



# GHAPP

Gastroenterology & Hepatology  
Advanced Practice Providers

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**GHAPP**

Gastroenterology & Hepatology  
Advanced Practice Providers

# Post Cholecystectomy Syndrome

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# Disclosures

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# Disclosures

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## **Rick Davis, PA-C**

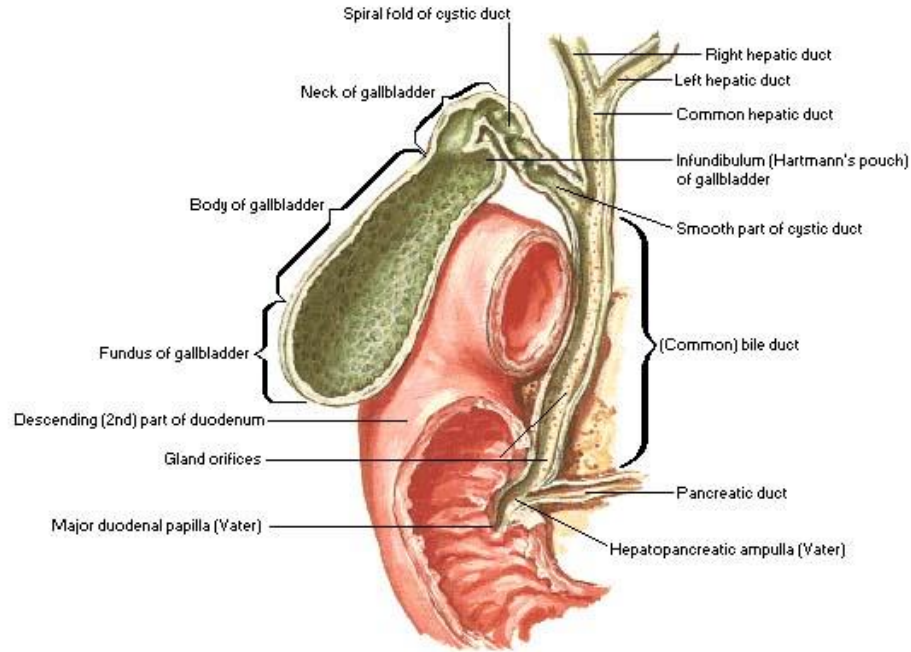
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# Post-Cholecystectomy Syndrome (PCS)

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- Complex heterogeneous symptoms including persistent abdominal pain and dyspepsia that recur and persist after cholecystectomy\*
- Can be early or late after cholecystectomy

# Biliary Tract Disease



# Cholelithiasis



# Cholelithiasis

- 7-20 % adults in US
- > 600,000 cholecystectomies per year in US
- 80% patients with gallstones are asymptomatic
- Incidence of developing pain ~ 2% / year
- After 1<sup>st</sup> episode of pain, 50% will have recurrent episodes, the complication rate 1-2% / year



# Cholelithiasis: Complications

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- Occlusion of cystic duct, passage into common duct or erosion into gallbladder wall
- The most frequent complications of gallstone disease
  - Acute cholecystitis
  - Choledocholithiasis
  - Mirizzi's syndrome
  - Cholecystoenteric fistula

# Cholelithiasis: Complications

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- Choledocholithiasis
  - Retained stone in common hepatic or common bile duct
- Mirizzi's syndrome
  - Impacted stone in cystic duct or neck of gallbladder
  - Causes extrinsic compression of adjacent bile duct or fistula
  - Present with jaundice > recurrent cholangitis

# Choledocholithiasis

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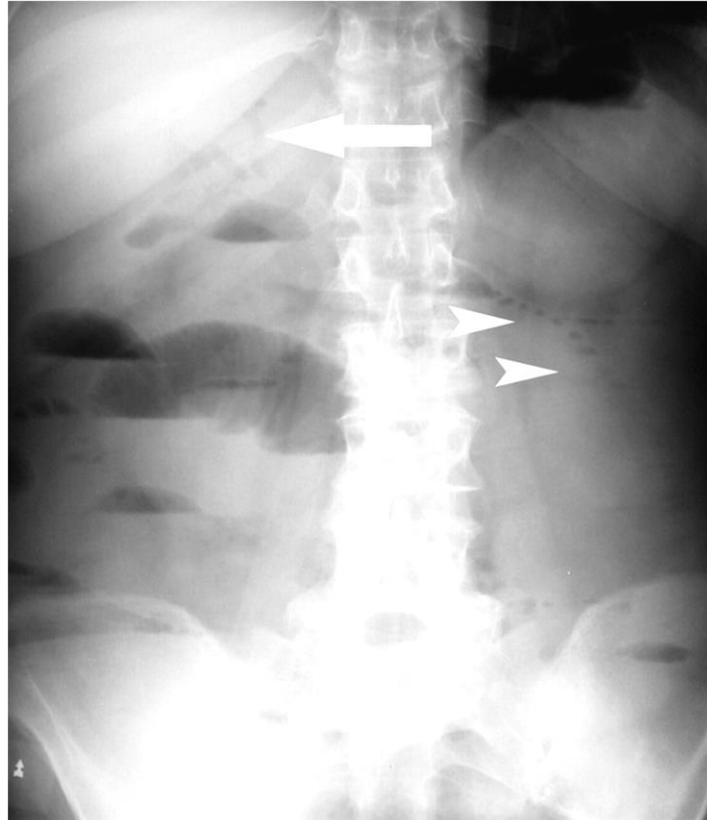
- Gallstone lodged in common duct (CBD)
- Pathogenesis
  - Originate in gallbladder or forms *de novo*
    - *5% to 10% of patients with gallbladder stones have concomitant common bile duct stones (most asymptomatic)*
  - Retained stone after cholecystectomy
    - Choledocholithiasis complicates 10-15%

# Cholecystoenteric Fistula

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- May result from GB perforation and decompression into a viscus
- Commonly duodenum or hepatic flexure of colon
- Presents as bilious, watery diarrhea or cholangitis
- Cholelithiasis + SB involvement can induce gallstone ileus

# Gallstone Ileus



# Complications of Cholecystectomy: Biliary Injury

- Unique to laparoscopic technique
  - 2.5x risk of bile duct injury (compared to open), although still low at 0.4-0.6%
- Most common injuries
  - Bile leak at site of cystic duct clip
  - Injury to an anomalous duct
  - Transection of the bile duct
- Early diagnosis crucial, ERCP can diagnose and also treat

# Post-Cholecystectomy Syndrome: Early Complications

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- Retained cystic duct stone
- Retained long cystic duct remnant
- Choledocholithiasis

# Post-Cholecystectomy Syndrome: Late Causes

- GI

- IBS, pancreatitis, pancreas tumors, PUD, diverticulitis, mesenteric ischemia

- Non-GI

- Intercostal neuritis, wound neuroma, CAD, psychosomatic disorder



# PCS: Symptoms

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- Fatty food intolerance
- Nausea, vomiting
- Heartburn
- Flatulence
- Dyspepsia
- Diarrhea, choleric?
- Jaundice
- Intermittent Abdominal pain

# PCS: History, Accuracy of Biliary Origin

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- Biliary colic, 90%
- Abdominal pain, 75%
- Fever, 38%
- Diarrhea, 35%

# PCS Diagnosis: Early Onset

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- Labs: CBC, LFT, amylase/lipase
- Imaging: U/S, CT abdomen, MRCP
- Endoscopy: EUS, ERCP

# PCS Diagnosis: Late Onset

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- Labs: LFT, CBC, lipase
- Imaging: CT, MRCP
- Endoscopy: EGD, EUS, ERCP, biliary manometry (rarely used currently)
- GI functional studies: gastric emptying, smart pill, esophageal manometry/pH/impedance

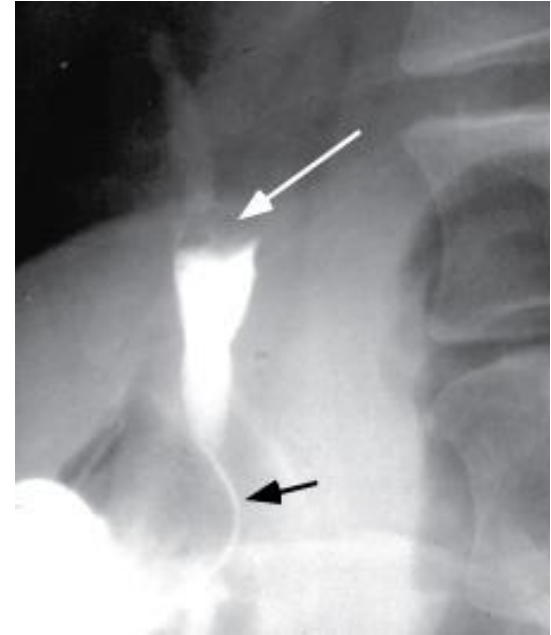
# PCS: Treatment Medical

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- Empiric trials of acid suppression for 8 weeks
- Trial of bile acid binders (eg, cholestyramine, colestipol)
- Prokinetic agents where available
- Antispasmodic trials (eg, hyoscyamine, dicyclomine)
- TCAs for chronic pain

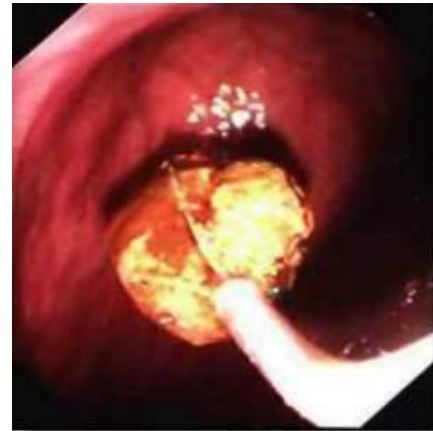
# Choledocholithiasis: *Diagnosis*

- MRCP
- EUS
- ERCP
  - Large stone producing complete obstruction of the distal duct (white arrow)



# Choledocholithiasis: *Treatment*

ERCP with sphincterotomy and stone extraction

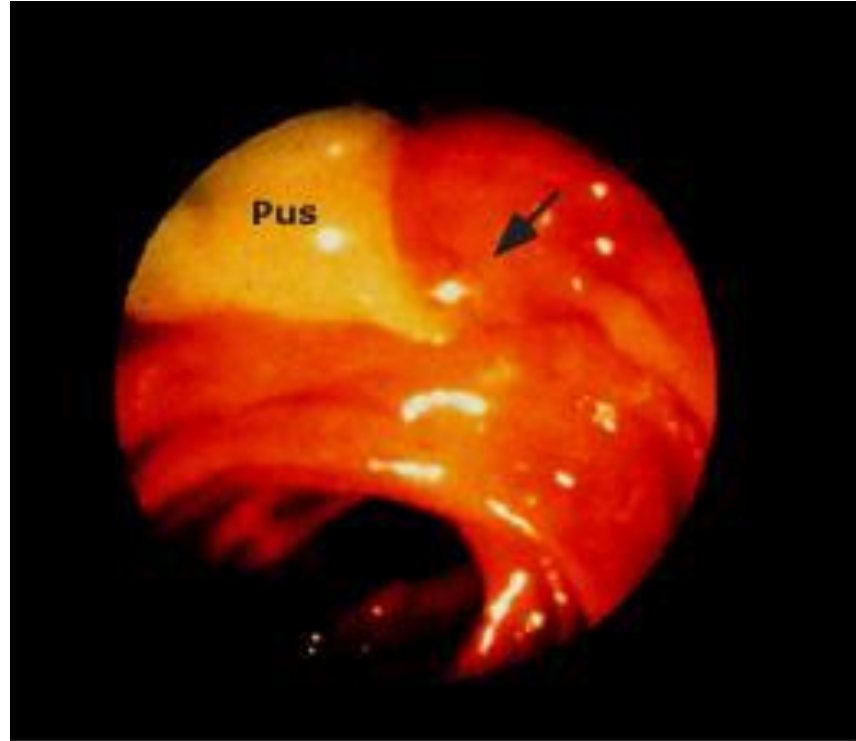


# Cholangitis

- Infection proximal to CBD obstruction
- 6-9% of patients with gallstone disease
- 5-10% mortality
- Causes of obstruction
  - CBD stone / stricture
  - Neoplasm
  - Infiltration (Clonorchis, Opisthorchis)
- Mechanism of bacterial entry
  - Biliary tract manipulation
  - Intrabiliary pressure (migration from portal system)



# Suppurative Cholangitis

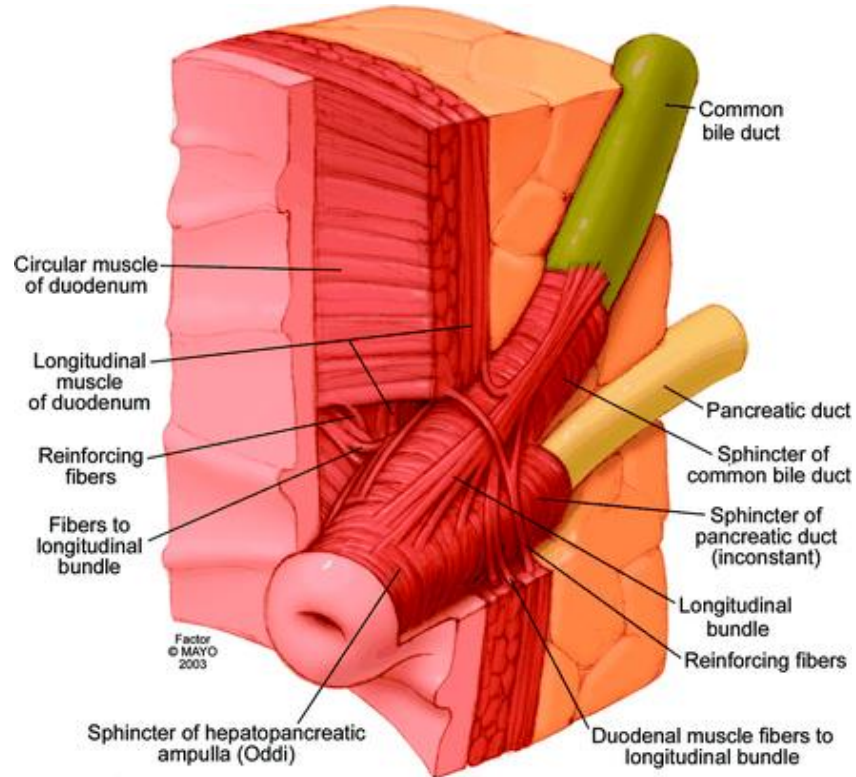


# Sphincter of Oddi Dysfunction (SOD)

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- S.O. = fibromuscular sheath encircling the terminal portion of CBD, PD, and common channel as they traverse the duodenal wall
- Typically females age 40-50 years
- Features
  - Post-cholecystectomy abdominal pain
  - Recurrent pancreatitis in up to 50% of patients
  - Episodic biliary colic with negative diagnostic studies

# Sphincter of Oddi



# SOD: Milwaukee Classification

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- A. Typical biliary-type pain
- B. Abnormal AST/ALT > 2-3x ULN
- C. Dilated CBD (>12 mm)
  - Type I: all of the above criteria
  - Type II: A + (B or C)
  - Type III: only A

# SOD: Treatment

## Noninvasive

Low-fat diet

Analgesics

Nitrates

Calcium channel antagonists

Anticholinergics

## Invasive

Endoscopic balloon dilation

Injection of botulinum toxin

Biliary/Pancreatic Stenting

Endoscopic/Surgical sphincteroplasty

# Sphincterotomy

- Indications:
  - Type I SOD
  - Type II SOD pts
  - Type III SOD only if noninvasive therapies fail

*Over 90% of Type I and Type II with elevated pressures have favorable response, compared to < 50% favorable response in Type III [biliary sphincter manometry rarely performed now]*

# Post Cholecystectomy Syndrome: Summary

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- Symptoms can occur early or late
- Be certain of pre-operative diagnosis
- Thorough history, emphasize aggravating and relieving factors
- Acknowledge patients' symptoms
- Appropriate investigation
- Judicious use of empiric therapies

# PCS: References

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