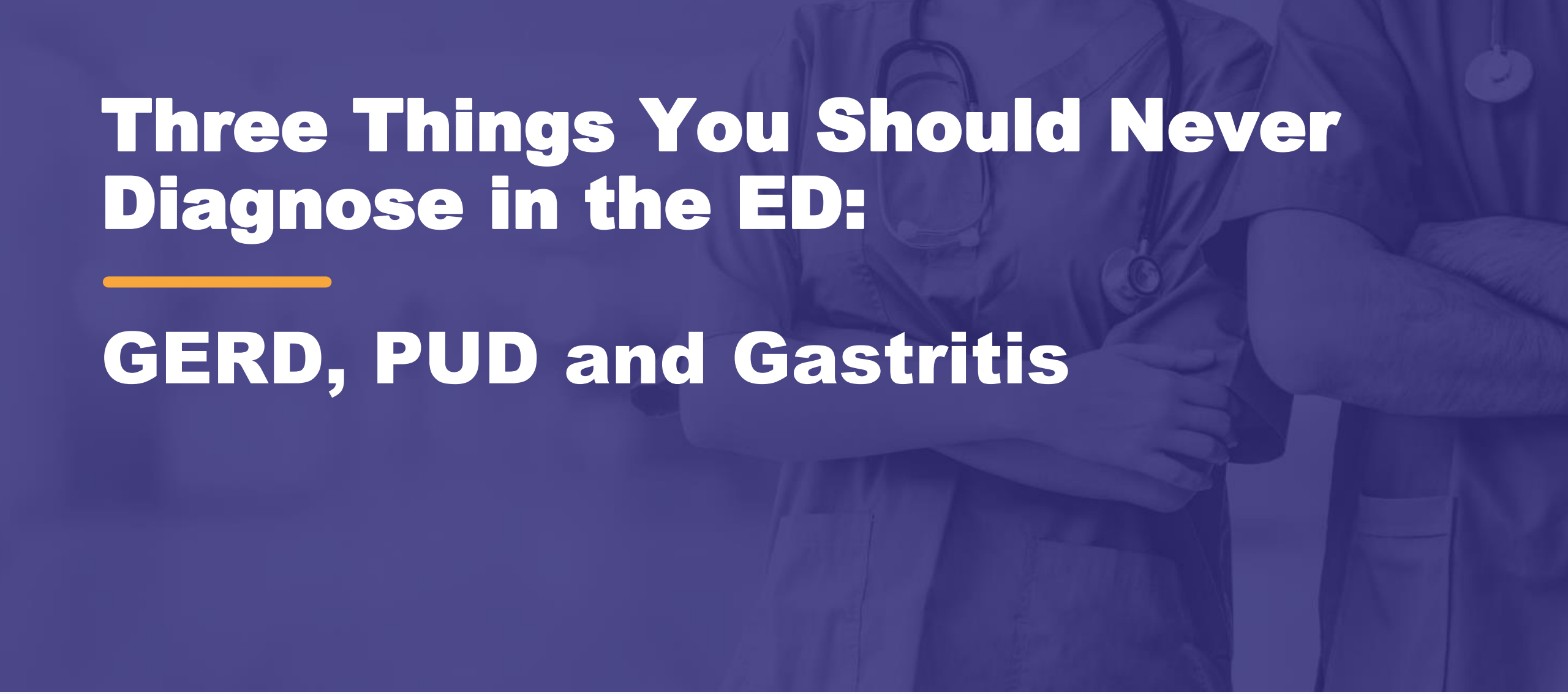

Three Things You Should Never Diagnose in the ED:

GERD, PUD and Gastritis

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I have no conflicts of interest or financial disclosures to disclose in relation to this program or presentation.

Disclosures

Objectives

- Who’s The More Foolish: The Fool or the Fool Who Follows Him?
- I’ve Got A Bad Feeling About This
- Don’t Be Too Proud Of This Technological Terror You’ve Constructed
- You’ll Find I’m Full Of Surprises
- Never Tell Me The Odds
- Your Eyes Can Deceive You
- Let’s Keep A Little Optimism Here
- Taking One Last Look At My Friends
- You’re All Clear, Kid, Now Let’s Blow This Thing And Go Home

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Background

- Abdominal pain is the most common emergency department chief complaint in adult patients
- Responsible for more than 7 million ED visits / year
- Ultimately 25% of patients are diagnosed with “nonspecific abdominal pain”

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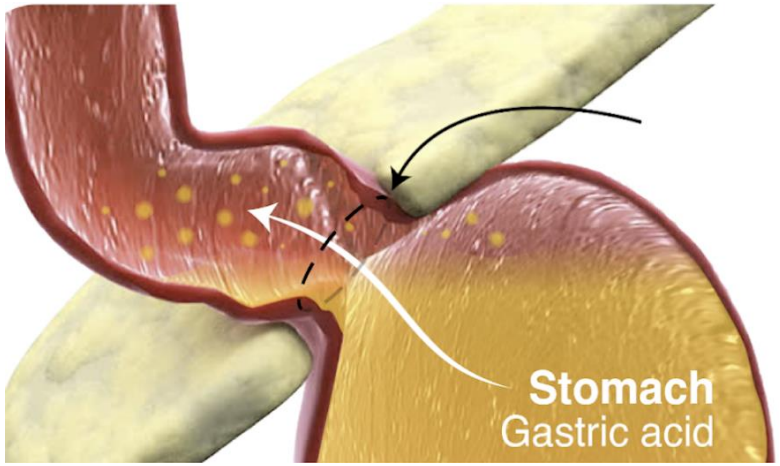
Gastroesophageal Reflux Disease (GERD)

- Mechanical/functional abnormalities of the lower esophageal sphincter (LES)
- Gastric contents reflux into the distal esophagus
- The mucosa of the esophagus is damaged



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Gastroesophageal Reflux Disease (GERD)

- Classic symptoms
  - “Heartburn,” regurgitation
- Atypical manifestations
  - Hoarseness, halitosis, chronic cough, chest pain
- Physical exam – benign; mild tenderness, no peritoneal signs

Gastroesophageal Reflux Disease (GERD)

- A working diagnosis can be made clinically
  - Transient pain
  - Provoking factors – large meals, eating at bedtime, increased intraabdominal pressure (obesity, pregnancy)
  - History of irritants – smoking, ETOH, spicy foods

Gastroesophageal Reflux Disease (GERD)

- Confirming the diagnosis requires
  - an upper endoscopy and direct visualization of damage
  - perhaps esophageal manometry
  - ambulatory pH monitoring in pts with suspected dz refractory to meds, behavioral changes
- If one of your patients required an emergent scope, they've got other problems going on

Gastritis

- Gastric mucosa is in a constant state of renewal
- If damage overtakes the ability for gastric mucosa to heal, inflammation and injury can develop

Gastritis

- Gastric mucosa can be chronically inflamed
  - **Helicobacter pylori**
  - Autoimmune disease
- Gastric mucosa can be acutely injured
  - **Also Helicobacter pylori**
  - Meds – NSAIDs, aspirin
  - Critical illness – CNS injury, burns
  - Heavy ETOH consumption
  - Radiation

Gastritis

- Epigastric pain / discomfort; usually nonradiating
- Bloating, early satiety, fullness, nausea, even vomiting
- Even GI bleeding
- Physical exam is benign; epigastric TTP w/o peritoneal signs

Gastritis

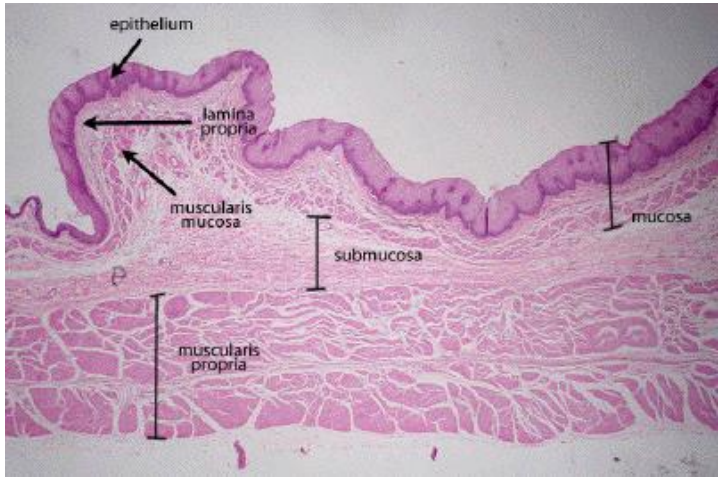
- A working diagnosis can be made clinically, assisted with labs
  - Positive testing for H. pylori – serology, stool, or breath tests
  - Pernicious anemia
    - Anti-parietal cell antibody (>90% sensitive, 50% specific)
    - Anti-intrinsic factor antibody (50% sensitive, 98% specific)
- But these are labs that are almost never ordered in the ED

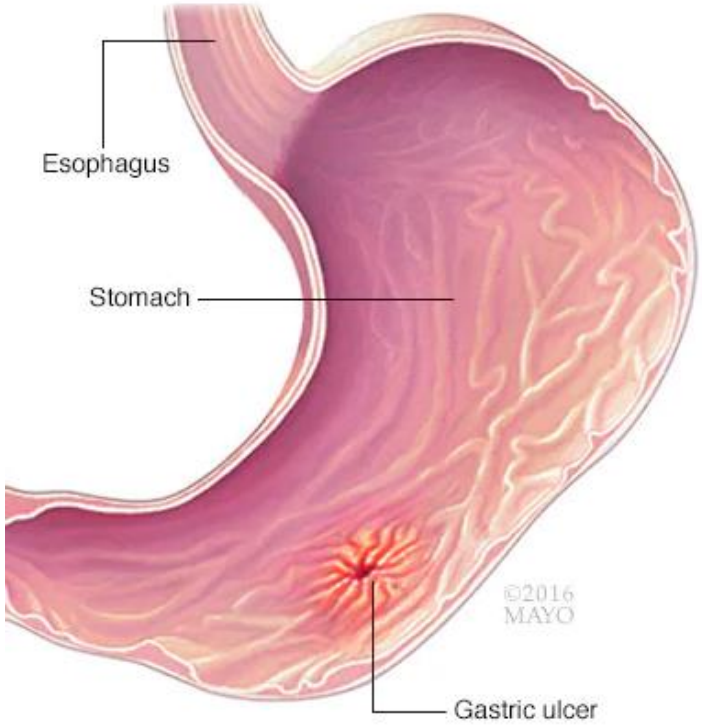
Gastritis

- Confirming the diagnosis requires
  - Endoscopy – does it look acute (erythema, erosions) or chronic (atrophy, flattened rugal folds, submucosal vessels)
  - Perhaps even biopsy

When Gastritis Goes Hard – Peptic Ulcer Disease

- Chronic irritation overwhelming mechanisms of mucosal repair
- Defect through muscularis mucosae





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Peptic Ulcer Disease

- **G**astric ulcers often affect 55-70 ("**g**randparents")
  - **D**uodenal ulcers often affect 30-55 y/o ("**d**ads")
- Risk factors:
  - **Helicobacter pylori**
  - NSAIDs
  - Heavy ETOH
  - Smoking
  - Genetic factors

Peptic Ulcer Disease

- Epigastric pain / discomfort; unusually nonradiating
- Sometimes worse at night
- Textbook presentation: > pain of gastric ulcers with food
- Physical exam is benign; epigastric TTP w/o peritoneal signs

Peptic Ulcer Disease

- A working diagnosis can be made clinically, assisted with labs
  - Positive testing for H. pylori – serology, stool, or breath tests
  - Anemia
  - Elevated gastrin level (Zollinger-Ellison syndrome)
- But the anemic patient with recurrent abdominal pain has more emergent diagnoses to consider than PUD

Peptic Ulcer Disease

- Confirming the diagnosis requires
  - Endoscopy
    - benign (smooth, round edges, flat base)
    - malignant (ulcerated mass into center of ulcer, thickened/irregular margins)
  - Perhaps even biopsy

Who's The More Foolish: The Fool or the Fool Who Follows Him?

- Patients may come in with a PMH of GERD, PUD, gastritis
  - How was this determined?
  - What other workups have been performed?
  - In what setting?
  - Do we have access to those workups?
- Have a healthy amount of suspicion

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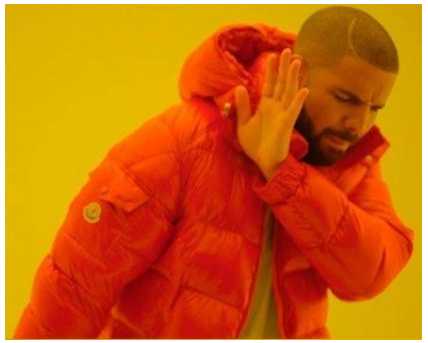
I’ve Got a Bad Feeling About This – Treating Abdominal Pain

- Do not withhold abdominal pain meds; no evidence that analgesia → diagnostic errors
- “GI cocktail” / “pink lady” – depends on your practice, but usually:
  - liquid antacid like aluminum hydroxide / magnesium hydroxide (Mylanta; Maalox brand d/ced)
  - viscous lidocaine
  - sometimes Donnatal or other combination drug
    - Atropine for anticholinergic effect of < gastric acid secretion
    - Hyoscyamine for antispasmodic
    - Scopolamine for antipasmodic
    - phenobarbital (Donnatal) for analgesia – pregnancy Cat D, CP450 inducer
- No evidence that this cocktail is more efficacious for pain relief than liquid antacid alone

Treating Abdominal Pain – Other Antacids

- Proton pump inhibitor (PPI)
  - Omeprazole, pantoprazole
  - Time to maximum effect – 24 hours to 4 days
  - Pantoprazole bolus & infusion often given for GI bleed



- Histamine-2 receptor antagonist (H2RA)
  - Famotidine, cimetidine
  - Onset of action – 30 minutes if IV, 60 minutes in PO

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Treating Abdominal Pain – Motility Drugs

- Antispasmodics
  - Dicyclomine / Bentyl – PO, IM
  - Hyoscyamine / Levsin – PO, IV, ODT
- Increase GI motility
  - Metoclopramide / Reglan – FDA approved for tx of gastroparesis (DM?)

Treating Abdominal Pain – Opioids

- Morphine IV 0.05-0.1 mg/kg up to 10mg q15-20m
  - Weight-based regimen is recommended by SAEM, Tintinalli's, Rosen's
  - Titrate to pain relief or respiratory depression
  - Modify dose for age, history of opioid tolerance, other comorbidities
- Consider fentanyl or hydromorphone (renal dysfunction?)
  - Understand pharmacodynamics and polypharmacy issues

Don’t Be Too Proud of This Technological Terror You’ve Constructed

- The resolution of abdominal pain with any of these pain medication does not mean the etiology is benign
- Does this patient’s emergent problem naturally have a self-limited duration of pain?
- Does a sudden improvement of pain actually mean the problem is worse?

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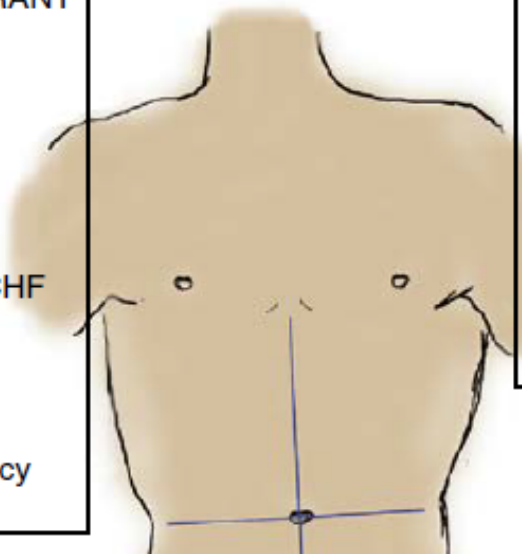
You'll Find I'm Full of Surprises

- This is an incomplete list

DIFFUSE PAIN
Peritonitis
Pancreatitis
Sickle cell crisis
Early appendicitis
Mesenteric thrombosis
Gastroenteritis
Dissecting or ruptured aneurysm
Intestinal obstruction
Diabetes mellitus
Inflammatory bowel disease
Irritable bowel

RIGHT UPPER QUADRANT PAIN
Biliary colic
Cholecystitis
Gastritis
GERD
Hepatic abscess
Acute hepatitis
Hepatomegaly due to CHF
Perforated ulcer
Pancreatitis
Retrocecal appendicitis
Myocardial ischemia
Appendicitis in pregnancy
RLL pneumonia



LEFT UPPER QUADRANT PAIN
Gastritis
Pancreatitis
GERD
Splenic pathology
Myocardial ischemia
Pericarditis
Myocarditis
LLL pneumonia
Pleural effusion

Never Tell Me The Odds – Higher Risk Patients

BOX 23.1 Populations at Higher Risk When Presenting With Abdominal Pain

- Age greater than 60 years
- Pregnant women
- Patients with previous abdominal surgeries, particularly bariatric surgery
- Recent instrumentation of the gastrointestinal tract
- Immunocompromised patients, including low-dose steroid therapy or immune modulator use
- Patients with known vascular disease
- Patients with known abdominal/pelvic malignancy

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Your Eyes Can Deceive You – Labs

- CBC
- CMP (or BMP + LFTs… can get Total & Direct Bilirubin)
- Lipase
- UA
- HCG
- Beta-hydroxybutyrate if concerned about DKA
- Lactate (tissue perfusion?)
- Stool guaiac / hemoccult

Imaging

- Plain radiographs – poor sensitivity but can be done quickly and see obvious badness
- CT – IV contrast, angiography?
- US

Let's Keep A Little Optimism Here – Emergency Diagnoses to Not Miss

Cause	Epidemiology	Etiology	Presentation	Physical Examination	Useful Tool(S)	Pearls/Pitfalls
Ruptured ectopic pregnancy	Occurs in females of childbearing age. No method of contraception prevents ectopic pregnancy. Approximately 1 in every 100 pregnancies. Heterotopic pregnancy seen increasingly with ART.	Risk factors include nonwhite race, older gestational age, prior history of sexually transmitted diseases (STD) or pelvic inflammatory disease (PID), infertility treatment (ART), intrauterine contraceptive device (IUD) placed within the past year, tubal sterilization, or previous ectopic pregnancy.	Severe, sharp, constant pain often localized to the affected side. More diffuse abdominal pain with intraperitoneal hemorrhage. Signs of shock may be present.	Shock or evidence of peritonitis may be present. Lateralized abdominal tenderness. Localized adnexal tenderness or cervical motion tenderness increases the likelihood of ectopic pregnancy. Vaginal bleeding does not have to be present.	β-hCG testing should be considered in all females of childbearing age or reproductive capacity (10–55 years old); Pelvic ultrasonography is a critical diagnostic tool in evaluation. FAST examination is useful in evaluating for free fluid in patients with shock or peritonitis.	ART patients should not be considered to have an ectopic pregnancy ruled-out when intrauterine pregnancy is found given incidence of multiple gestations with ART.

Cause	Epidemiology	Etiology	Presentation	Physical Examination	Useful Tool(S)	Pearls/Pitfalls
Perforated viscus	Incidence increases with advancing age. History of peptic ulcer disease or diverticular disease common.	More often a duodenal ulcer that erodes through the serosa. Colonic diverticula, large bowel, and gallbladder perforations are rare. Spillage of bowel contents causes peritonitis.	Acute onset of epigastric pain is common. Vomiting in 50%. Fever may develop later. Pain may localize with omental walling off of peritonitis. Shock may be present with bleeding or sepsis.	Fever, usually of low grade, is common; worsens over time. Tachycardia is common. Abdominal examination reveals diffuse guarding and rebound. "Board-like" abdomen in later stages. Bowel sounds are decreased.	WBC count is usually elevated owing to peritonitis. Amylase may be elevated; LFT results are variable. The upright radiographic view reveals free air in 70%–80% of cases with perforated ulcers.	Elderly rarely have rigidity (absent in almost 90% of cases).
Massive gastrointestinal bleeding	More common in adults ages 40–70.	History of peptic ulcer disease, gastritis, or liver disease; prior GI bleeding history	Nausea and vomiting typically occur with upper GI bleeding with hallmark coffee-ground or hematemesis; slow transit can lead to melena; lower GI bleeds associated with poorly localized discomfort and bright red blood per rectum.	Non-focal abdominal tenderness; large bleeds may result in tachycardia or hypotension with significant blood loss. Hemoglobin/hematocrit may be falsely reassuring in acute, massive bleeding.	Stool guaiac if there is a question of bleeding; massive bleeds may require emergent consultation by gastroenterology, interventional radiology, or surgery to intervene.	Stigmata of liver disease should prompt consideration of esophageal varices.

Causative Disorder or Condition	Epidemiology	Etiology	Presentation	Physical Examination	Useful Test(s)
Acute appendicitis	Peak age in adolescence and young adulthood; less common in children and elders. Higher perforation rate in women, children, and elders, or in pregnancy. Mortality rate is 0.1% but increases to approximately 2% with perforation.[11]	Appendiceal lumen obstruction leads to swelling, ischemia, infection, and perforation.	Epigastric or periumbilical pain migrates (+LR 1.8 child/3.2 adult) to RLQ over 8–12 hours. RLQ pain common (+LR 1.4 in child/7.3–8.5 in adult).[12] Later presentations associated with higher perforation rates. Pain, low-grade fever (+LR 1.2 in child/1.9 in adult), and anorexia (80%) common; vomiting less common (50%–70%).	Mean temperature 38°C (100.5°F). Higher temperature associated with perforation. RLQ tenderness (90%–95%) with rebound (40%–70%) in majority of cases. Rectal tenderness in 30%.	Leukocyte count is nonspecific and may be normal or elevated. If elevated, may or may not show left shift. Urinalysis may show sterile pyuria. CT is sensitive and specific. US may have use in those with non-obese body habitus, women, pregnancy, and children with RLQ pain. MRI has excellent diagnostic accuracy in pregnant women.
Biliary tract disease	Peak age 35–60 years old; unlikely in patients younger than 20. Female-to-male ratio of 3:1. Risk factors include multiparity, obesity, alcohol intake, and use of birth control pills.	Presence of gallstones may cause biliary colic. Impaction of a stone in cystic duct or common duct may lead to cholecystitis or cholangitis, respectively.	Crampy RUQ pain radiates to right subscapular area. Prior history of pain is common. May have nausea or postprandial pain. Longer duration of pain favors diagnosis of cholecystitis or cholangitis.	Temperature is normal in biliary colic, may be elevated in cholecystitis or cholangitis. RUQ tenderness, rebound, or jaundice (less common) may be present.	WBC may be elevated in cholecystitis and cholangitis. US may demonstrate wall thickening, pericholecystic fluid, stones, or duct dilatation. Hepatobiliary scintigraphy (HIDA scan) evaluates gallbladder function.

Causative Disorder or Condition	Epidemiology	Etiology	Presentation	Physical Examination	Useful Test(s)
Intestinal obstruction	Peaks in infancy and in the elderly. More common with history of previous abdominal surgery.	Adhesions, carcinoma, hernias, abscesses, volvulus, or infarction. Obstruction leads to vomiting, extravascular fluid accumulation; strangulation and necrosis of bowel may occur.	Crampy diffuse abdominal pain associated with vomiting.	Vital signs are usually normal unless dehydration or bowel strangulation has occurred. Abdominal distention, hyperactive bowel sounds, and diffuse tenderness. Local peritoneal signs may indicate strangulation.	Elevated WBC count may suggest advanced disease or strangulation. Volume depletion may be severe. Electrolytes may be abnormal if associated with vomiting or prolonged symptoms. Abdominal radiographs, CT, and ultrasound are useful in diagnosis.
Acute pancreatitis	Peak age is adulthood; rare in children. Male preponderance. Alcohol abuse and biliary tract disease are risk factors.	Alcohol, gallstones, hyperlipidemia, hypercalcemia, or endoscopic retrograde pancreatography causing pancreatic damage, saponification, or necrosis. ARDS, sepsis, hemorrhage, or renal failure may be secondary complications.	Acute onset of epigastric pain radiating to the mid-back. Nausea and vomiting are common. Pain disproportionate to physical findings. Adequate volume repletion is important in the initial therapy.	Low-grade fever is common. Patient may be hypotensive or tachypneic. Some epigastric tenderness is usually present. Because the pancreas is a retroperitoneal organ, guarding or rebound not present unless condition is severe. Flank or periumbilical ecchymosis may be seen with hemorrhagic pancreatitis.	Serum lipase is the test of choice. Ultrasound examination may show edema, pseudocyst, or biliary tract disease. CT scan may show abscesses, necrosis, hemorrhage, or pseudocysts. Ultrasound is recommended to assess for gallstones while CT is recommended if severe acute pancreatitis is suspected.

Taking One Last Look At My Friends

- Every acute abdominal pain patient gets a repeat abdominal exam
- Every EKG gets a second EKG

You're All Clear, Kid, Now Let's Blow This Thing And Go Home

- Understand when patients with normal-ish workups still may need to get consulted / admitted
  - High risk chest pain
  - Normal biliary US with persistent pain (especially if > LFTs)
  - Female pelvic pain with large cysts but a normal pelvic ultrasound

Discharge Diagnoses

- Your discharge diagnoses should reflect the things that you objectively found
- Sometimes the diagnosis is just “abdominal pain” and that’s OK
- Also include:
  - Abnormal vital signs, especially “elevated BP without diagnosis of hypertension” (R03.0)
  - Lab abnormalities: “anemia,” “elevated LFTs,” “hematuria”
  - “Abnormal imaging findings”
- If you definitively diagnose someone with a benign condition that you can’t actually diagnose, will it seem to the patient that you have excluded other more serious problems?

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Discharge Instructions

- There are often pre-printed discharge instructions for
  - Abdominal pain
  - Incidental abnormal imaging finding
  - The different lab abnormalities
- You may think it's GERD / PUD / gastritis
  - It's OK to give those discharge instructions and even recommend meds that may help
  - Make it clear that this is just one possible diagnosis and not a definitive diagnosis

Follow Up

- Every patient needs a plan for follow up
- There are more tests that may need to be done; just not in the ED
- The plan has to make sense for the patient's circumstances
  - Consider admission, consultation, referral for patients with social determinants of health or other issues affecting their ability to follow up
- Patients should return in 8-12 hours if not clearly improved

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Objectives

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WE’RE HAPPY TO HELP

Questions?

(before some closing slides)

www.totalem.org

Podcast #206 - ATLS Episode 0: The Beginning of an Adventure

6/30/2020

1 COMMENT

PA Chip Lange (rural EM & POCUS guru) and PA Mike Sharma (urban/ suburban EM & Army veteran) go chapter-by-chapter on ATLS standards, tell tales, and look ahead to emerging trends in trauma care.

(It's a work in progress.)

2view.fireside.fm

Conclusion

- We cannot definitively dx GERD / PUD / gastritis in the standard ED patient
- Don’t let a “history” of these conditions this mislead you
- Please treat the patient’s pain
  - However, resolution of pain doesn’t mean that a bad problem is excluded
- Keep a broad differential and understand who your risky patients are

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Conclusion

- Understand the limitations of your diagnostics
- Repeat your physical exam, document findings, and be prepared to change your plan
- Everyone needs a follow-up outpatient visit, if not a repeat exam in the ED
  - The plan has to make sense for the patient's circumstances
  - Document in their discharge instructions that they are to come back in 8-12 hours if their acute abdominal pain is not improved or worsened, or if there are any new or worsening symptoms

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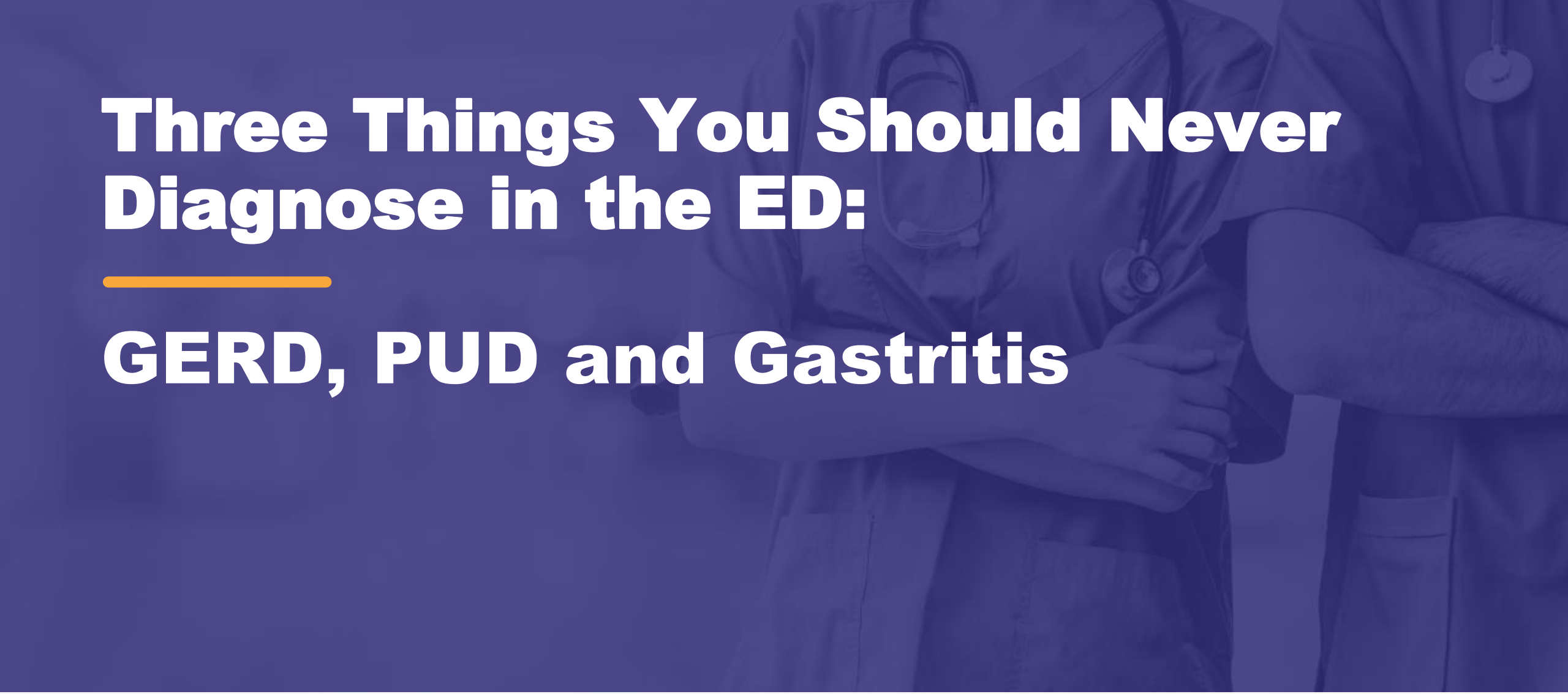

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