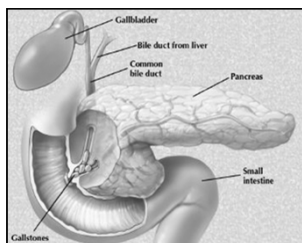


Gall Bladder Disease: What to do with Gall Bladder Stones and Polyps

May 10, 2014
Greg Lutzak MD, FRCPC



Objectives

1. List risk factors for gall stones and gall bladder polyps
2. Compare imaging modalities for gall bladder pathology
3. Select appropriate patients for surgical referral

Gallstones

- Cholecystitis/cholelithiasis 2nd most common GI diagnosis
- 6% of men
- 9% of women
- Incidental finding
 - <20% of patients develop symptoms

Peery E, et al. *Gastroenterology* 2012;143:1179–87.

Gallstones

| Table 1 Modifiable and nonmodifiable risk factors for cholesterol gallstone formation | |
|--|------------------------|
| Cholesterol Gallstone Risk Factors | |
| Modifiable | Nonmodifiable |
| Diet | Genetics |
| Physical activity | Ethnicity |
| Rapid weight loss | Advancing age |
| Obesity | Female sex |
| Dyslipidemia | Chronic disease states |

O'Connell K and Brasel K. Surg Clin N Am 94 (2014) 361-375

Gallstone Formation

O'Connell K and Brasel K. Surg Clin N Am 94 (2014) 361-375

Presentation

- Pain, Jaundice
 - Sick Vs. Well
 - Vitals?, Nausea, Emesis
- Abnormal Labs
 - ALT, AST, TBILI, ALP, LIPASE, WBC
- Incidental Finding

Biliary Colic

- Caused by gallbladder contraction forcing a stone/sludge into the cystic duct opening
- Intense, dull RUQ/epigastric discomfort
 - can radiate to back & right shoulder
 - often associated nausea/vomiting and diaphoresis
 - typically post-prandial (fatty meals)

Differential Diagnosis

- GERD
- PUD
- Dyspepsia
- Pancreatitis
- IBS
- CAD
- Pyelonephritis
- Nephrolithiasis

Standard Workup

- Patient
 - Age, Vitals, Symptoms (Pain, Jaundice)
- Labs
 - CBC, INR, PTT, ALP, TBili, AST, ALT, Lipase
- Imaging:
 - U/S
- Intervention:
 - Endoscopy?
 - Surgery?

Gall Stones: Imaging

- Ultrasound
 - 1st Line
 - Cheap, non-invasive, no radiation, easy to obtain
- CT
 - Limited role in biliary tract but easier to obtain
- MRI
 - 2nd Line
- Endoscopy
 - Diagnostic (EUS) and Therapeutic (ERCP)

MRI/MRCP

- Highly sensitive and specific for gall stones and biliary pathology
- No radiation
- Non-invasive

HIDA Scans

- Primary role in identifying bile leaks
- Occasionally used in acute/chronic cholecystitis
- No role in identifying gall stones/polyps

Indications for Cholecystectomy?

- Symptomatic cholelithiasis
 - Cholecystitis
 - Acute, Chronic Acalculous
 - Gall Stone Pancreatitis
 - Cholangitis
 - Biliary Colic
- Gallbladder pathology
 - Cancer, polyps, porcelain gall bladder

Refer to GI?

- Choledocholithiasis
 - Confirmed or suspected
 - Is ERCP indicated

Risks of Endoscopy

- ERCP:
 - Pancreatitis - 1.3-6.7%
 - Bleeding – 0.3-2.0%
 - Perforation – 0.1-1.1%
 - Infection – 0.6-5.0%
- EUS
 - Perforation 0.03%
 - Bacteremia
 - Sedation

GIE 2005; 61;(1): 8-12.

ERCP

- Diagnostic
 - “Gold Standard”
- Therapeutic

Echoendoscopes

- Combines endoscopy and ultrasonography
- Circumferential scanning
- Images are similar to CT
- Exclusively diagnostic

EUS

- 2 Meta-analyses
 - > 2500 patients
- Stone Detection
 - Sensitivity 89-94%
 - Specificity 94-95%
- Sensitive for stones < 5mm

EUS Directed ERCP

- 4 RCT's in patients with intermediate to high risk of choledocholithiasis
- Randomized to EUS vs. ERCP first strategy
- < 4% of patients with normal EUS had pancreaticobiliary symptoms in 1-2 years of follow-up
- Sequential approach eliminated the need for 60-73% of ERCP's
- Significantly decreased morbidity
- Cost effective in the intermediate risk population

Endoscopy in Suspected Choledocholithiasis

ASGE 2010

- Guideline from the Standards of Practice Committee of the American Society for Gastrointestinal Endoscopy
- Gastrointestinal Endoscopy 71(1):2010



Endoscopy and Symptomatic Cholelithiasis

- Proposed strategy for risk stratification
- Risk of Choledocholithiasis
 - High > 50%
 - Int. 10-50%
 - Low < 10%

Gastrointestinal Endoscopy 71(1):2010

Predictors of choledocholithiasis^{13,14,29,31,32}

Very strong

CBD stone on transabdominal US
Clinical ascending cholangitis
Bilirubin > 4 mg/dL

Strong

Dilated CBD on US (> 6 mm with gallbladder in situ)
Bilirubin level 1.8-4 mg/dL

Moderate

Abnormal liver biochemical test other than bilirubin
Age older than 55 y
Clinical gallstone pancreatitis

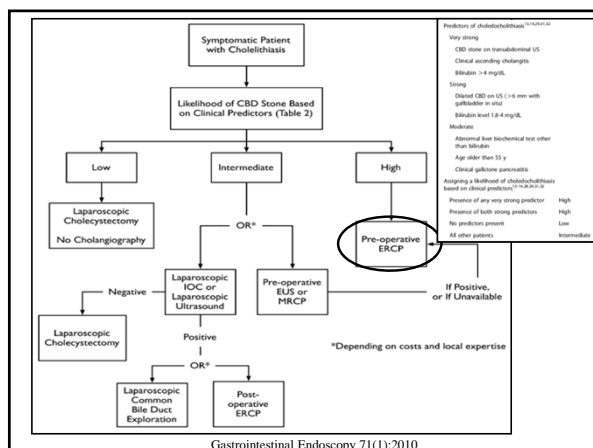
Assigning a likelihood of choledocholithiasis based on clinical predictors^{12-14,28,29,31,32}

Presence of any very strong predictor High

Presence of both strong predictors High

No predictors present Low

All other patients Intermediate



Endoscopy and Stones

- Patients with suspected choledocholithiasis can be risk stratified
- ERCP indicated in symptomatic cholelithiasis:
 - Ascending Cholangitis
 - CBD stone on Abdo. U/S
 - Bili > 70
 - Dilated CBD (>6mm) And Bili > 30
- Intermediate risk patients require further imaging
 - EUS/MRCP/Intraoperative Cholangiogram

Case 1

- 43 yo male with Hx of DVT presenting with jaundice, no pain, no fever
- Labs: Tbili 240, AST 118, ALT 213, ALP 357, WBC 4
- U/S: Cholelithiasis, IHD & EHD dilation, choledocholithiasis not identified

Case 2

- 37 yo male with recurrent pancreatitis NYD
- MRCP: Cholelithiasis, Normal ducts, no divisum
- Social drinker, IgG 4 (-), Normal Ca & TG
- Labs: Lipase 1576, Tbili 23, ALT 138 AST 56, ALP 63
- Afebrile
- U/S: Cholelithiasis, 7 mm CBD

Gall Stones

- Risk Factors – Five F's
- Presentation variable
 - Asymptomatic/Incidental \leftrightarrow Acutely Ill
- Imaging of Choice –U/S, MRCP
- Endoscopy for Choledocholithiasis
 - EUS vs. ERCP
- Surgical Indications:
 - Cholecystitis, GS Pancreatitis, Cholangitis, Biliary Colic

Gall Bladder Polyps

- Epidemiology
 - Incidence 5%
- Risk Factors
 - Poorly defined
 - Slight predominance in males
 - Most common over the age of 45

Sandberg *North American Journal of Medical Sciences* 2012; 4: 203-211.
Inui Y et al. *Intern Med* 2011;50:1133-6.

Presentation

- Incidental Finding
- Rarely causes symptoms
 - Usually in presence of gall stones
 - Biliary colic
 - Nausea
 - Dyspepsia
 - Jaundice

Gall Bladder Polyps

- Risk Factors for Malignancy
 - Patient:
 - >50 years, gall stones, PSC
 - Polyp
 - >8 mm (increases with size), solitary, and sessile.

Eaton et al. *Am J Gastroenterol* 2012; 107:431–439;

Gall Bladder Polyps

- Types
 - Benign
 - Cholesterol 60-90%
 - Typically <1 cm
 - Inflammatory 10%
 - Premalignant
 - Adenoma
 - Adenomyomatosis

Gall Bladder Polyps

- Imaging options
 - Ultrasound
 - Accurate and accessible
 - MRI
 - Useful in staging large polyps and pre-op planning
 - EUS
 - Effective but limited access
 - CT
 - Limited role

Polyp Management

- Size Matters
 - <1 cm – Serial Imaging – U/S
 - >1 cm – Surgical Referral

Eaton et al. *Am J Gastroenterol* 2012; 107:431–439;

Gall Bladder Polyps

- Management
 - Serial Imaging
 - Polyp < 5 mm - Repeat U/S in 6 months
 - if stable repeat U/S annually x 1-2 years
 - If increasing in size refer to surgeon
 - Polyp 5-9 mm -> Repeat U/S in 3 and 6 months
 - if stable repeat U/S annually x 1-2 years
 - If increasing in size refer to surgeon

Gall Bladder Polyps

- When to refer to surgeon?
 - Co-morbid Dx
 - Gallstones
 - PSC
 - Biliary colic
 - Pancreatitis
 - Polyp Features
 - > 1 cm
 - < 1 cm but increasing size

Polyp Management Summary

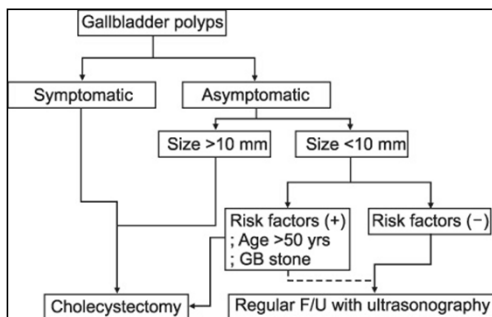


Image provided by S. Karmali

Summary Gall Stones and Polyps

- Presentation
 - Asymptomatic/Incidental vs. Acutely Ill
- Risk Factors
 - Stones – 5 F's
 - Polyps – Age >50
- Imaging
 - 1) U/S
 - 2) MRCP

Summary Gall Stones and Polyps

- Refer to GI for choledocholithiasis
 - EUS vs. ERCP

Indications for Cholecystectomy

- Symptomatic cholelithiasis
 - Cholecystitis, GS Pancreatitis, Cholangitis, Biliary Colic
- Gallbladder polyps
 - > 1 cm
 - Increasing in size
 - PSC
 - Stones

Questions?