

# Digestive Diseases

**Gallstones, Acute and Chronic Cholecystitis,  
Choledocolithiasis and Cholangitis**

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# Objectives

Be able to:

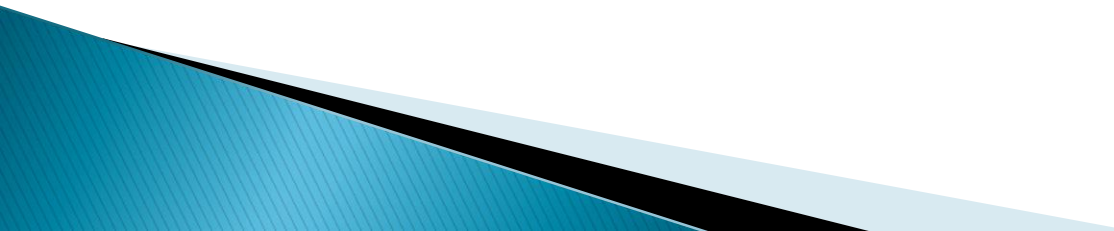
- **Recognize** the clinical presentation ...
- **Make** the diagnosis ...
- **Prescribe** treatment ...
- **Advise** appropriate screening ...  
(where applicable)
- **Recommend** preventive measures ...

... of/for the discussed digestive conditions.

# Gallstones Clinical Presentation

- Often asymptomatic
- “F” patient
- Classic biliary pain (“biliary colic”)
  - Almost always the first symptom
  - Occurs in 10-25% of patients (1-4% annually)
  - Acute cholecystitis develops in 20 % of symptomatic patients over time

# Gallstones Clinical Presentation

- Small intestinal obstruction due to “gallstone ileus”
  - Obstructive jaundice
  - Pancreatitis
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# Gallstones Diagnosis

- No lab study is specific for cholelithiasis
- **Imaging**
  - **Ultrasound** can detect gallstones in 97-98% of patients
  - **Plain X-ray** can detect the 10-30% of stones that are radiopaque calcium or pigment containing
  - **Magnetic resonance** cholangiopancreatography – reserved for cases of suspected common bile duct (CBD) stones

# Gallstones Treatment

Asymptomatic – don't treat

Except . . .

- Patients with an increased risk of gallbladder cancer
- Patients with larger stones
- Patients who have weight reduction surgery

# Gallstones Treatment

## Nonsurgical

### Diet

"Gallbladder disease elimination diet"  
by Dr. James Breneman

Oral bile acid dissolution (litholysis)  
Ursodeoxycholic acid (UDCA)

# Acute and Chronic Cholecystitis

## Clinical Presentation

### Acute attack

- Often after a large or fatty meal
- Sudden, severe pain
- Vomiting (75%)
- Fever



# Acute and Chronic Cholecystitis

## Clinical Presentation

### Acute attack

- RUQ tenderness
  - Associated with muscle guarding and rebound tenderness
- Jaundice (25%)
- Palpable gallbladder (15%)

# Acute and Chronic Cholecystitis

## Clinical Presentation

Chronic Cholecystitis results from

- Repeated episodes of acute cholecystitis
- Chronic irritation of the gallbladder wall by stones

Can present as acute attack or recurring episodes of biliary colic.

# Acute and Chronic Cholecystitis

## Diagnosis

### Laboratory Findings

- Elevated WBCs (12K-15K/mm<sup>3</sup>)
- Elevated total serum bilirubin (up to 4 mg/dL)
- Elevated alkaline phosphatase (up to 300 IU/L)
- Serum amylase may be moderately elevated

# Acute and Chronic Cholecystitis

## Diagnosis

- **Imaging**

- **Hepatobiliary iminodiacetic acid (HIDA) scan** can determine an obstructed cystic duct (the cause of acute cholecystitis in most patients).

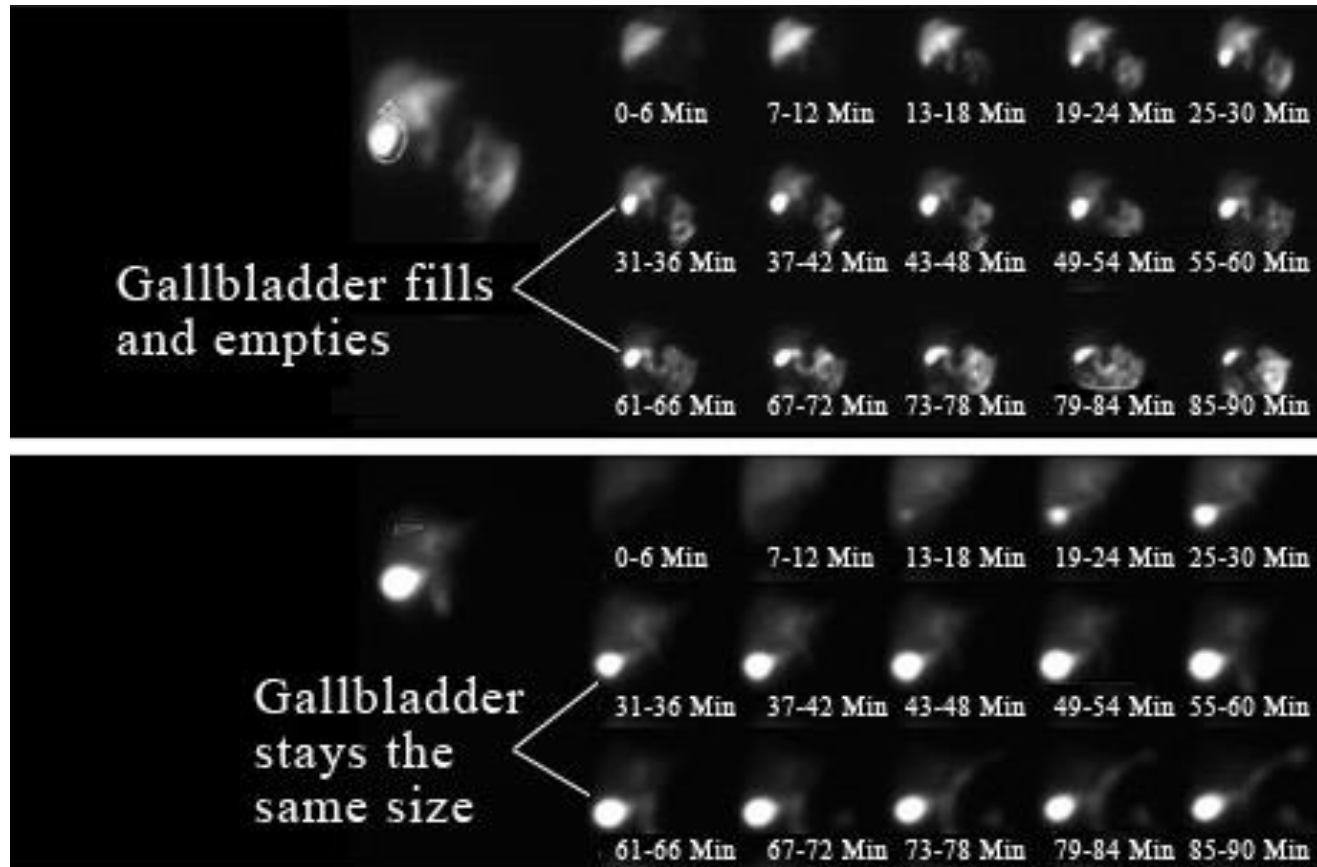
<http://forums.quattroworld.com/other/messages/801039.phtml>

- **Ultrasound** can detect gallstones, but not as sensitive for acute cholecystitis.



# Acute and Chronic Cholecystitis

## Diagnosis



# Acute and Chronic Cholecystitis

## Treatment

### Surgical

## THE GOLD STANDARD

### Elective laparoscopic cholecystectomy

Permanent cure

Cost effective compared to open surgery

Identical complication rate as open, but . . .

3 day shorter hospital stay

3 week shorter convalescence

# Acute and Chronic Cholecystitis

## Treatment

### Nonsurgical (Acute Attack)

- NPO
- IV alimentation
- Analgesics
- IV antibiotics

Cholecystectomy should be performed 2-4 days after admission due to high risk of recurrent attacks.



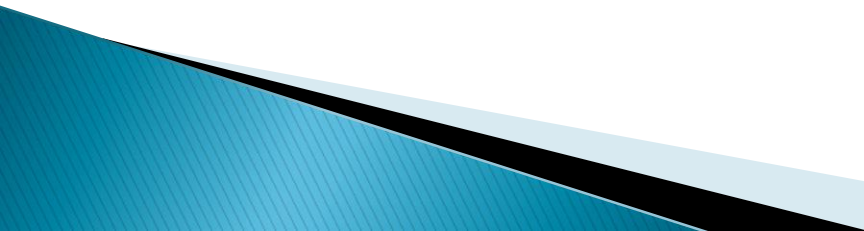
# Acute and Chronic Cholecystitis

## Treatment

If nonsurgical treatment necessary, be alert for

- Bile duct stone
- Fistulization to bowel
- Pancreatitis
- Gangrene or perforation of the gall bladder
- Gallbladder carcinoma
- Cholangitis

# Choledocholithiasis and Cholangitis

- Choledocholithiasis is stones in the common bile duct (CBD)
  - Seen in the elderly with gallstones
  - Stones usually originate in the gallbladder
  - Stones may form in the CBD after cholecystectomy
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# Choledocholithiasis and Cholangitis

## Clinical Presentation

### Charcot Triad

- Frequently recurring attacks of severe **RUQ pain** lasting for hours.
- **Fever and chills** associated with severe pain
- History of **jaundice** associated with episodes of abdominal pain

Reynolds Pentad above plus:

- **Altered mental status**
- **Hypotension (septic shock)**





# Choledocholithiasis and Cholangitis

## Clinical Presentation

### Calculous Biliary Obstruction

- Hepatomegaly
- RUQ and epigastric tenderness
- More than 30 days => liver damage (cirrhosis)
- Untreated leads to hepatic failure with portal hypertension

# Choledocholithiasis and Cholangitis

## Diagnosis

### Laboratory Findings

- Elevated alanine aminotransferase (ALT)  
Transient, but very high (can be  $> 1000$  U/L)
- Bilirubinuria with elevation of serum bilirubin if CBD remains obstructed
- Serum amylase elevation due to secondary pancreatitis

# Choledocholithiasis and Cholangitis

## Diagnosis

### Laboratory Findings

- Leukocytosis (in acute cholangitis)
- Prothrombin time prolonged

# Choledocholithiasis and Cholangitis

## Diagnosis

### Imaging

#### Ultrasound and CT

Can show dilated bile ducts

**Endoscopic Ultrasound, Helical CT, and Magnetic resonance** cholangiopancreatography can show CBD stones

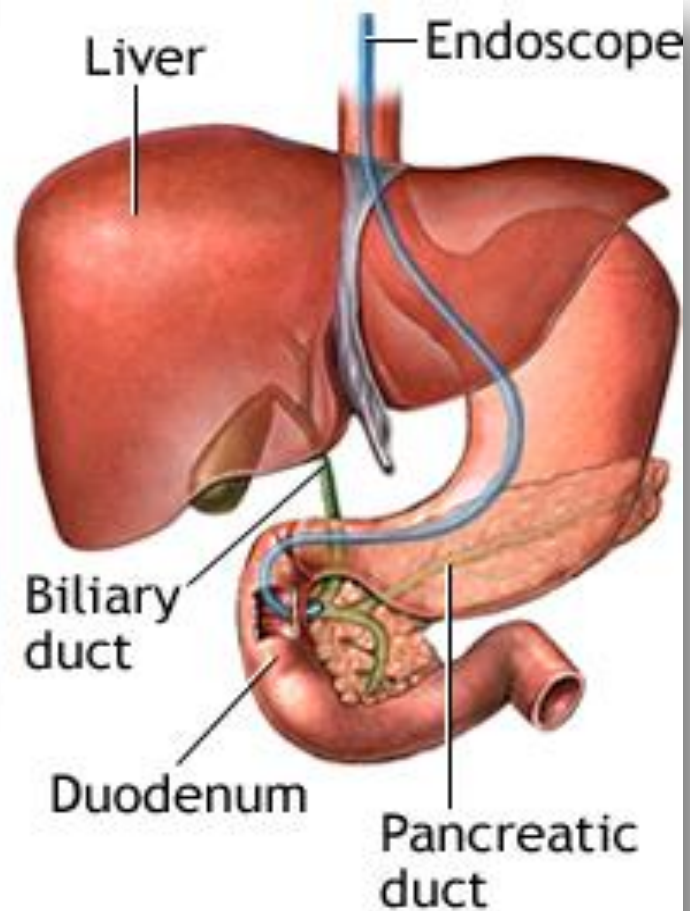
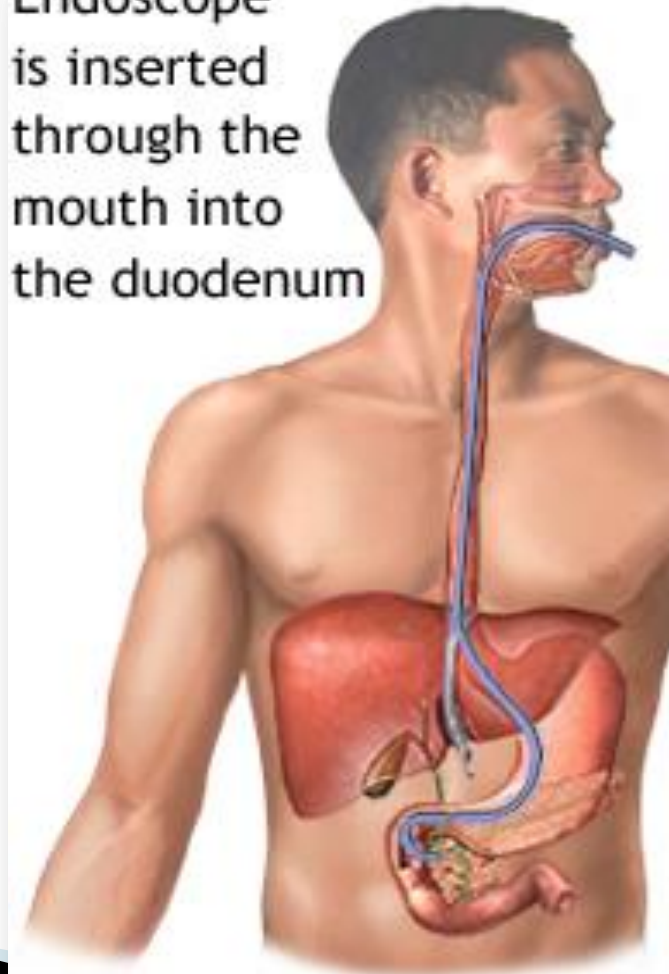
**Endoscopic retrograde cholangiopancreatography (ERCP)** can also treat with sphincterotomy and stone extraction



# Choledocholithiasis and Cholangitis

## Diagnosis

Endoscope is inserted through the mouth into the duodenum



# Choledocholithiasis and Cholangitis

## Treatment

Stones need to be removed even in asymptomatic patients

- Cholecystitis – endoscopic sphincterotomy followed by lap cholecystectomy within 72 hours
  - (within two weeks without cholecystitis)
- **OR**, can do lap cholecystectomy and CBD exploration.
  - Shorter hospitalization

# Choledocholithiasis and Cholangitis

## Treatment

Do ERCP with sphincterotomy before cholecystectomy if:

- Gallstones and cholangitis
- Jaundice (Total bilirubin  $> 4$  mg/dL)
- Dilated bile duct ( $> 6$  mm)
- Stones in CBD (seen on ultrasound or CT)

# Choledocholithiasis and Cholangitis

## Treatment

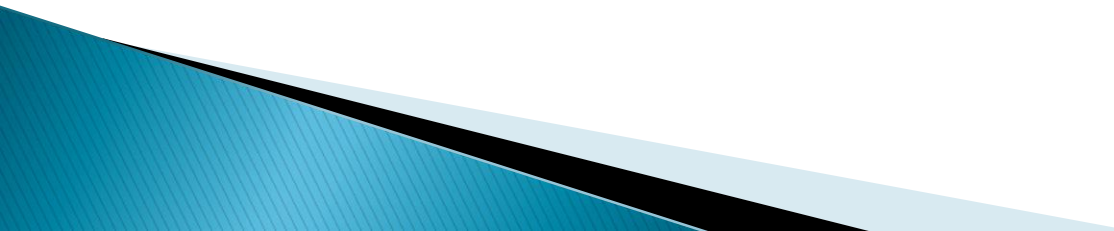
Choledocholithiasis discovered during lap cholecystectomy:

- Manage with endoscopic or open (if necessary) CBD exploration, or
- Post-op endoscopic sphincterotomy

# Choledocholithiasis and Cholangitis

## Treatment

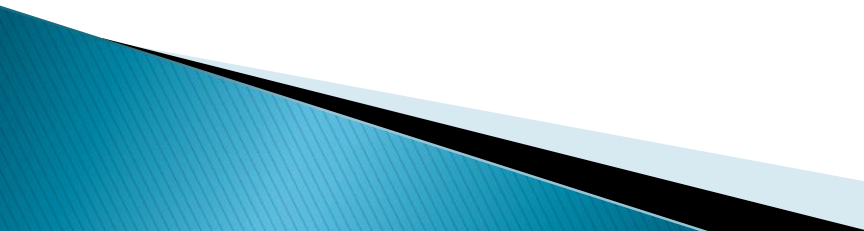
Operative findings of choledocholithiasis

- Palpable stones in CBD
  - Dilation or thickening of wall of CBD
  - Stones in the gallbladder small enough to pass into the CBD
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# Choledocholithiasis and Cholangitis

## Treatment

### Other options

- Lithotripsy
  - Direct choledoscopy
  - Biliary stenting
  - If T tube, extract stone via T tube
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# Choledocholithiasis and Cholangitis

## Treatment

**Always culture the bile taken at operation**

Pre-op, treat with broad spectrum antibiotics until sensitivities available

Treat with antibiotics for 3 days after decompression of CBD

Mortality correlates with high T bili, prolonged PT time, and presence of liver abscess.

**Patients with acute cholangitis should be hospitalized**

# Gallstones, Acute and Chronic Cholecystitis, Choledocolithiasis and Cholangitis

## Screening not applicable

Prevention – prevent gallstones

- Primary prevention
  - Diet and exercise
- Secondary prevention
  - Cholecystectomy in symptomatic gallstone patients



# Lazarus - "Cholelithiasis"

<http://www.youtube.com/watch?v=KBDcu7x-Hvw>



# Gallstones, Acute and Chronic Cholecystitis, Choledocolithiasis and Cholangitis

