



GHAPP

Gastroenterology & Hepatology
Advanced Practice Providers

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RUQ Pain: Differential Diagnosis

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Speakers Bureau: AbbVie, Clinical Area- Hepatitis C

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Definition

RUQ Pain – Pain involving the liver or biliary tree that is generally located in the right upper quadrant, but it may radiate to the back or epigastrium. Hepatic pain only results when the liver capsule is “stretched.” Most RUQ pain is related to the biliary tree.

ROME IV Criteria for Biliary Pain

- Pain located in epigastrium and/or RUQ
- Episodes lasting 30 min or longer
- Recurrent symptoms occurring at different intervals (not daily)
- The pain builds up to a steady level
- Pain is severe enough to affect ADLs or lead to ER visit
- Pain not significantly (<20%) related to BM
- Pain not significantly (<20%) relieved by postural change or acid suppression
- Suggestive criteria include pain with n/v, radiating to back or right infrascapular region, awakening from sleep

Biliary Sources

- Cholecystitis
- Acute Cholangitis
- Sphincter of Oddi Dysfunction
- Mirizzi Syndrome
- AIDS Cholangiopathy
- Functional Gallbladder Disorder
- Cholangiocarcinoma

Cholecystitis

Acute

- Syndrome of RUQ pain, fever, WBC, most common complication of gallstone disease
- Pain is steady, severe and typically prolonged (>4-6hrs)
- May radiate to shoulder/back
- History of fatty food 1 hr or more prior to initial onset of pain

Chronic

- Chronic inflammatory cell infiltration of gallbladder seen on histopathology
- Almost invariably associated with gallstones
- Typically mild, at times moderate, RUQ pain

Cholecystitis

Acalculous

- Acute necroinflammatory disease; gallbladder stasis and ischemia
- Accounts for 10% of acute cholecystitis cases
- Risk factors include AIDS, immunosuppressed (microsporidia, cryptosporidium, CMV), secondary infection with enteric pathogens (*E coli*)

Acute Cholangitis

- Also known as Ascending Cholangitis
- Stasis and infection of the biliary tree typically caused by biliary calculi (28-70%), benign stricture (5-28%), malignancy (10-57%), post-op ERCP/Laparoscopic cholecystectomy
- Characterized by Charcot's Triad: fever, RUQ, and jaundice

Sphincter of Oddi Dysfunction

Biliary or pancreatic obstruction related to mechanical or functional abnormalities. The term encompasses both Sphincter of Oddi stenosis and dyskinesia.

- Commonly recognized in post-cholecystectomy patients
- Most common diagnosis with recurrent idiopathic pancreatitis
- Pain is RUQ/epigastric lasting 30 min to several hours

Mirizzi Syndrome

Common hepatic duct obstruction secondary to extrinsic compression from impacted stone in cystic duct.

- Occurs 0.05-4% of patients undergoing surgery for cholelithiasis
- Approximately 50-77% are women
- Symptoms include RUQ pain, jaundice and fever

AIDS Cholangiopathy

Syndrome of biliary obstruction resulting from infection related strictures of biliary tract.

- Incidence has decreased since potent ART therapies
- *Cryptosporidium parvum* most common pathogen
- Symptoms include RUQ pain, epigastric pain and diarrhea.

Functional Gallbladder Disorder

It is also known as Gallbladder Dyskinesia or spasm. Biliary pain in absence of gallstones, sludge or microlithiasis.

- Results from gallbladder dysmotility
- Dysmotility may result from bile supersaturated with cholesterol which increases bile viscosity or primary motility disorder
- Associated with delayed gastric emptying and colonic transit

Cholangiocarcinoma

Bile duct cancers arising from epithelial cells of the intrahepatic, perihilar or distal biliary tree.

- 5-10% are intrahepatic
- Perihilar (bifurcation extending to cystic duct) account for 60-70% of extrahepatic tumors
- Tumors at bifurcation are commonly known as Klatskin tumors
- Symptoms include jaundice, pruritus, clay-colored stools, dark urine, pain described as constant dull ache RUQ

Liver Sources

- Alcoholic hepatitis
- Drug induced liver injury
- Liver abscess
- Viral hepatitis
- Budd-Chiari Syndrome
- Liver flukes
- Hepatic Sinusoidal Obstruction Syndrome
- Ischemic hepatitis

Alcoholic Hepatitis

- History of daily heavy alcohol use (>100g daily) for >20 years
- Patients may have increase consumption recently due to stressful event
- Often between 40-50 years of age
- Typically associated with alcoholic fatty liver (with or without NASH) and cirrhosis
- Symptoms include jaundice, anorexia, fever, ascites, muscle wasting, RUQ/epigastric pain

Drug-Induced Liver Injury

- Accounts for 10% of all acute hepatitis cases
- >1,000 prescriptions and herbal products have been identified (Database accessible at www.NIH.gov)
- Often between 40-50 years of age
- Acetaminophen, followed by antibiotics, is most common in US
- Amoxicillin-clavulanate is most common worldwide
- Injury can be hepatotoxic or cholestatic
- Symptoms include malaise, fever, anorexia, nausea/vomiting, jaundice and RUQ pain

Less Common Hepatic Sources

- **Liver Abscess** – Worldwide most common bacterial pathogens are klebsiella pneumonia, streptococcus milleri, entamoeba histolytica.
- **Acute Viral Hepatitis A,B, and C**
- **Budd-Chiari Syndrome** – Hepatic venous outflow obstruction

Less Common Hepatic Sources

- **Liver Flukes** – Trematode flatworm infection. Humans are incidental hosts. Most often acquired by eating watercress
- **Hepatic Sinusoidal Obstruction Syndrome** – Occurs in patients undergoing hematopoietic cell transplant
- **Ischemic Hepatitis (shock liver)** – Diffuse hepatic injury resulting from acute hypoperfusion, sickle cell crisis, hepatic artery thrombosis

Case Study #1

32 y/o male with 1 week history jaundice, pruritus and RUQ discomfort. He denies ETOH. He is obese (BMI 35) and admits to poor diet. He reports family history of gallbladder disease. No routine medications. He was treated for sinus infection 3 weeks ago at Urgent Care Clinic. V/S normal. Excoriations are seen on his extremities.

Case Study #1

Test Results – ABD U/S negative for gallstones/GB wall thickening, no CBD dilation or hepatic abnormality

Lab Results – INR 1.0, Alb 3.8, Alk Phos 580, ALT 42, AST 38, T.Bili 8.6, EBV neg, ANA neg, ASMA neg

Case Study #1

What is most likely diagnosis?

1. Acalculus cholecystitis
2. Functional Gallbladder Disorder
3. Drug Induced Liver Injury
4. Viral Hepatitis A
5. Ascending Cholangitis

Case Study #1

What is most likely diagnosis?

3. Drug Induced Liver Injury

Case Study #2

46 y/o male is evaluated for ABD pain in the RUQ and fever of 1 month duration. He recently immigrated from Mexico. His medical history is unremarkable and he takes no medication. On physical exam temp is 37.7C (99.9F), other V/S norm. ABD exam shows tenderness to palpitation of RUQ. No scleral icterus is noted. Remainder of exam is normal.

Case Study #2

Test Results – ABD U/S of liver shows a fluid-containing structure and complex wall consistent with hepatic abscess in the right lobe. No gallstones. CBD normal

Lab Results – Show a leukocyte count of 12,000. H/H norm. T.Bili 2.0, AST 68, ALT 50

Case Study #2

What is most likely pathogen?

1. *Morganella morganii*
2. *Entamoeba histalytica*
3. *Moraxella catarrhalis*
4. *E coli*

Case Study #2

What is most likely pathogen?

2. *Entamoeba histalytica*



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References by request