

Cholecystitis

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Definition: Inflammation of the Gallbladder, usually due to obstruction of the cystic duct by stones or edema.

Causes: Almost always due to gallstones causing obstruction; 10% of cholecystitis due to acalculous cholecystitis (high mortality rate). Obstruction often results in irritation of mucosa of GB (?due to lysolecithin, produced from lecithin, a normal bile const), then inflammation and often infection (50%).

Scope of Problem: Gallstones are quite prevalent in the adult population (10-20%) with 10% of symptomatic patients developing cholecystitis or biliary colic. Approx. 500K cholecystectomies done each year in US.

Differential Diagnosis: sphincter of Oddi dysfunction, gallbladder dyskinesia, pancreatitis, appy, acute hepatitis, PUD, right kidney problem, Right sided pneumonia or PE, perforated viscus, subhepatic abscess, Fitz-Hugh-Curtis (perihepatitis due to gonorrhea), black widow spider bite

Diagnosis:

History: RUQ pain or epigastric pain, can sometimes radiate to right shoulder or back, also often accompanied by N/V/ Fevers. Classically, pain exacerbated by eating, especially fatty meals.

PE: RUQ tenderness, Murphy's sign – cessation of inspiratory effort when pressing in RUQ/GB fossa (inspiration allows GB to fall downwards) manually or with ultrasound

Labs: can see elevated WBC count, mild transaminase increase, sometimes mild increase in Bili (usually <4x increase; if >4x, consider choledocholithiasis)

Imaging: No real good clinical way to diagnose without some type of imaging – hx/pe/labs can be suggestive but no single sign is very useful. Best is Murphy's sign with a LR of around 3 in one meta-analysis.

Ultrasound: RUQ ultrasound is generally the first line-test for diagnosis. What to look for on U/S?

- Stones: the presence of stones plus a good history is suggestive for not absolutely diagnostic (specificity 77% but sensitivity of 97%)
- GB wall thickening/Pericholecystic fluid: These are very specific in the presence of stones, but have poor sensitivity by themselves (sensitivity only 25-45%, specificity 90-99%). GB wall can be thickened in patients with low albumin.
- Sonographic Murphy's sign: Still somewhat controversial how good this is by itself. Note this is different than a classic PE Murphy's sign. It is the presence of maximal tenderness when the US probe is over the gallbladder. Some studies suggest that this plus stones is quite good with PPV of 90%.

Combination of signs on U/S: Meta-analysis with adjustment for verification bias (occurs where not everyone gets the gold standard, usually more of those with a positive test get the gold standard and this overestimates sensitivity and underestimates specificity) suggests that stones +

either GB wall thickening/pericholecystic fluid/sono-murphy's has a sensitivity of 88% and specificity of 80%.

HIDA scan: Radionucleotide scan with tracer that is taken up into biliary system, and secreted into bile. Non-visualization of the gall bladder at 30 minutes is usually considered a positive test. (Suggests obstruction of cystic duct by stone or edema).

Sensitivity is about 97% and specificity is about 90%. Often a 2nd line test where U/S is not diagnostic.

False positives can occur in severe liver disease(result in abnormal traced uptake), TPN (GB already full – no traced goes in), biliary spinchterotomy (bile takes path of least resistance into duodenum, bypassing GB), critically ill patients.

Morphine as adjusted to HIDA: theory is that this increased Spinchter of Oddi pressure, resulting in better gradient for flow into GB – no good data on this.

CT: Not classically used but fairly specific if find air in GB wall. Sensitivity is not very high (<80%).

ERCP: Used when choledocolithiasis suspected usually when Bili >3-4x normal or other evidence (sonographic) of BD stones.

Treatment:

1. Surgery is definitive therapy
 2. In cases of cholodocolithiasis often ERCP first, surgery second
 3. Antibiotics – not much evidence, but generally used in those with high suspicion of cholecystitis. Must cover wide range of pathogens: E.coli, enterococcus, enterobacter, occasionally anerobes
- Old classic: Amp + Gent (due to synergy for enterococcus), now also used Unasyn, Zosyn, Meropenem

Timing of Surgery:

Now: Healthy individuals who do not clinically improve with trial of supportive care of who have history of biliary colic (as 70% reoccurrence rate over 2 yrs)

Delay: In presence of sepsis, other co-morbid active conditions, choledocolithiasis (ERCP first)

Never: Extreme surgical risk – can decompress gallbladder with percutaneous procedure

Classic Syndromes/Path:

Emphysematous: often clostridium species causes this...need ABX and early chole

Acalculous: no stones, associated with increased morbidity/mortality. Often occurs in critically ill, immunosuppressed including diabetics, late pregnancy, TPN

Hydrops: usually due to chronic obstruction, get fluid distension (clear- no bile)

Mirizzi syndrome: stone in cystic duct compressing common bile duct (mimics choledocolithiasis)