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PBL-VI

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Summary of Biliary Tract Conditions

Gall Bladder	Asymptomatic	Pain Only	Infection + Pain
Cholelithiasis	√ (majority)		
Biliary Colic		√	
Cholecystitis			√

Common Bile Duct	Asymptomatic	Pain Only	Infection + Pain
Choledocholithiasis	√ (majority)	√	
Cholangitis			√ (majority)

Cholelithiasis Risk

- Four Fives + One F (ف)

Cholesterol Stones

<u>English</u>

- Fat
- Female
- Fertile
- Forty
- Fi Libya

Ƹǎɥa

- فات
- فيمايل
- فيرتايل
- فورتي
- في ليبيا

Evidence-Based Medicine

Evidence-Based Medicine

Research Corner

Prevalence of Gall Bladder Stones among Type 2 Diabetic Patients in Benghazi Libya: A Case-control Study

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ABSTRACT

Background: Diabetes mellitus and gall bladder stones are both common and costly diseases. Increasing age, female gender, overweight, familial history of the disease and type 2 diabetes mellitus is all associated with an increased risk of gallstones. Several studies from around the world reported an increased prevalence of gall bladder stones in patients with diabetes mellitus. **Aims and objectives:** The aim of this study was to define the frequency of gall bladder stones among Libyan diabetics and to evaluate the possible associated risk factors in these patients. **Patients and methods:** A case-control study was performed during 2007 at Benghazi Diabetes and endocrinology Center. The study involved 161 randomly selected type-2 diabetic patients under regular follow up at the center, and 166 age and sex matched non-diabetic outpatients at the 7th of October teaching hospital. Real-time abdominal ultrasound was performed by two radiologists to examine the abdomen after an overnight fast. **Results:** About 40% of the diabetic cohort had gall bladder stones as

after an overnight fast. **Results:** About 40% of the diabetic cohort had gall bladder stones as compared to 17.5% of non-diabetic patients. Females were significantly more affected than males. Patients with gall bladder stones were significantly older and had a significantly higher body mass index than those without stones. **Conclusion:** The prevalence of gallstones in Libyan diabetic patients is higher than the rates reported in other parts of the world. Libyan diabetic patients with gallstones tend to be older and more obese than those without gallstones. Duration of diabetes mellitus and type of treatment does not seem to influence the frequency of gall bladder stones among Libyan diabetics.

Cholelithiasis Imaging

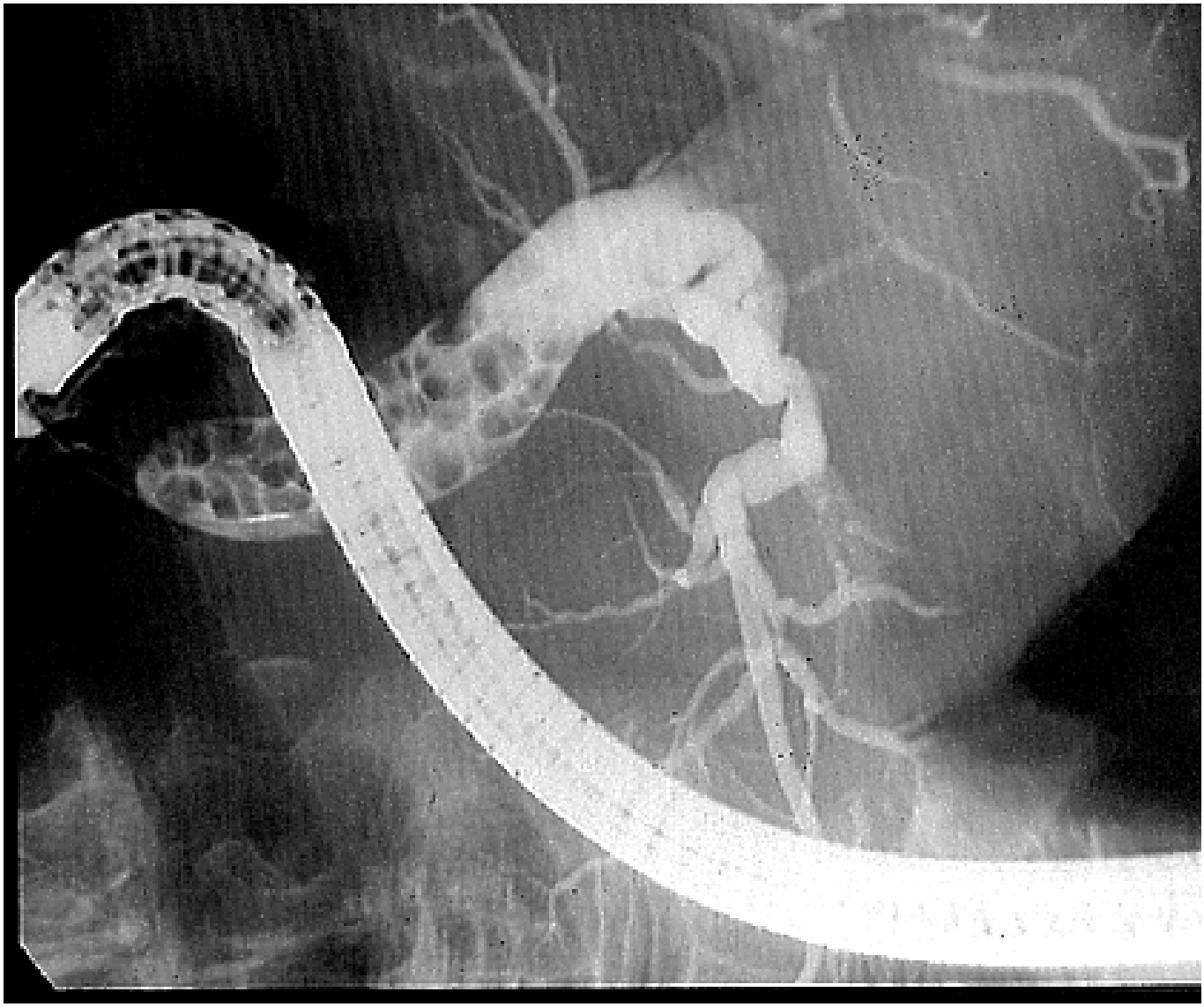
Cholelithiasis Imaging

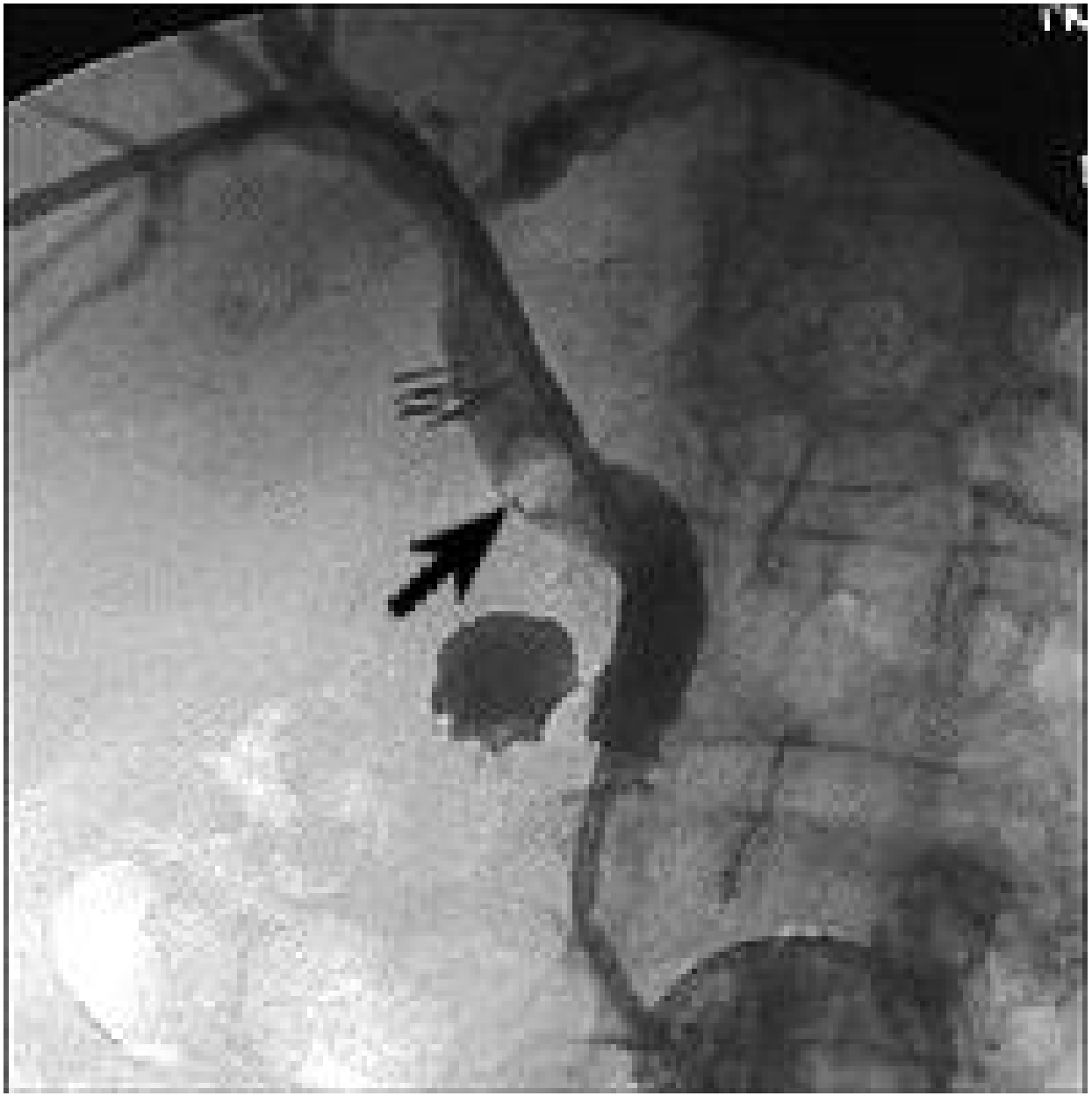
- Ultrasound - diagnostic procedure of choice
  - image for signs of inflammation, obstruction, localization of stones
- ERCP (endoscopic retrograde cholangiopancreatography)
  - visualization of upper GI tract, ampullary region, biliary and pancreatic ducts
  - method for treatment of CBD stones in periampullary region
  - complications: traumatic pancreatitis (1-2%), pancreatic or biliary sepsis
- MRCP (magnetic resonance cholangiopancreatography)
  - same information gained as ERCP but non-invasive
  - cannot be used for therapeutic purposes

Cholelithiasis Imaging

- PTC (percutaneous transhepatic cholangiography)
  - injection of contrast via needle passed through hepatic parenchyma
  - useful for proximal bile duct lesions or when ERCP fails or not available
  - requires prophylactic antibiotics
  - contraindications: coagulopathy, ascites, peri/intrahepatic sepsis, disease of right lower lung or pleura
  - complications: bile peritonitis, chylothorax, pneumothorax, sepsis, hemobilia

- HIDA scan (hepatobiliary imino-diacetic acid scan)
  - now used less commonly
  - radioisotope technetium-99 injected into a vein is excreted in high concentrations into bile, allowing visualization of the biliary tree
  - does not visualize stones; diagnosis by seeing occluded cystic duct or CBD





Cholecystitis

Pathogenesis

- inflammation of gallbladder resulting from sustained gallstone impaction in cystic duct or Hartmann's pouch
- no cholelithiasis in 5-10% (*acalculus cholecystitis*)

Clinical Features

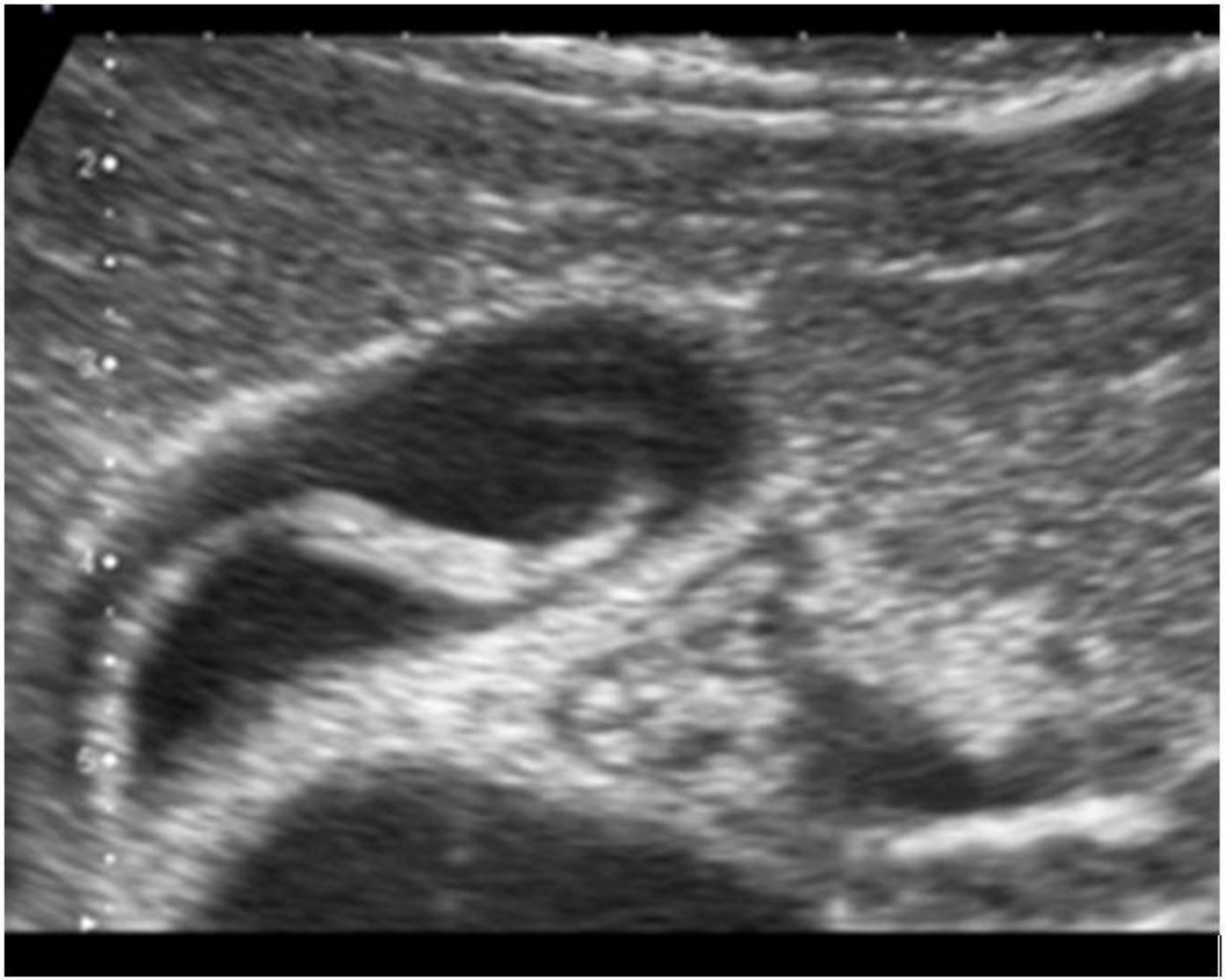
- often have history of biliary colic
- severe constant (hours to days) epigastric or RUQ pain, anorexia, nausea, vomiting, low grade fever
- focal peritoneal findings: *Murphy's sign*, palpable, tender gallbladder (in 33%)
- Boas' sign: right subscapular pain

differential diagnosis

- Gastritis
- GERD
- Pancreatitis
- Hepatitis
- PUD
- Atypical MI
- Renal colic
- Pyelonephritis
- Appendicitis
- PID/Fitzhugh-Curtis Syndrome/Ectopic
- Pneumonia/pleural effusion

Investigations

- Blood work: elevated WBC and left shift, mildly elevated bilirubin, AST, ALT, ALP
- USS:
  - 98% sensitive, consider HIDA scan if *V I S negative*
  - features on *V IS (5 signs)*
    - distended gallbladder
    - pericholecystic fluid
    - stone in cystic duct
    - thickened gallbladder wall (>3 mm)
    - sonographic Murphy's Sign - maximum tenderness on inspiration when probe over gallbladder



How would you like to stick the US probe on a pt and see
HIM waving back at you!!!
Ascaris lumbricoides of the GB

Complications

- gallbladder mucocele (hydrops) - long term cystic duct obstruction results in mucus accumulation in gallbladder (clear fluid)
- gangrene, perforation - result in abscess formation or peritonitis
- empyema of gallbladder - suppurative cholecystitis, pus in gallbladder + sick patient
- cholecystoenteric fistula, from repeated attacks of cholecystitis, can lead to gallstone ileus
- emphysematous cholecystitis - bacterial gas present in gallbladder lumen, wall or pericholecystic space (risk in diabetic patient)
- Mirrizzi's syndrome - extra-luminal compression of CBD/CHD due to large stone in cystic duct

Research Corner: Clinical Sign

Does this Patient have Acute Cholecystitis?
JAMA. 2003; 289: 80-86

Study: Looking at the ability of the clinical exam and basic laboratory findings to determine which patients need diagnostic imaging techniques to diagnose acute cholecystitis.

Selection criteria: Studies from 1966-2002 which evaluated the history, physical and basic laboratory tests in adult patients with abdominal pain or suspected acute cholecystitis. These studies had to have a control group with no diagnosis of acute cholecystitis. Acute cholecystitis was diagnosed through several different modalities (e.g. surgery, pathologic examination, etc). The included 17 articles.

Results: No clinical or laboratory finding was sufficient to rule in or rule out the diagnosis of acute cholecystitis. The best finding for ruling in was positive Murphy's sign (LR + = 2.8 95% CI 0.8-86) and the best test for ruling out was absence of right upper quadrant tenderness (LR - 0.4 95% CI 0.2-1.1), but neither of these findings were statistically significant. No study looked at the combination of clinical and laboratory findings.

Conclusion: No single clinical findings or laboratory test can rule in or rule out the diagnosis of acute cholecystitis. It is through a combination of clinical findings and diagnostic imaging that the diagnosis of acute cholecystitis is made in patients presenting with abdominal pain.

Management

- admit, hydrate, NPO, NG tube (if persistent vomiting from associated ileus), analgesics once diagnosis is made
- antibiotics
  - E. *coli, Klebsiella, Enterococcus and Clostridium account for >80% of infections*
  - ampicillin + gentamicin OR Cipro™ + FlagyJTM

Management

- cholecystectomy
  - early (within 72h) vs. delayed (after 6 weeks)
  - equal morbidity and mortality
  - early cholecystectomy preferred: shorter hospitalization and recovery time
  - emergent OR indicated if high risk, e.g. emphysematous, diabetic patient
  - laparoscopic is standard of care (convert to open for complications or difficult case)
  - laparoscopic: reduced risk of wound infections, shorter hospital stay, reduced post-op pain, increased risk of bile duct injury
  - (NOTES) natural orifice translumenal endoscopic surgery

Management

- intra-operative cholangiography (IOC)
  - indications: clarify bile duct anatomy, obstructive jaundice, history of biliary pancreatitis, small stones in gallbladder with a wide cystic duct (>15 mm), single faceted stone in gallbladder, bilirubin >137 *I1mol i L*
- percutaneous cholecystostomy tube: critically ill or if general anesthetic contraindicated

Post-cholecystectomy Syndrome

Introduction

- First described in 1947
- Presence of symptoms after cholecystectomy
- May be either:
  - Development of new Sx OR
  - Continuation of Sx
- 10-15% of patients

Outline

Sphincter of Oddi dysfunction

Retained Stone

Bile Duct Injury

Sphincter of Oddi Dysfunction

- Complex muscular structure
- Surrounds distal CBD, pancreatic duct, ampulla of Vater
- Caused by structural or functional abnormality
- Fibrosis of sphincter from gallstone migration, operative or endoscopic trauma, pancreatitis or nonspecific inflammatory processes
- Sphincter dyskinesia or spasm
- ~1% of patient undergoing cholecystectomy

- Labs: ↑ amylase, LFT
- ERCP: delayed emptying of contrast medium from CBD
  - ↑ basal sphincter pressure >40mmHg
- US: dilated (>12mm) CBD
- Tx: sphincterotomy (endoscopic or transduodenal)
  - 60-80% successful if have documented objective evidence

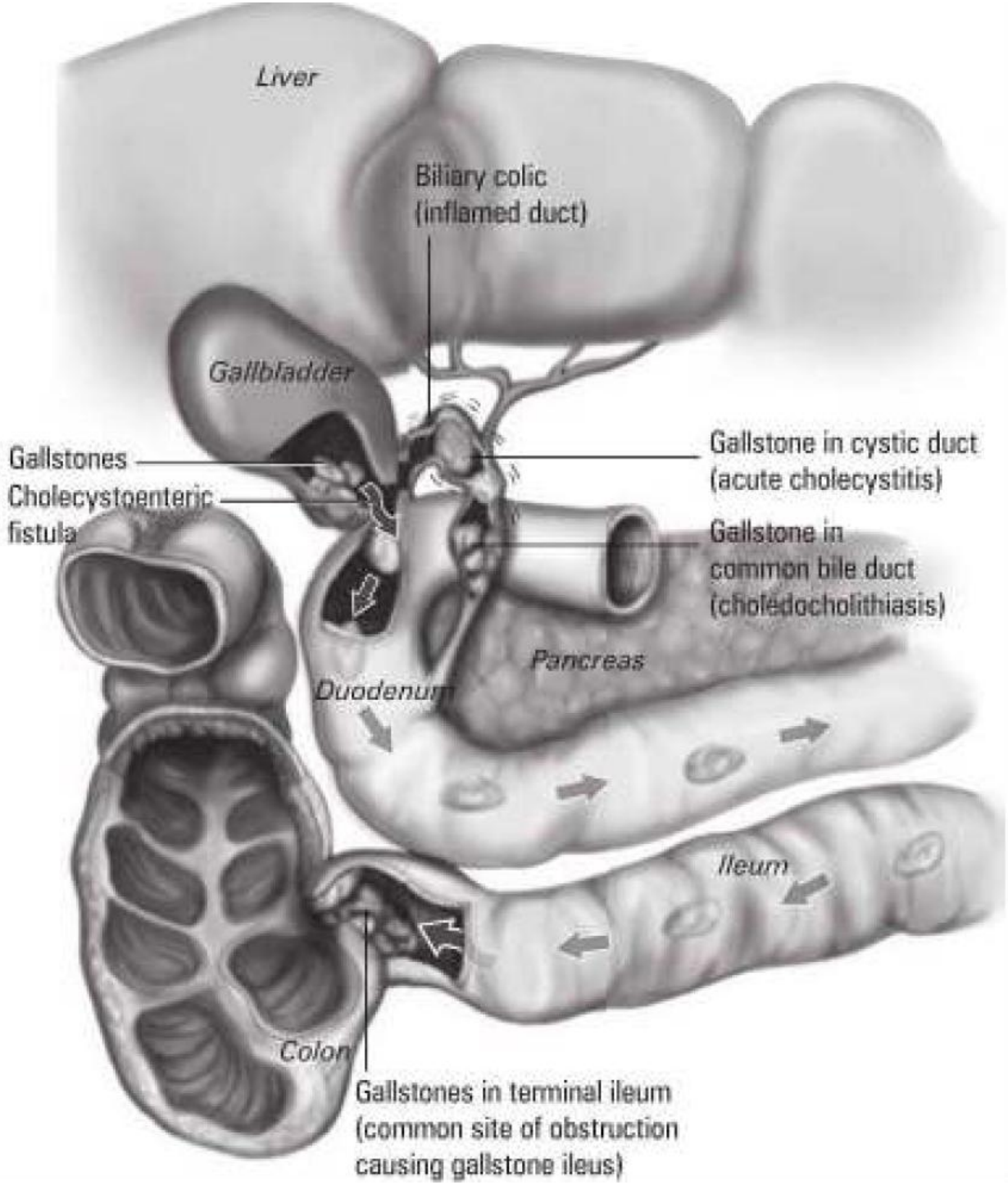
Retained stones

- More likely to occur with lap chole esp if no IOC done
- Can present late (20yrs!)
- Sx = intermittent pain in upper ab and back, n+v, pancreatitis?
- Dx = ERCP (therapeutic and diagnostic), MRCP
- Tx = ERCP±endoscopic US, repeat lap chole (for GB remnant), open excision of retained cystic duct impacted stone, holmium laser/ESWL+ERCP

Bile duct injury

- Most feared complication
- Most recognized intraoperatively or during early postop period
- Lap chole greater risk than open chole for bile duct injury
- 1 in 120 lap chole, major BDI 0.55%, minor 0.3%

Complications of Cholelithiasis


Liver
Biliary colic
(inflamed duct)
Gallbladder
Gallstones
Cholecystoenteric
fistula
Gallstone in cystic duct
(acute cholecystitis)
Gallstone in
common bile duct
(choledocholithiasis)
Pancreas
Duodenum
Ileum
Colon
Gallstones in terminal ileum
(common site of obstruction
causing gallstone ileus)

Thank You