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

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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

Gallstones

<table>
<thead>
<tr>
<th>Modifiable Risk Factors</th>
<th>Nonmodifiable Risk Factors</th>
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<tbody>
<tr>
<td>Diet</td>
<td>Genetics</td>
</tr>
<tr>
<td>Physical activity</td>
<td>Ethnicity</td>
</tr>
<tr>
<td>Rapid weight loss</td>
<td>Advancing age</td>
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<tr>
<td>Obesity</td>
<td>Female sex</td>
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<tr>
<td>Hypothyroidism</td>
<td>Chronic disease status</td>
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</tbody>
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Gallstone Formation

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, PT, 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

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 pancreatobiliary 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
  a. High > 50%
  b. Int. 10-50%
  c. Low < 10%

Predictors of choledocholithiasis:

| Very strong | Clinical ascending cholangitis
|            | Bilirubin > 4 mg/dL

| Strong     | Cholangiogram on US ≥ 5 mm with gallbladder in situ
|            | Bilirubin level 1.6-4 mg/dL

| Moderate   | Abnormal liver biochemistry test other than bilirubin
|            | Age older than 55 y
|            | Clinical gallbladder pancreatitis

| Presence of any very strong predictor | High |
| Presence of both strong predictors   | High |
| Presence of either strong predictor  | High |
| Presence of moderate predictors      | High |
| Presence of low risk                 | High |
| 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: Tbi 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, Tbilii 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 ↔ 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.
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.


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

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

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?