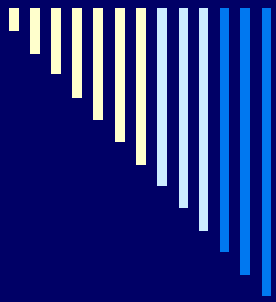
Compositions of foreign materials found in the stomach that may cause gastric outlet obstruction and abdominal pain. Composed of vegetable or plant material or hair.

Treatment is EGD or surgery with removal of the matter.



Bezoar





Pancreatitis



Acute Pancreatitis

- “Autodigestion of pancreas due to inappropriate activation of pancreatic enzymes” causing a severe inflammation of the pancreas
 - Causes:
 - ETOH
 - Obstruction of ducts
 - Biliary disease
 - Mumps, scarlet fever
 - Endocrine disorders
-



Pancreatitis

- Initial management of a patient with acute pancreatitis consists of supportive care with fluid resuscitation, pain control, and nutritional support.**
-



Pancreatitis

- Patients with moderately severe or severe acute pancreatitis, signs of sepsis, or clinical deterioration 72 hours after initial presentation be assessed for presence of pancreatic or extrapancreatic necrosis and local complications
-



Pancreatitis

- Serum amylase rises within 6 to 12 hours of the onset of acute pancreatitis.
 - Amylase has a short half-life of approximately 10 hours and in uncomplicated attacks returns to normal within three to five days.
 - Serum amylase elevation of greater than three times the upper limit of normal has a sensitivity for the diagnosis of acute pancreatitis
-



Pancreatitis

- Serum lipase has a sensitivity and specificity for acute pancreatitis ranging from 82 to 100 percent
 - Serum lipase rises within four to eight hours of the onset of symptoms, peaks at 24 hours, and returns to normal within 8 to 14 days
-



Pancreatitis

- Trypsinogen activation peptide (TAP), a five amino-acid peptide that is cleaved from trypsinogen to produce active trypsin, is elevated in acute pancreatitis
 - Activation of trypsin is likely an early event in the pathogenesis of acute pancreatitis
 - TAP may be useful in detection of early acute pancreatitis and as a predictor of the severity of acute pancreatitis
-



Pancreatitis

- Patients with pancreatitis

 - May have leukocytosis

 - May have elevated hematocrit from hemoconcentration due to extravasation of intravascular fluid into third spaces

 - May have metabolic abnormalities including elevated blood urea nitrogen (BUN), hypocalcemia, hyperglycemia, and hypoglycemia



Pancreatitis

□ S&S:

Acute onset of a persistent, severe, epigastric pain with tenderness on palpation on physical examination.

Acutely ill with severe pain, guarding, rigidity of abdomen, hypotension, respiratory distress, and symptoms of shock.

Pancreatitis

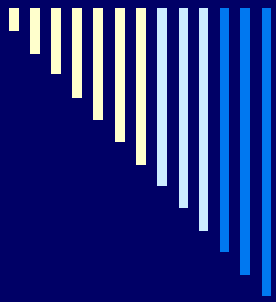
- Turner's sign





Acute Pancreatitis

- Interventions: hemodynamic monitoring, antibiotics, pain management, body positioning – sidelying, knees flexed, HOB up.
 - Treatment: Remove potential causes necrotic pancreatic tissue, gallstones (cholecystectomy, ERCP), repair problems within biliary system with stents, drain abscesses, etc.
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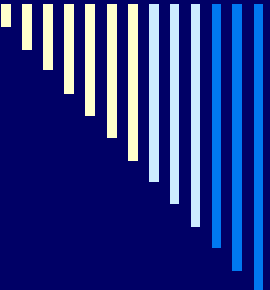
G I Bleed





How do you recognize bleeding in GI tract?

- Bright red blood coating stool
 - Dark blood mixed with stool
 - Black or tarry stool
 - Bright red blood in vomit
 - Coffee ground emesis
-



What are the sx's of acute bleed?

- Visually seeing bright red blood in stool and emesis
 - Sudden weakness
 - Shortness of breath
 - Dizziness
 - Crampy abdomen
 - Faintness
 - Diarrhea
-



What are sx's of Chronic bleeding

- Black tarry stools
 - Coffee ground emesis
 - Weakness
 - Fatigue
 - Shortness of breath
 - Lethargy
 - Faintness
 - Pale lips and nailbeds
-



Acute vs Chronic

- Some differences between acute and chronic low Hgb and Hct:
 - Acute
 - Symptoms of shock may be present
 - Sudden pallor
 - Obvious bleed
 - Chronic
 - History of weakness over weeks
 - History of gradual increase in SOB
 - History of dark stools
-



Emergency GI Bleed– Nurses Role

- Review assessment made – Review labs.
 - 2 large bore IV sites are preferable.
 - Type and Cross match completed or being done.
 - Blood ordered or hanging if severe anemia
 - Platelets, other blood products, etc
-



Emergency GI Bleed– Nurses Role

- Be prepared to Lavage Stomach
 - Be prepared to Suction patient orally.
 - Keep patient on right lateral position if at all possible.
 - Get additional support from other nurses to help with blood transfusions and additional fluids, etc.
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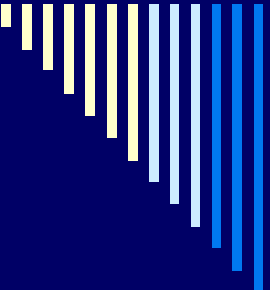
Lab Values with Suspected GI Bleed

- Anemia –A condition in which RBC's are below normal
 - Hemoglobin –Serves as a vehicle for transport of Oxygen and Carbon Dioxide within the RBC's
 - Hematocrit – measures the RBC mass by measuring space occupied by Packed RBC's; the % of RBC's in volume of whole blood
-



Lab Values with suspected GI Bleed

- Things to keep in mind when looking at H&H:
 - Hematocrit may or may not be reliable immediately after an acute GI Bleed.
 - Patients with COPD & CHF may have an abnormally high Hemoglobin before bleed.
 - If erythrocytes are normal, Hematocrit is roughly 3 times higher than Hemoglobin.
 - If Hgb is low – keep in mind when sedating that patient has a decreased O₂/CO₂ carrying capacity



Lab Values if suspected GI Bleed

- BUN/ Creatinine
 - BUN – measures the amount of urea nitrogen in blood
 - GI Bleed increases BUN therefore affects ratio
 - If BUN is 100 or over patient has had a severe GI bleed
-



Summary

- ❑ **Evaluation of the GI Bleed**
 - ❑ Laboratory studies should include CBC and platelets, PT/PTT, electrolytes, BUN/creatinine
 - ❑ (GI bleeders will frequently have elevated BUN secondary to the increased ingestion of nitrogen from digested blood).
 - ❑ Physical examination often reveals hyperactive bowel sounds secondary to intraluminal blood.
 - ❑ Endoscopy may be done acutely for upper GI bleeding to help define the source and treat endoscopically if able.
 - ❑ Angiography or nuclear medicine studies can be useful to localize **lower** GI bleeding.
-



Mallory Weis Tear

- History : Prolong forceful vomiting
 - Increased esophageal intraluminal pressure
 - Due to: Seizures, Childbirth, Coughing, straining at defecation, weightlifting
 - Pathology: Submucosal and mucosal without perforation
 - Imaging: Chest Radiograph: normal
 - Diagnosis is almost always made by endoscopy
 - Rarely does esophagram show if incomplete tear
 - Rarely does angiography show bleeding site
-



Mallory-Weiss Tears

Esophageal tear occurring most often at the esophagogastric junction. Occurs in 8% of all upper GI bleeds.

Treatment:

Cautery or injection of bleeding area.

Liquid or soft diet

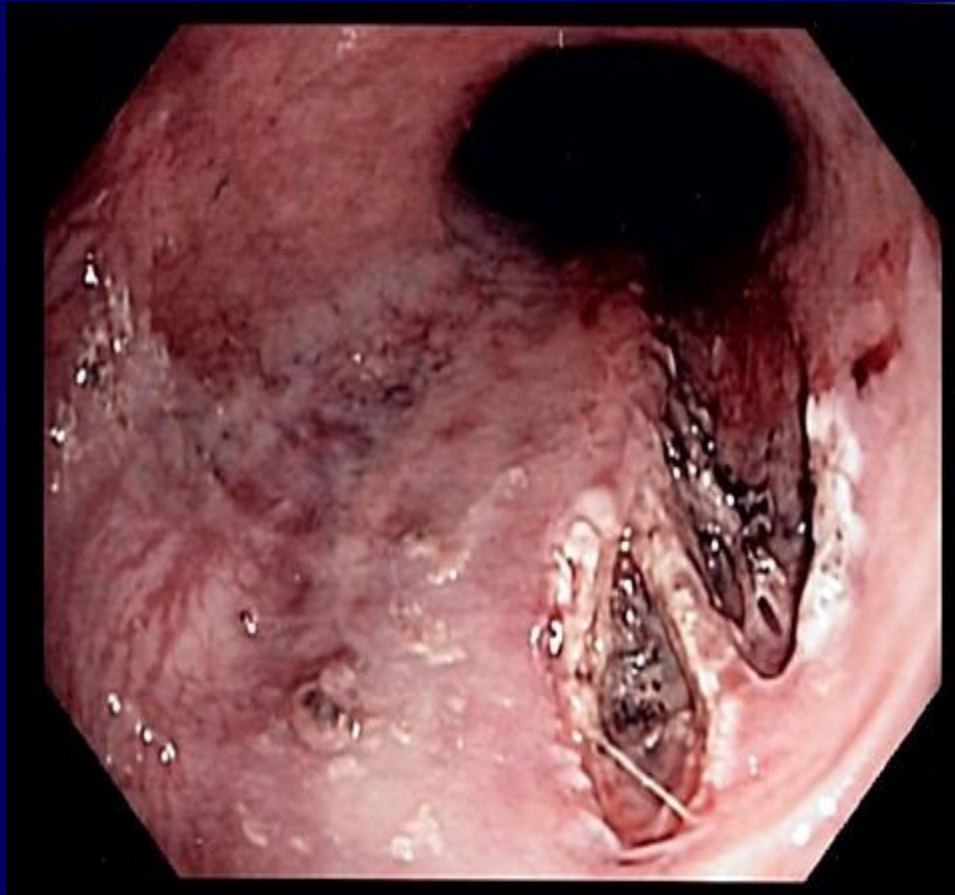
Avoidance of sharp foods

Carafate to heal and protect the esophagus

Surgery if perforated through esophagus.



Mallory-Weiss Tear





Esophageal Varices

Engorged vessels in the submucosa of the esophagus and may be caused by portal hypertension as a result of chronic hepatitis; alcoholic cirrhosis; portal vein thrombosis; or congenital anomalies such as biliary atresia

Diagnosis made most often as an upper GI bleed (12% of all upper GI Bleeds) and subsequent EGD



Esophageal Varices - Grading

- When esophageal varices are discovered, they are graded according to their size, as follows:
 - Grade 1 – Small, straight esophageal varices
 - Grade 2 – Enlarged, tortuous esophageal varices occupying less than one third of the lumen
 - Grade 3 – Large, coil-shaped esophageal varices occupying more than one third of the lumen
-



Variceal Bleed

- Phases
- Acute phase
 - Starts with onset of active hemorrhage

Later phase

- Period of 6wks following cessation of active bleeding
 - Greatest risk within 48-72hr
 - 50% of rebleeds occur within first 10 days
-



Variceal Bleed

Variceal Hemorrhage

- -1/23 of all deaths related to cirrhosis
 - Four major issues
 - 1) Prediction of pts at risk
 - 2) Therapy against a first bleed
 - 3) Treatment of an active bleed
 - 4) Prevention of rebleeding
-



Variceal Bleed Therapies

Endoscopic Treatment

- -Sclerotherapy
 - Variceal band ligation
 - Other Therapies
 - Balloon tamponade
 - Transjugular intrahepatic portosystemic shunt (TIPS)
 - Surgical therapy
-



Therapy for Variceal Bleed

Somatostatin and Octreotide

- Theoretical benefit due to:
 - Reduced splanchnic blood flow
 - Inhibition of gastric acid secretion
 - Gastric cytoprotective effects

 - Purpose - Decrease release of GI hormones and hepatic blood flow and portal HTN Stabilization until definitive therapy can be performed
-



Nurses Role - Varices

□ **Esophageal Varices**

- • Vasopressin has been shown to be no more effective than placebo in controlling bleeding from esophageal varices or other upper GI sources.
- • The combination of sclerotherapy and octreotide (a synthetic somatostatin analog, 25 µg/hour) is superior to sclerotherapy alone in controlling acute variceal bleeding in patients with cirrhosis.
- • Transjugular intrahepatic portosystemic shunt (TIPS).

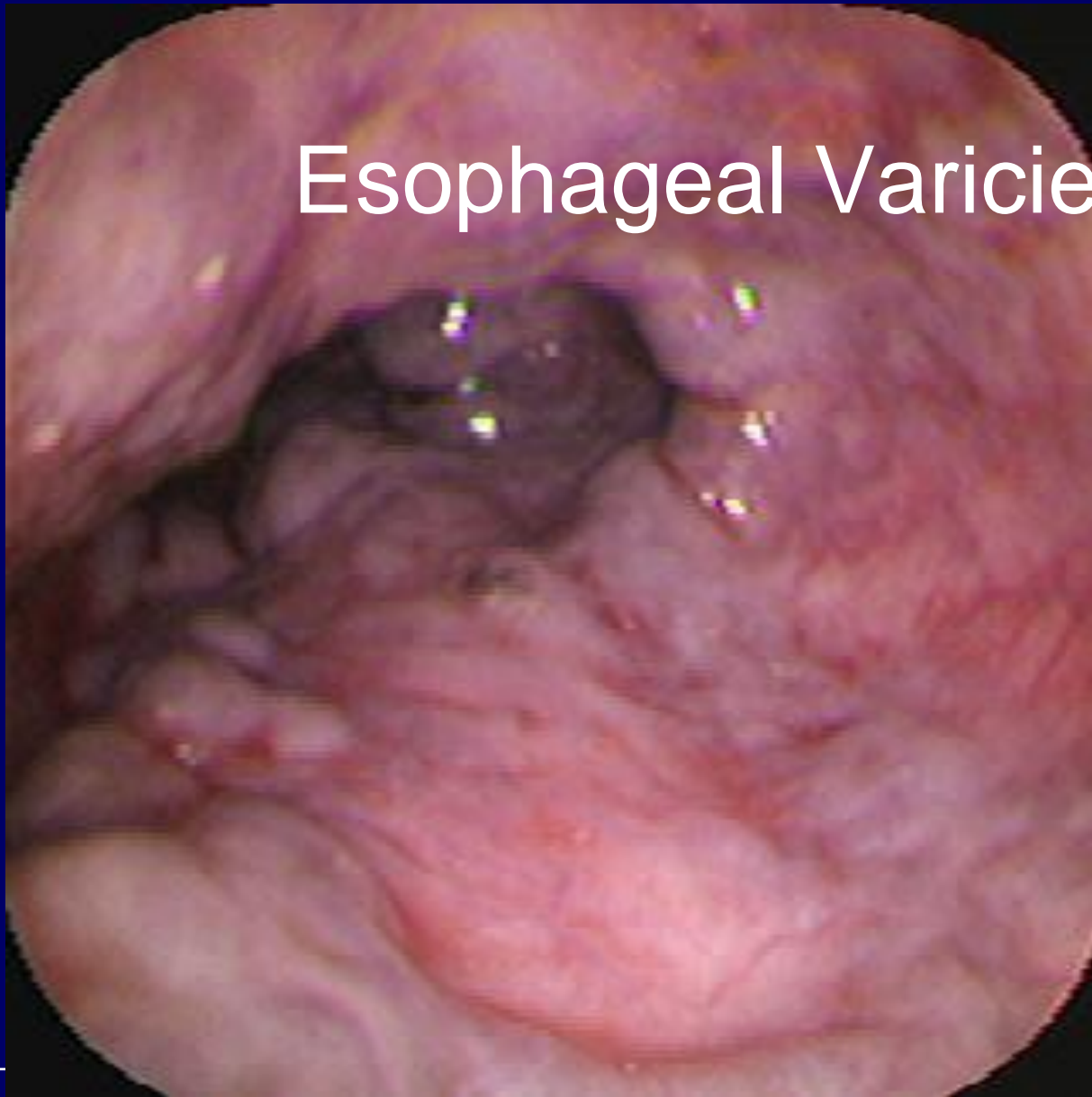
This is regarded as a safe and established means of treating variceal hemorrhage in patients with portal hypertension who fail sclerotherapy.

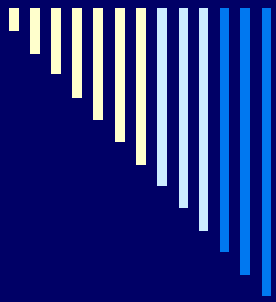
- • The combined use of a beta-blocker and nitrate has been shown to reduce portal pressure
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Esophageal varices



Esophageal Varices









Esophageal varcies



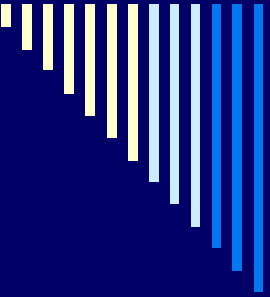


GI Bleed



Assessment leads you to believe patient is an Upper GI Bleed – possible Peptic Ulcer

- Epigastric pain
 - Pale
 - Skin cool to touch
 - Patient tachycardic
 - c/o Lightheadedness
 - Melena
-



Complications of Peptic Ulcer Disease (PUD)

Hemorrhage – 15% of all ulcer patients, hematemesis and/or black stools

Perforation – 5-7% occurrence; ulcer has eroded through stomach wall and has spilled into the peritoneum

Penetration – ulcer has eroded into another organ

Obstruction – Pylorus becomes edematous and does not allow chyme to pass



PUD

Treatment:

Control bleeding

Fluid and electrolyte replacement

Presence of perforation or penetration –
antibiotics and surgery

Presence of obstruction – NG tube for
decompression, Dilation, surgery.



PUD continued

Nursing interventions : patient education regarding medications and importance of adhering to dosing schedules; elimination of coffee, caffeine, spicy foods, carbonation, alcohol, chocolate and any other food that has caused pain and discomfort; small meals; smoking cessation; avoidance of aspirin and NSAIDS (if aspirin use is necessary then enteric coated is best)

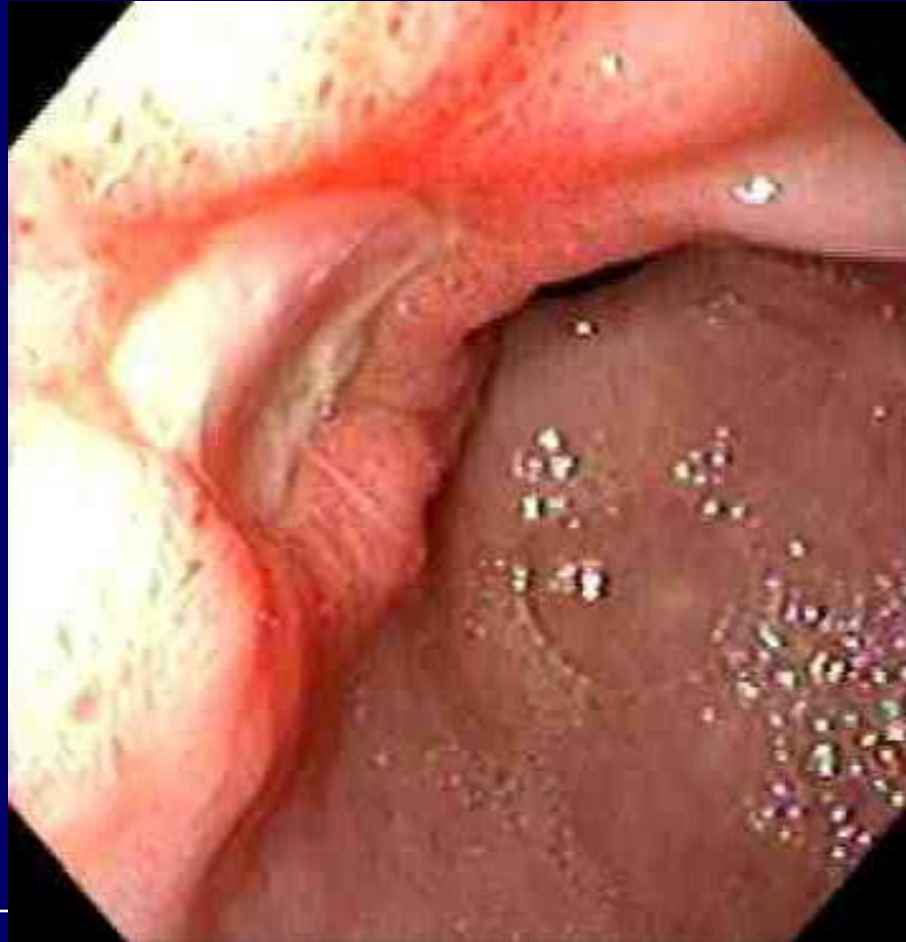


Emergency Endoscopy – Nurses Role

□ Equipment setup

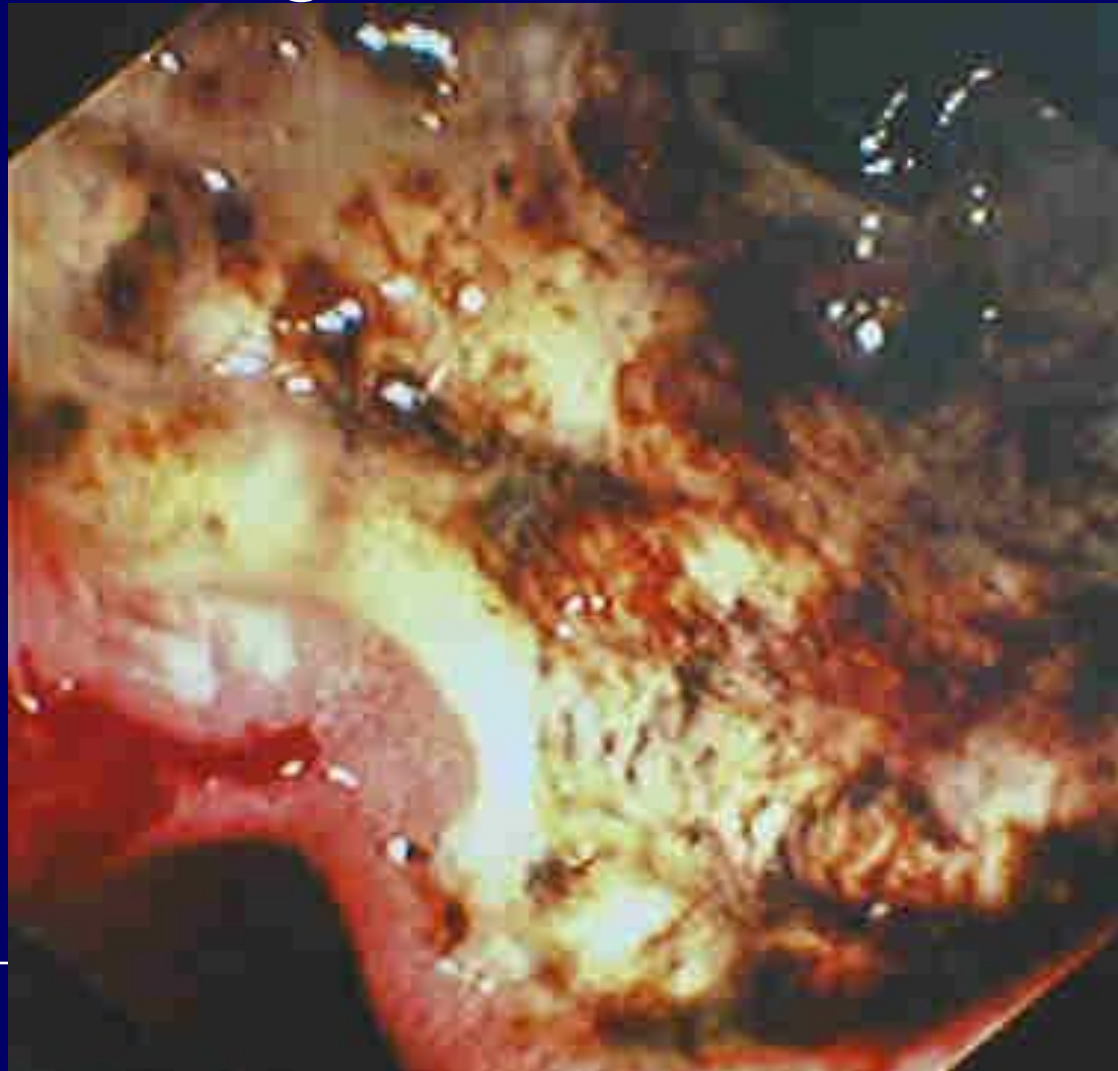
- Try to be aware of what performing physician likes to use and be prepared to use them.
 - BICAP
 - Endo Clips
 - Epinephrine therapy
 - Saline injection
 - APC

Peptic Ulcer





Large Ulcer

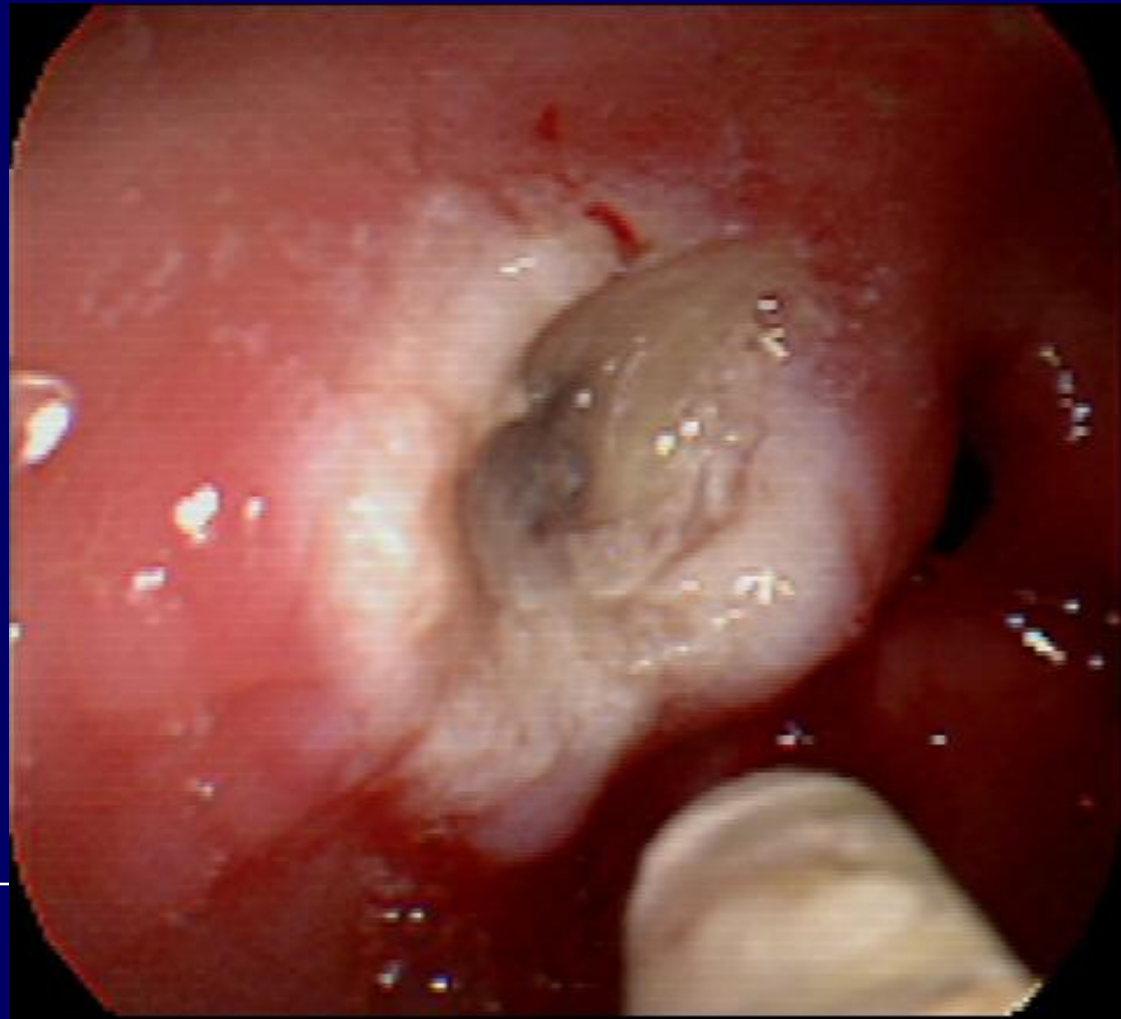




Bleeding Ulcer



Ulcer post BICAP





Surgery

- Surgery is required if an ulcer fails to heal from medical therapies or is complicated by uncontrolled bleeding, perforation or obstruction.
 - Types
 - Vagotomy – Cutting one or more nerves to stomach
 - Pyloroplasty – Widening the opening of the pylorus
 - Partial Gastric Resection. – Removing part of stomach or duodenum affected by ulcer
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Surgical ulcer removal

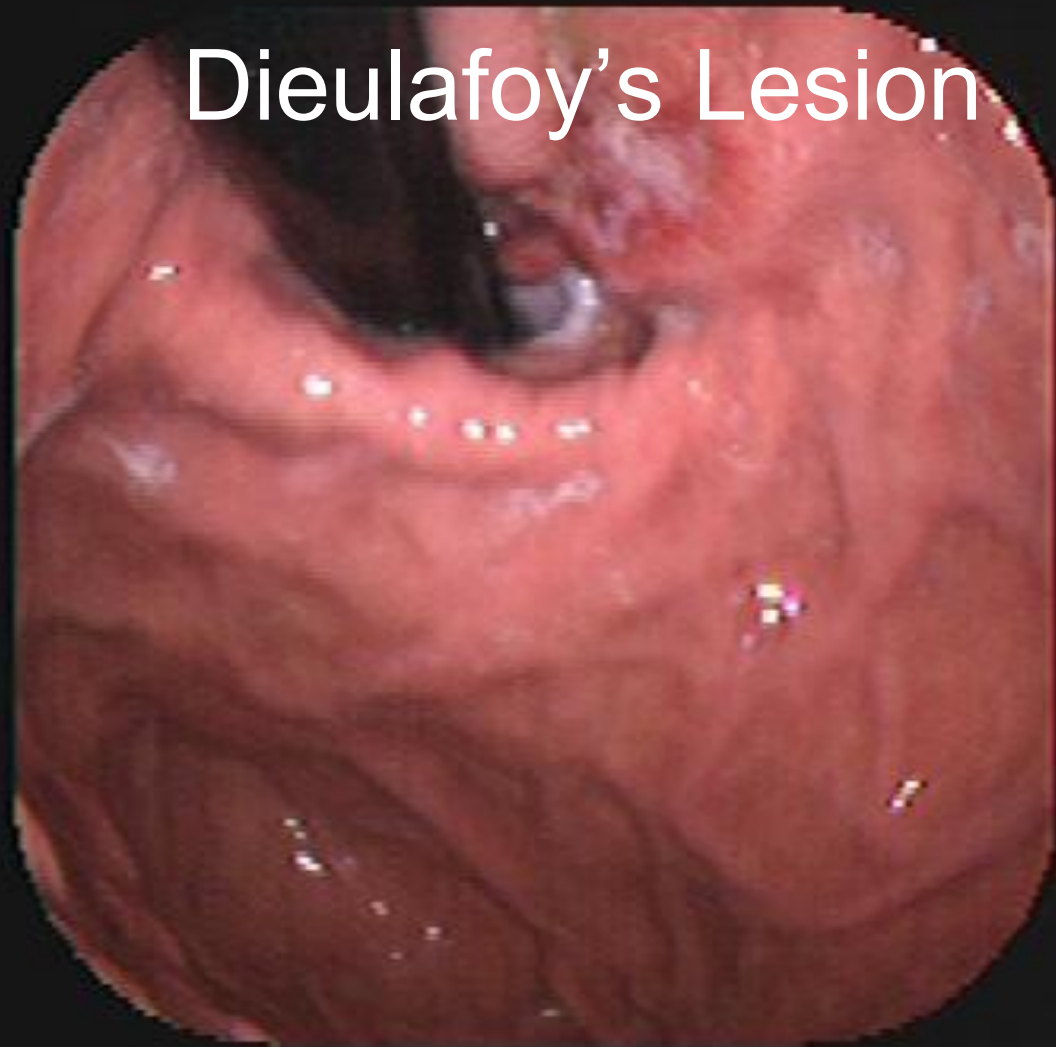




Other Causes of Gastric Bleed

- Gastric Varicies
 - Gastric Carcinoma
 - Dieulafoys lesion
 - Arterial-Venous Malformations
 - Gastritis
-

Dieulafoy's Lesion





Nurses role – UGI Bleed

- **Upper GI bleeding.**
 - • Start IV fluid resuscitation and manage shock
 - • An NG tube should be placed to document the source and relative rate of bleeding (blood is usually present in the NG aspirate during an upper GI bleed).
 - • H2-antagonist therapy with either cimetidine (300 mg) or ranitidine (50 mg) can be given IV but will not act to slow current bleeding.
 - • Transfusions--whole blood, platelets, other blood products.
 - • Endoscopy and endoscopic therapy is the treatment of choice if possible.
-



Nurses role LGI BLeed

- **Lower GI Bleeding**
 - Start IV fluid resuscitation and manage shock
 - Work-up may include colonoscopy, barium enema, selective angiography, and radionuclide bleeding studies.
 - Surgical consultation should be obtained in case operative intervention is needed.
-



Meckel's Diverticulum

Diagnosis:

Meckel's scan – a radiology contrast study

Treatment:

Surgical removal of the diverticulum or resection of the ileum



Mekel's Diverticulum





Meckel's Diverticulum

A congenital anomaly outpouching of the ileum which contains normal tissues as well as gastric and pancreatic tissue. These abnormal tissues for the ileum secrete acid and pepsin and can cause ulcerations of the ileum.

Symptoms:

Abdominal pain

Bilious vomiting

Red "currant jelly" like stools



Overview of GI Bleed

- Because GI bleeding is internal, it is possible for a person to have GI bleeding without symptoms.
 - Important to recognize those symptoms which may accompany GI bleeding.
 - Basically, the symptoms of possible GI bleeding vary, depending upon whether the source of the bleeding is in the upper part of the digestive tract (the esophagus, stomach or the beginning of the small intestine) or in the lower part (small intestine, colon or rectum)
-



Various types of GI Bleed

- **Possible reason(s)**
 - Esophagus Vomiting bright red (blood) or coffee ground material, Black stools
Ulcer, varices Liver disease
 - Stomach Vomiting bright red (blood) or coffee ground material, Black stools
Ulcer, gastritis, varices
 - Small Intestine Bright red/maroon bleeding
Ulcer, Tumor
 - Large Intestine (Colon) Blood in the stool
Colon, polyps, colitis, diverticulas
 - Rectum Bright red bleeding
Hemorrhoids, Diverticulosis, Tumor
-



Critical Thinking

- ❑ **Bleeding-GI Tract**

- ❑ **Ulcers:**

 - Muscles of the stomach or duodenal wall, blood vessels may be damaged, which causes bleeding.

- ❑ If the affected blood vessels are small, the blood may slowly seep into the digestive tract.
 - ❑ Over a long period of time, a person may become anemic and feel weak, dizzy, or tired.
 - ❑ If a damaged blood vessel is large, bleeding is dangerous and requires prompt medical attention.
 - ❑ Symptoms include feeling weak and dizzy when standing, vomiting blood, or fainting. The stool may become a tarry black color from the blood.
-



Critical Thinking – UGI Bleed

- ❑ **Hematemesis**-Vomiting of blood.
 - ❑ • May be bright red blood or coffee grounds-like material.
 - ❑ • Usually from bleeding proximal to the ligament of Treitz.
 - ❑ • **Sources.**
 - ❑ – Peptic ulcer disease may be asymptomatic until first bleed especially in patients taking NSAID.
 - ❑ – Gastritis, especially from alcohol.
 - ❑ – Mallory-Weiss tear occurs after prolonged vomiting or retching and is generally a self-limited bleed. Look for mediastinal air on CXR.
 - ❑ – Esophageal varices from portal hypertension especially secondary to chronic alcohol consumption.
 - ❑ – Swallowed blood from epistaxis or other source of bleeding.
-



Critical thinking

□ Melena

- Passage of black, tarry stools secondary to GI bleeding with intestinal transit time allowing for the digestion of hemoglobin.
 - May be of upper or lower GI origin
 - Black, tarry stools can be the result of ingested iron, licorice, or bismuth, but the stool will be guaiac negative
-



Critical thinking

- **Hematochezia** - Bright red blood per rectum.
 - Can be secondary to anal disease (hemorrhoids, rectal fissure).
 - May be secondary to bleeding diverticulum, other colonic disease such as Crohn's disease, ulcerative colitis, carcinoma (very rarely causes gross bleeding), dysentery (especially amebiasis, Campylobacter, Shigella, or other invasive organisms).
-



Critical Thinking

- Clinical Predictors for Failure
 - ->65yo
 - Shock
 - Poor overall health
 - Comorbid illnesses
 - Low initial Hgb
 - Melena
 - Transfusion requirement
 - Fresh red blood
 - Elevated BUN, SCr, or AST/ALT
-



Critical Thinking

- Endoscopic Predictors for Failure
 - -Active bleeding
 - Non-bleeding visible variceal or adherent
 - Ulcer size
 - Ulcer location
 - Lesion type
-



Therapies for GI Bleed

Treatment (Acute)

- Endoscopic Therapy
 - Thermal coagulation
 - Injection therapy
 - Hemostatic clips
 - Fibrin sealant
 - Combo therapy

Acid suppression therapy



Therapies for GI Bleed

- Thermal Coagulation
 - -Achieves acute hemostasis and prevents rebleeding
 - Coagulation of the underlying artery in the ulcer base
 - Multipolar probes and heater probe
-



Therapies for GI Bleed

- Injection Therapy
 - -Absolute alcohol
 - Epinephrine (1:100,000 dilution) most common
 - Saline injection
-



Therapies for GI BLEED

Hemostatic Clips

- -Alternative to other methods
 - Safe to use
 - Can be expensive
 - May serve as radiologic marker for subsequent interventional radiology
-



Therapies for GI Bleed

Fibrin Sealant

- -Role remains to be defined
 - Single application vs daily repeated dose
 - Hard on scopes, expensive
-

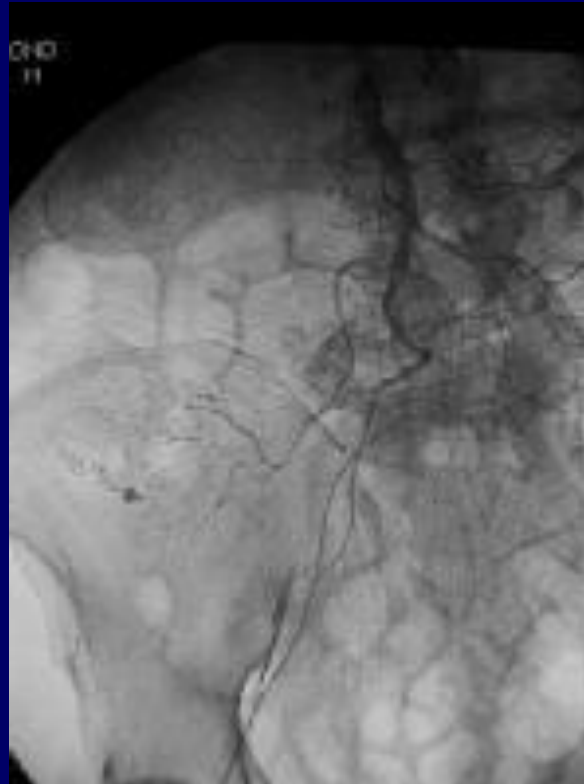


Therapies for GI Bleed

- Combo Therapy
 - BETTER OUTCOMES
 - Epi injection
 - Mechanical methods: thermal coag,
hemoclip
-

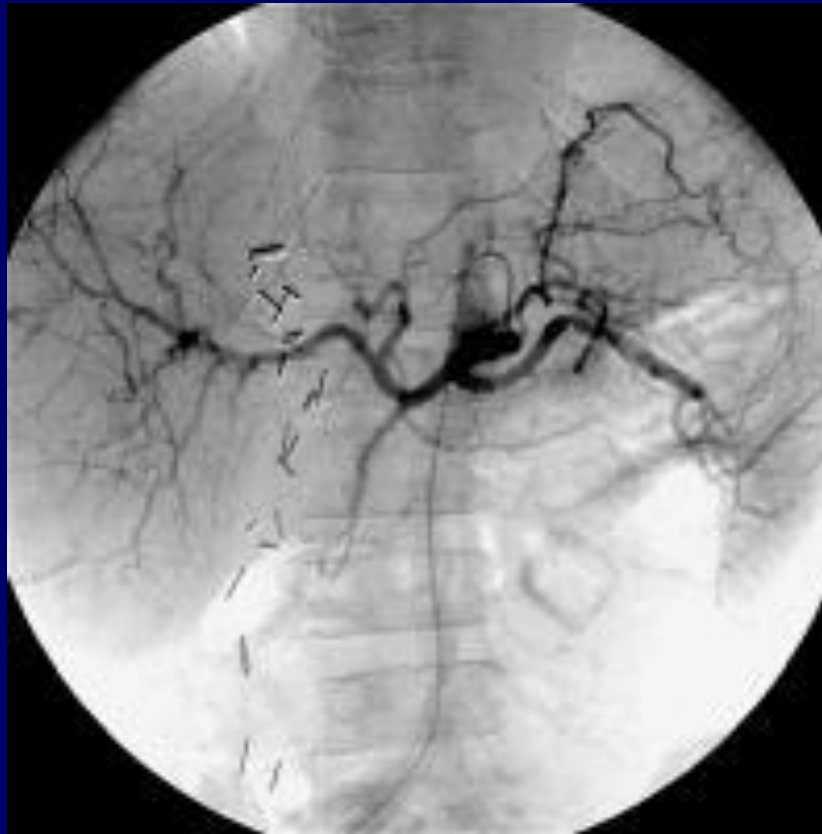


Nuc med bleeding scan

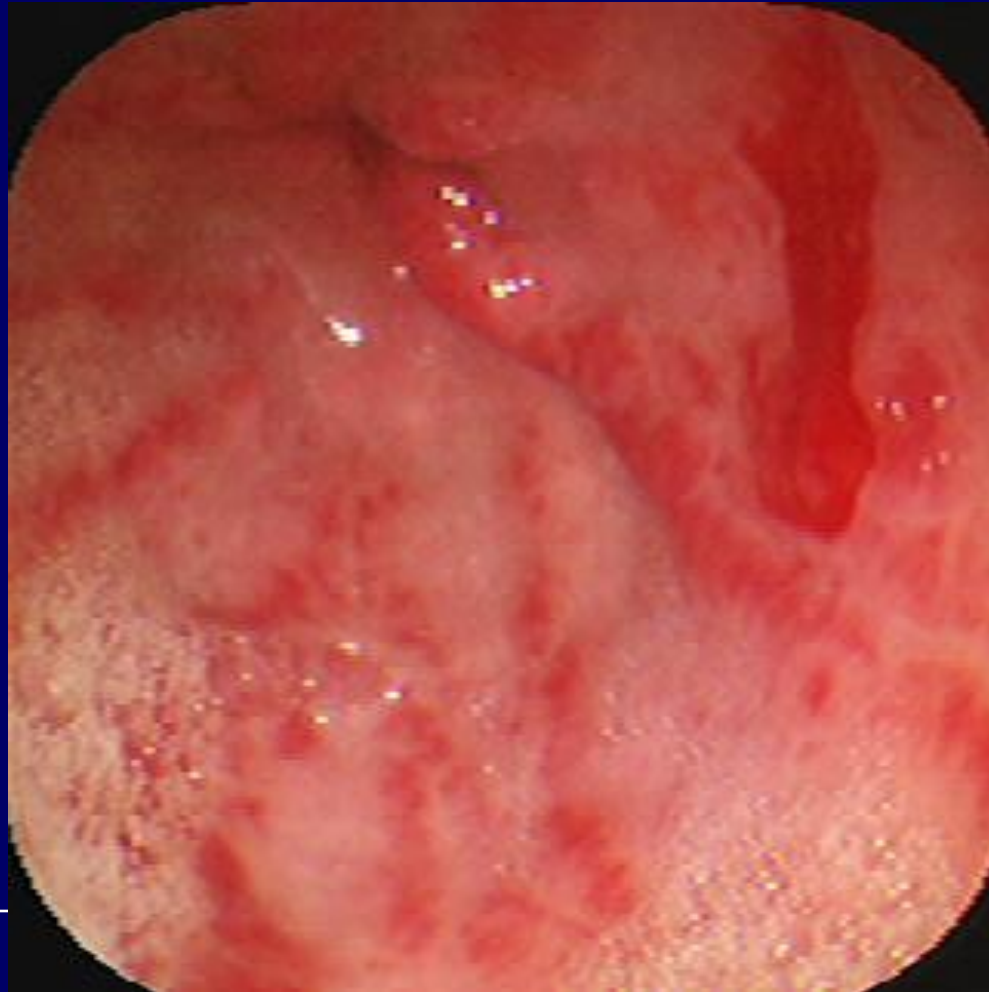




Celiac arteriogram showing duodenal bleed



Watermelon stomach





Crohn's Disease



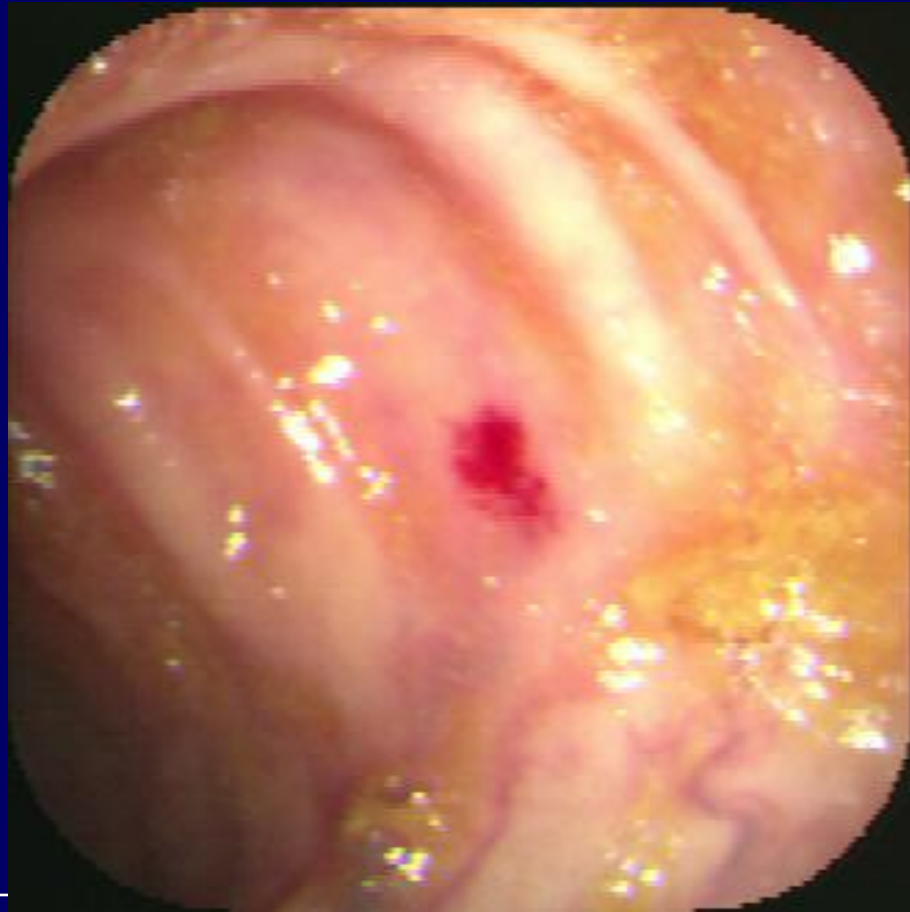


AVM



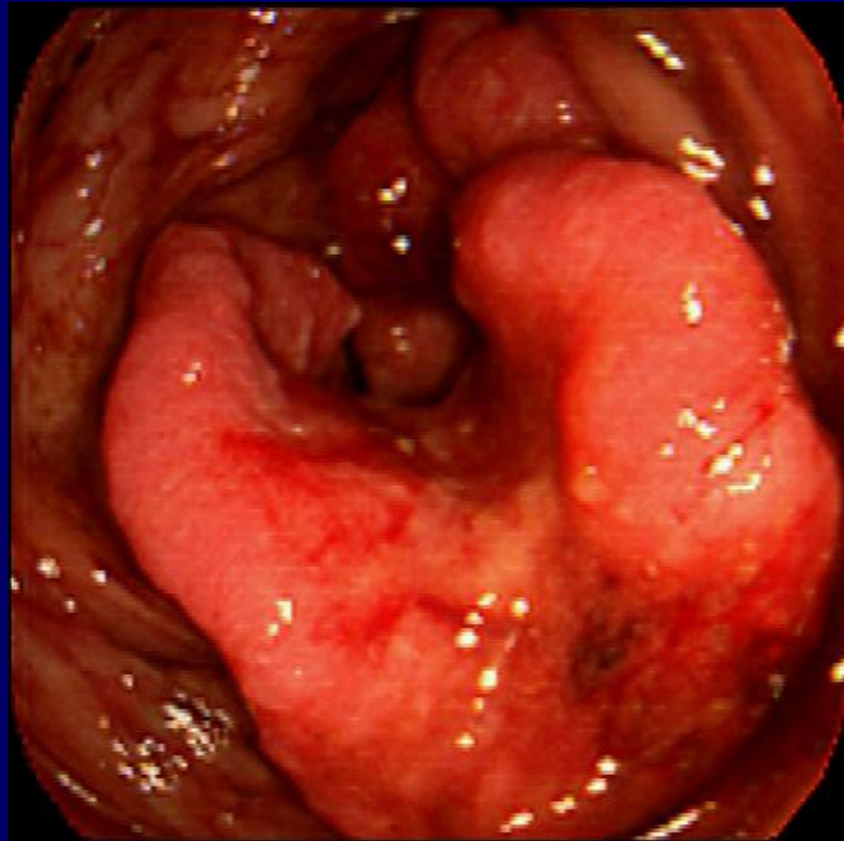


AVM

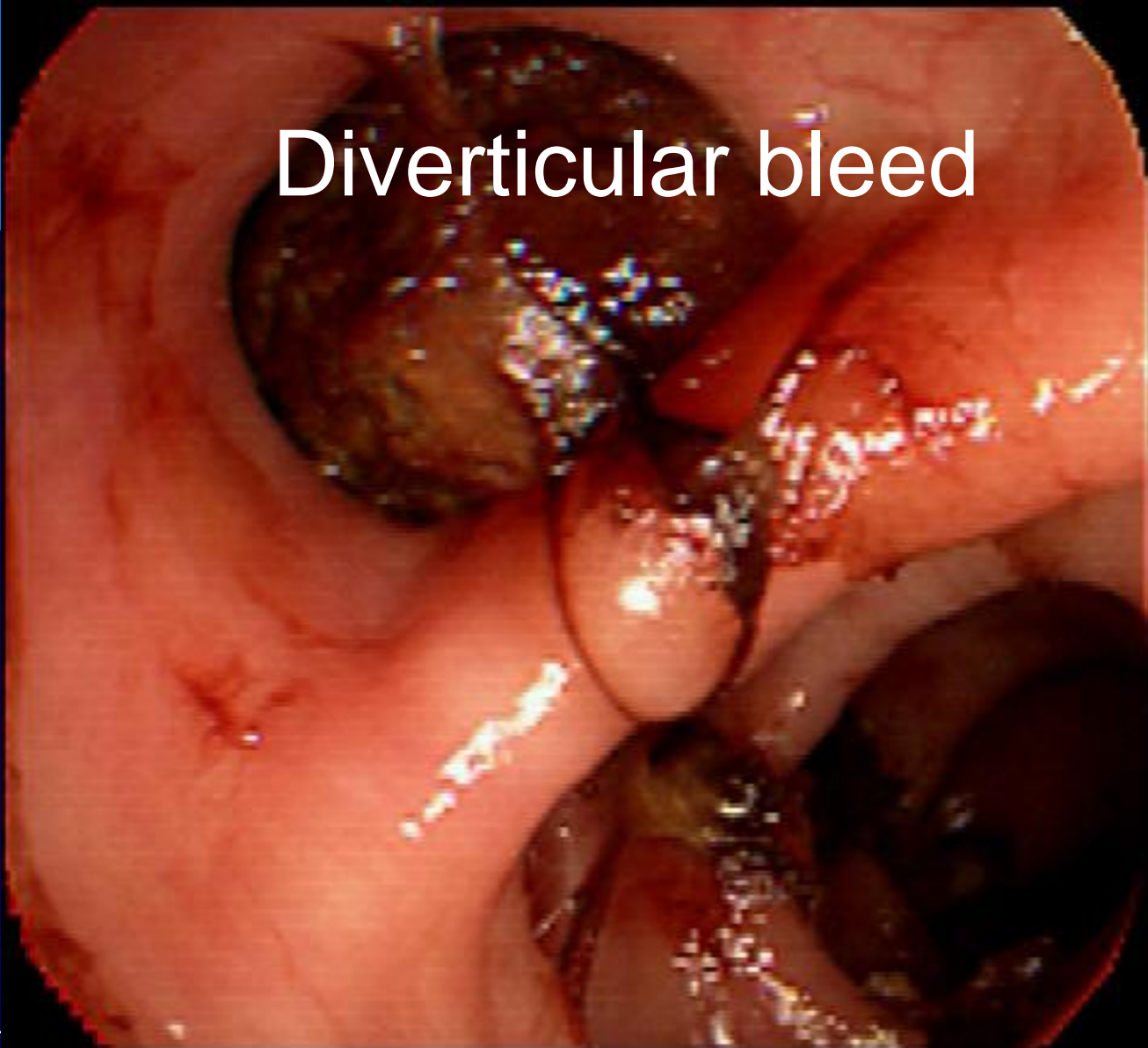




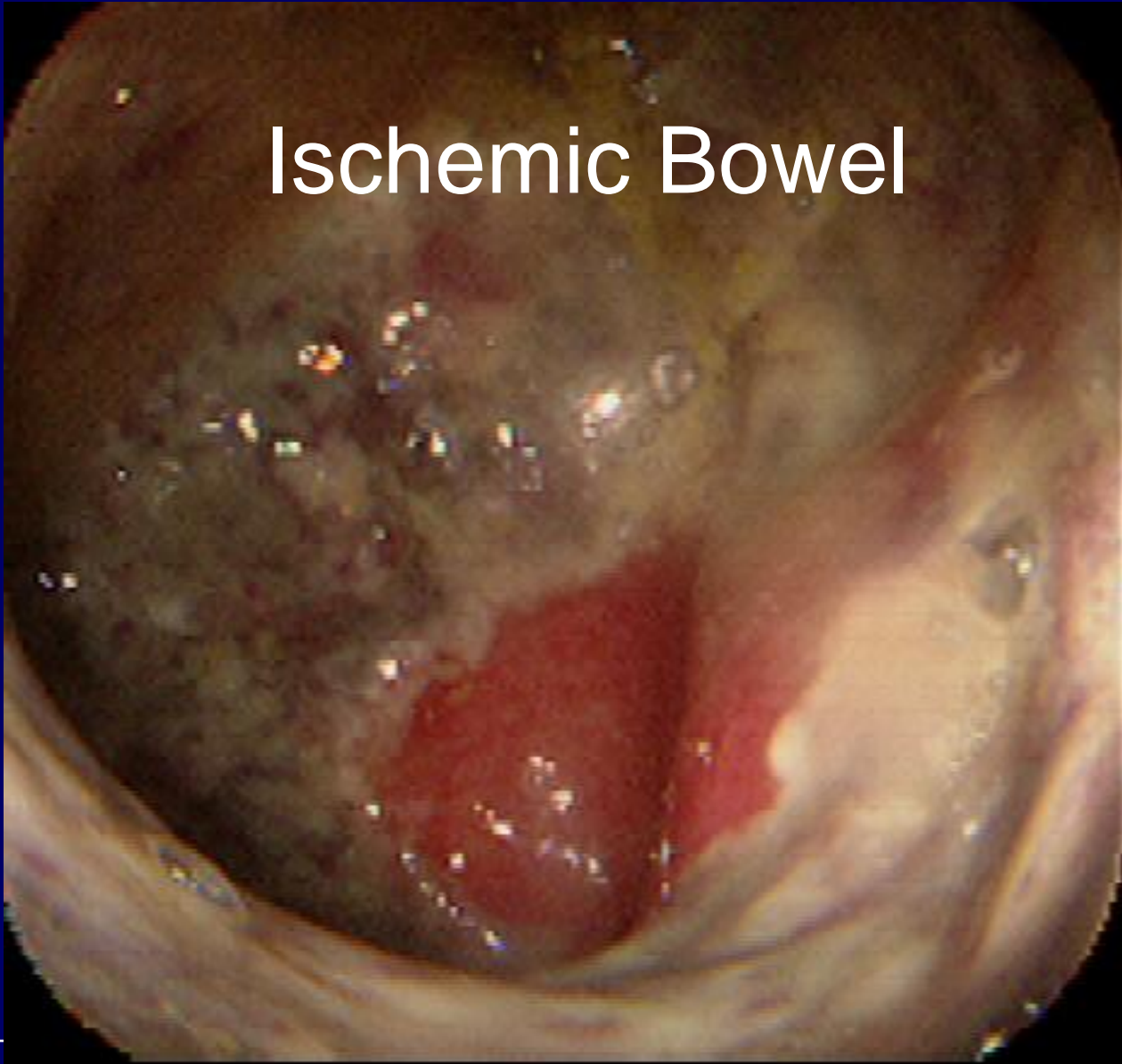
Colon Cancer



Diverticular bleed

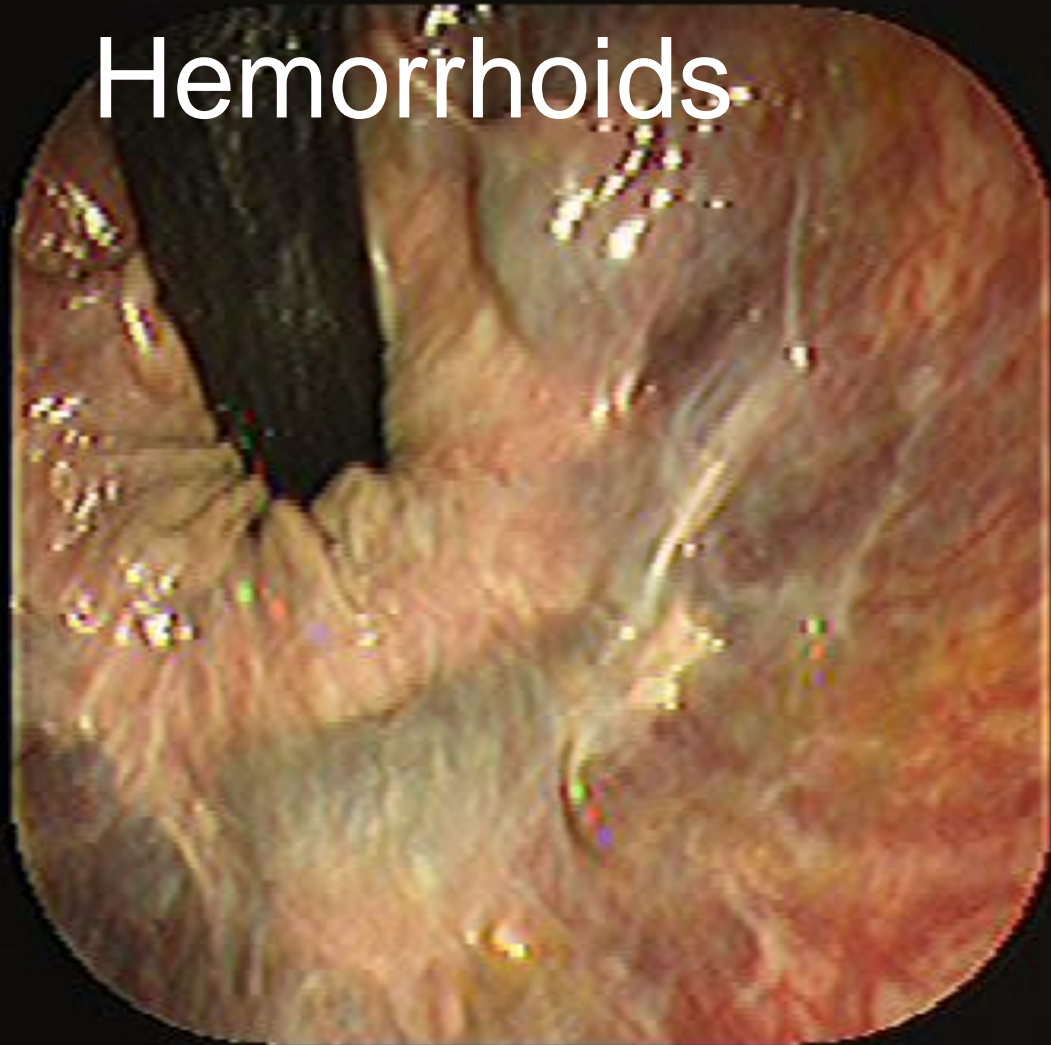


Ischemic Bowel

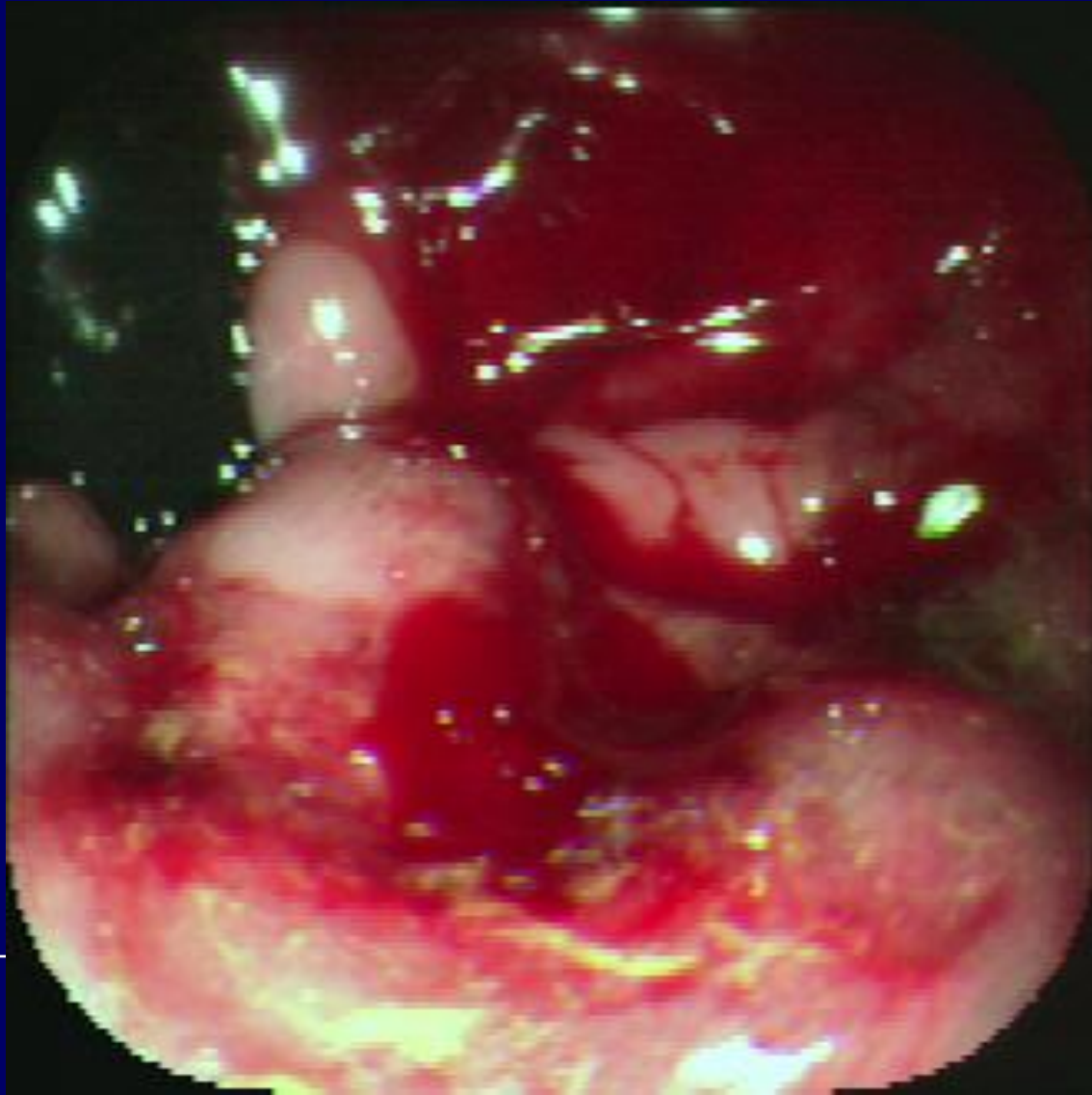




Hemorrhoids



Hemmorhoids





Other Gastrointestinal Emergencies



Shock

- Shock is a condition of acute peripheral circulatory failure caused by derangement of circulatory control or loss of circulating fluid.
 - Can be endocrine, neurogenic, bacterial, cardiogenic, or hypovolemic.
-



Hypovolemic Shock

- Bodies response to perceived blood volume loss.
-



Septic Shock/Bacterimia

- From direct invasion of the bloodstream by microorganisms or their toxins.
-



Adverse Drug reactions

- Know side effects
 - Know toxic reactions
 - Know allergic responses
 - Know how to treat anaphylaxis
 - Know look alike sound alike drugs
 - Know drug interactions
-



Respiratory Depression

- Highest risk factor from anesthesia, sedation and narcotics.
-



Cardiac Complications/Arrest

- Cardiac stress is most common complication of Endoscopy outside of medication reactions.
-



Vasovagal Syncope

- Transient vascular and neurogenic reaction marked by pallor, nausea, diaphoresis, bradycardia, rapid fall in B/P, to loss of consciousness(fainting).
-



Postural Hypotension

- Occurs when patient suddenly assumes an upright position. There is a fall in systolic and diastolic B/P.
-



Aspiration

- Occurs when liquids or solids mistakenly enter the pulmonary system.
-



Pediatric Complications and Emergencies

- Complications due to Endoscopy in pediatrics
 - Oral trauma
 - Loose baby teeth
 - Orthodontics
 - Wrong scope size
 - O2 saturations
 - Hypoxemia
 - Over distension
 - Arrhythmias
-



The End,
but only the
beginning.