51y F with pmhx of cholelithiasis and diverticulitis presents to ED for vomiting and epigastric pain x 10 hours.

Answers to questions asked for history:

- Pt states her pain is currently a 9/10 and constant but she is not actively nauseas now
- She states that she vomited 10-15 times, starting at 2pm after she ate and the last few times, she vomited it was yellow.
- Denies any blood in vomitus.
- She did not eat anything new; it was rice and beans as she normally eats
- Pt states that she has been to the hospital before in 2016 for stomach pain and vomiting but cannot recall if this pain was similar.
- Pt has tried pepto but it did not help.
- Moving around makes the pain worse and she has not found anything that alleviates it
- Denies any sick contacts.
- Denies any chest pain, diaphoresis, SOB, dizziness/syncope
- Denies fever, diarrhea/constipation
- Denies unexpected weight loss, recent travel
- Denies recent URI symptoms
- She has not started menopause and still gets monthly periods and is sexually active
- She has a not had her gall bladder removed
- She does not take any medications daily

Physical exam:

- Vitals: BP: 136/81 HR: 70 RR: 18 SpO2: 99%
- Wt: 176lb Ht: 5'4" BMI: 30.2
- General, subjective**:** A&O x 3 female sitting upright in bed; appears stated age appears slightly uncomfortable with pain but is interactive to questioning.
- Cardiovascular: S1 S2 present, RRR, no murmurs/rales/gallops
- Respiratory: CTA B/L, no wheezing, rales or rhonchi
- Abdomen**:** Soft, non-distended, (+) tender to epigastric area, (-) tenderness to RUQ, RLQ, LQU, LLQ and suprapubic area, (-) obturator, (-) rovsing, (-) murphys
- Extremities: No leg swelling or tenderness. No ecchymosis, petechia or limited ROM/strength.
- Neuro: AAO x 3, physiological exam with no focal deficits
- Mental Status: She is alert and oriented to person, place, and time; mood is cooperative.
- Skin: no rashes or open lacerations or wounds.

Differential Diagnosis

1. Cholecystitis
    - Due to epigastric pain with nausea/vomiting, age, sex, pmhx of cholelithiasis

        - This “constant” pain presentation is not the typical clinical picture of Cholelithiasis/cholecystitis but don’t want to rely too heavily on patient description of pain
2. Cholelithiasis
    - Due to epigastric pain with nausea/vomiting, age, sex, pmhx of cholelithiasis
        - This “constant” pain presentation is not the typical clinical picture of Cholelithiasis/cholecystitis but don’t want to rely too heavily on patient description of pain
        -
3. Pancreatitis
    - Due to epigastric pain with nausea/vomiting, age, sex, pmhx of cholelithiasis;
        - she denies ETOH but does have history of cholelithiasis and would need to check lipid panel for further risk factor assessment
4. Appendicitis
    - This could be the early stages of appendicitis in which there is epigastric pain before it migrates to RLQ; she still have her appendix
5. Hepatitis
    - Could be cause of epigastric pain and vomiting; lower on list because pt states she is fully vaccinated, cooks her own food and denies recent travel
6. MI
    - Due to her age and sex, cannot completely say this is not ACS; she denies any risk factors such as HTN, DM, HLD however she may be forgetting to mention or not aware she has these
7. Gastritis
    - This could be the cause for epigastric pain and vomiting however this is a relatively benign ddx and is mostly clinically diagnosed only once other more urgent ddx have been disproven
8. Peptic ulcer
    - This could be the cause for epigastric pain but would less explain the intractable vomiting. This is a relatively benign ddx and is mostly clinically diagnosed only once other more urgent ddx have been disproven
9. Diabetic ketoacidosis or an infectious cause
    - This stomach pain, nausea and vomiting could be from another source of inflammation. It is unlikely due to no other systemic responses such as hypotension, tachycardia, or fever but this cannot be missed
10. Pregnancy
    - Patient has not gone through menopause and is sexually active

Tests ordered:

<u>Labs</u>:

1. CBC with diff
    - Reason to order: WBC being of particular interest also hegb for PUD
        - Results:

        - WBC: 13K
2. BMP
    - Reason: for liver enzymes for hepatitis
        - Result:
            - AST: 332
            - ALT: 170
        - Likely due to acute biliary obstruction however steatosis also found on US
3. Lipid panel
    - Reason: for further risk stratification if it is pancreatitis
        - Total: 250
        - HDL: 40
        - LDL: 210
        - Triglycerides: 280
4. Lipase
    - Reason: to rule in pancreatitis
        - Results: Lipase > 3000
5. Ketones
    - Reason: DKA
        - Results: normal
6. Lactate
    - Reason: sepsis investigation
        - 2.8; not sepsis criteria but some organ ischemia
7. Urinalysis
    - Reason: DKA
        - Not abnormal findings
8. Urine HCG
    - Reason: pregnancy
        - Result: negative
9. Troponin
    - Reason: due to age and high risk for atypical chest pain (older woman)
        - Results: Negative troponin

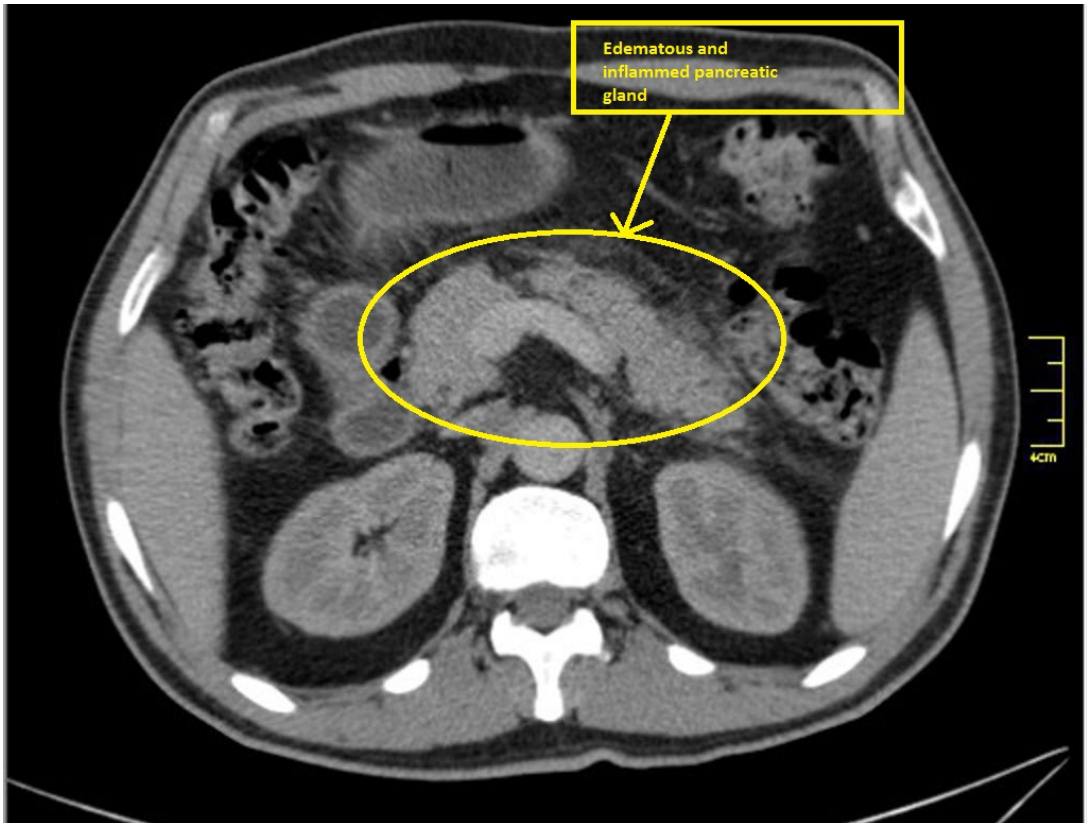
Imaging

1. US of abdomen
    - Reason: for cholecystitis and cholelithiasis
    - Results:
        - CBD:4 mm
        - RIGHT KIDNEY:9.3 cm
        - LEFT KIDNEY:10.6 cm
        - SPLEEN:9.7 cm
        - LIVER: Mildly echogenic parenchyma.
        - GALL BLADDER : Cholelithiasis. No wall thickening. No sonographic
            - Murphy's sign was observed, but the patient was administered pain medication prior to the study.
        - BILE DUCTS: No intrahepatic or extrahepatic dilatation..

- PANCREAS : Visualized portion unremarkable.
- SPLEEN: without focal mass.
- KIDNEYS: Mild fullness of the right renal collecting system. There is no evidence of calculus or left-sided hydronephrosis.
- ASCITES : None
- VASCULAR : Proximal aorta and IVC are unremarkable.
- IMPRESSION: Cholelithiasis without definite sonographic evidence of acute cholecystitis. HIDA scan should be considered for further evaluation. Mild right hydronephrosis. Echogenic hepatic parenchyma, suggestive of steatosis versus hepatocellular disease.

2. CT scan WITH IV contract

Image not from



case; borrowed from https://www.wikidoc.org/index.php/Acute_pancreatitis_C

- Reason: pancreatitis and hepatitis
  - Result:
    - peripancreatic fluid/stranding
    - dilatation of main pancreatic duct and its side branches
    - several small stones within the cystic duct
      - Impression: Pancreatitis from choledocholithiasis
    - Impression: Pancreatitis from choledocholithiasis

3. Chest x-ray
   - Reason: PUD and possible perforated
     - Result: no abnormal findings
4. EKG
   - Reason: due to age and high risk for atypical chest pain (older woman)
     - Result: Normal EKG

Treatment:

- Fluid: NaCl 1000ml @ 1000ml/hr was given as the diagnosis was made of Pancreatitis
- Nausea/indigestion
  - Famotidine 20mg IV Q 6 hours
  - Zofran 4mg as needed; Q4-6 hours; max: 24mg/day
- Pain management:
  - Acetaminophen 975mg PO q6h; max dose is 4,000 mg in 24h
    - If needed: Morphine 4mg for pain Q 2-4 hr
- Inpatient consult to surgery for admission
  - She is going to need a endoscopic retrograde cholangiopancreatography (ERCP) to remove the stones and prevent further inflammation in the pancreas

Education:

- **Education on diagnosis and how this happened**
  - What is the gall bladder and what is the pancreatitis?
  - <u>How did my gallbladder cause pancreatitis?</u>
    - Because the gallbladder and pancreas share a drainage duct, gallstones that lodge in this duct can prevent the normal flow of pancreatic enzymes and trigger acute pancreatitis
  - <u>How serious is it? What is the treatment?</u>
    - Pancreatitis is a serious condition and recurrent attacks have a mortality rate of 10%
    - The goals of treatment of acute pancreatitis are to alleviate pancreatic inflammation and to correct the underlying cause. Treatment usually requires hospitalization for at least a few days.
    - Intravenous fluids are given to help prevent dehydration.
    - Many patients with moderately severe and severe acute pancreatitis may not be able to eat in the early course of their

illness. Instead, you may be fed through a tube placed through the nose or mouth into the small intestine.
        - In people who have gallstone pancreatitis, the treatment of pancreatitis is usually coupled with the treatment of gallstones. This may include a procedure to relieve the blockage caused by the gallstone(s).
    - <u>How did this happen?</u>
        - Experts do not know for sure why gallstones develop. However, many people have bile with an abnormally high concentration of cholesterol and/or calcium from which stones may develop. There are a number of factors that increase the risk of developing gallstones
            - Sex: more common in female
            - Age: risk increases with age
            - Family history and genetics
            - Obesity
            - Lack of physical activity
            - Frequent fasting and rapid weight loss
- **Surgery education**
    - She is going to need the gallstone removed in order for the pancreatitis to resolve; she may want to also discuss with the surgeons removing her gallbladder due to frequent history of gall bladder infection and now pancreatitis from gall bladder stones
    - <u>What is the surgery called?</u>
        - Endoscopic retrograde cholangiopancreatography (ERCP) is the examination of an internal body part with an instrument called an endoscope. Endoscopic retrograde cholangiopancreatography (ERCP) is a technique that uses X-ray to view the bile and pancreatic ducts
        - When the place where the stone is found a variety of balloons and baskets attached to the catheters can be passed into the ducts allowing stone removal.
        - Cholecystectomy
            - Gallstone pancreatitis recurs in 30 to 50 percent of people after an initial attack of pancreatitis. Surgical removal of the gallbladder (cholecystectomy) is often recommended during the same admission in mild cases to prevent a recurrence
- **Diet education:**
    - She has high cholesterol and imaging that suggest steatosis or fatty liver
    - Lower saturated fat diet and more fruits, vegetables, fiber and healthy fats
- **Weight loss education**
    - As obesity is a risk factor for cholecystitis, cholecystitis and pancreatitis