Benign Focal Hepatic Lesions:

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Focal Hepatic Lesions

1. Hepatic Cyst
2. Hepatic Hemangiomas
3. Benign Focal Hepatic Lesions
   • Focal Nodular Hyperplasia
   • Adenoma
4. Hepatic Abscess

More Common
Less Common

Case #1

- 56yo BM with painless jaundice
- PMHx: Obesity, DM2, CRI, polycystic kidney dz
- Exam: Liver palpable below rt costal margin
- US: Polycystic liver-kidney disease, cannot readily visualize bile ducts
- Dominant cyst 1800 cc aspirated. Jaundice transiently resolved-recurred
Hepatic Cysts

- Simple Cysts: 5% Incidence F>>M
- Polycystic Liver Disease
- Neoplastic Cysts
  - Biliary Cystadenoma/ Cystadenocarcinoma
- Diagnosis: US, CT Scan, MRI
- Treatment
  - Lap. fenestration of symptomatic simple cysts
  - Resection of neoplastic cysts


Symptomatic Giant Simple Hepatic Cyst
Symptomatic Giant Simple Hepatic Cyst

Adult Polycystic Liver Disease

- More common in women.
- May or may not be associated with polycystic kidney disease.
- Microscopically: cysts are lined with simple biliary epithelium without communication to the biliary tract.

Adult Polycystic Liver Disease

- Symptoms
  - Usually asymptomatic.
  - If symptomatic, symptoms are usually related to mass effect.

- Complications
  - Common: infection or hemorrhage into cyst.
  - Rare: rupture, portal hypertension, vena cava compression, conversion to malignancy, or hepatic insufficiency.
Adult Polycystic Liver Disease

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>Number</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>Large (10 cm)</td>
<td>Few</td>
<td>Superficial</td>
</tr>
<tr>
<td>Type II</td>
<td>Medium sized (5-7 cm)</td>
<td>Multiple</td>
<td>Scattered</td>
</tr>
<tr>
<td>Type III</td>
<td>Small-to-medium sized (&lt;5 cm)</td>
<td>Multiple</td>
<td>Scattered</td>
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Polycystic Liver Disease

- **Treatment**
  - Type I and II
    - Cystic wall resection.
    - Some cases may require hepatic resection.
  - Type III
    - Partial hepatectomy if two adjacent liver segments can be spared.
    - Some cases may require liver transplantation.

Case #2

- 42yo WF with progressive RUQ fullness/discomfort, especially when bending over
- PMHx: none
- Exam: Liver palpable below rt costal margin
- Labs: AFP, CEA, CA19-9 wnl
- Dx with 9cm cavernous hemangioma 7 years ago. Progressive increase to 16cm correlating with symptoms.
Hepatic Hemangioma

CT Arterial Phase
CT Venous Phase

Hepatic Hemangioma

CT
MRI

Hepatic Hemangioma

- 2-7% Incidence F>>M; 1/3 multiple
- >5cm "Giant Hemangioma"
- Change in size common
- Symptoms: fullness, discomfort, early satiety
- Diagnosis: MRI > CT, US, tagged RBC scan
- Treatment
  - Observation
  - Enucleate Giant Symptomatic Hemangioma

Hepatic Hemangioma

- Kasabach-Merritt Syndrome
  - Rare complication.
  - Coagulopathy
    - Intervascular coagulation, clotting, and fibrinolysis in the hemangioma.
    - Can become systemic.

Case #3

- 29yo HF Air Force complains of RUQ softball-sized mass that moves/becomes uncomfortable during physical activity.
- PMHx: none (not on OCP)
- Exam: RUQ palpable mass
- Labs: AFP, CEA, CA 19-9 wnl
- Imaging
  - US: 12cm solid mass
  - CT: Adenoma vs. FNH
  - Radionucleotide study: No defect
  - MRI: central scar

Benign Focal Hepatic Lesions

Focal Nodular Hyperplasia
Focal Nodular Hyperplasia

- Hyperplastic response to a congenital arterial malformation.
- Macroscopically: Well-circumscribed, nonencapsulated, globular and lobulated tumor.
- Microscopically: benign-appearing hepatocytes with fibrous septae radiating from a central scar.

Benign Focal Hepatic Lesions

Focal Nodular Hyperplasia

- Incidence?
- F>>M ? hormonal influence?
- Asymptomatic unless large
- Symptoms: fullness, discomfort, early satiety
- Diagnosis: MRI (EOVIST), CT
- Treatment
  - Observation
  - Embolization of symptomatic lesions

Case #4

- 21yo WF with acute RUQ pain
- PMHx: Aplastic anemia, CNI-induced renal failure, morbid obesity
- Meds: Tacrolimus, high dose OCP
- Exam: Peritonitis with shock
- Imaging
  - Outside imaging: “AVM”
  - CT: Ruptured hepatic lesion
Benign Focal Hepatic Lesions
Hepatic Adenoma

Ruptured Hepatic Adenoma
Postoperative Image

Benign Focal Hepatic Lesions
Hepatic Adenoma

- Strong hormonal influence
- 4 per 100,000 females using OCPs
- Risk factors: Obesity, glycogen storage disease, DM, hemachromatosis, anabolic steroids
- Risks:
  - RUPTURE (higher risk: exophytic lesions, >5cm)
  - MALIGNANT DEGENERATION (up to 20% reported in adenomas >4cm)

Barthelemes L et al. HPB Surg 2005; 7:186
Terkivatan T et al. Arch Surg 2001; 136:1033

Benign Focal Hepatic Lesions
Hepatic Adenoma

Genetics

- ~50% HNF1α mutations
  - Low association with HCC
  - Overall benign clinical course
- ~15% β-Catenin Alternations
  - Nuclear translocation
  - High association with HCC
- ~35% no alterations in HNF1α or β-Catenin
  - Benign course

Benign Focal Hepatic Lesions
*Hepatic Adenoma*

- **Diagnosis:** EOVIST MRI, CT
- **Treatment:**
  - Stop OCPs
  - Weight loss
  - Ablation
  - Resection
- **Special Problem:** Pregnancy

Barthelmes L et al. HPB Surg 2005; 7:186
Terkivatan T et al. Arch Surg 2001; 136:1033

Hepatic Adenoma

Diagnostic Imaging
- Typically have fat present
  - MRI in/out of phase imaging
- No bile ductules
  - Non-enhancing on EOVIST imaging
- Few if any Kupffer cells
  - Photopenic on liver spleen scan
Benign Focal Hepatic Lesions
EOVIST MRI: Adenoma vs. FNH

FNH
Arterial Phase
Venous Phase
Hepatobiliary Phase

Adenoma

Case #5
- 56yo WF with symptomatic cholelithiasis, 2 days s/p lap chole with bile leak
- PMHx: HTN
- SHx: Works as scrub tech for the surgeon who did the lap chole
- Exam: RUQ peritonitis, JP bilious
- Labs: WBC 21k, Tbill 2, ALP 140

Hepatic Abscess
Divided Rt Hepatic Artery 5 Months Later
Hepatic Abscess

- Formerly due to perforated appendicitis/diverticulitis
- Current epidemiology:
- Diagnosis: CT Scan
- Treatment
  - Treat Underlying Condition
  - Appropriate Antibiotics
  - Drainage for Focal Abscess
  - Amebic: Metronidazole

Hansen PS et al. APMIS 1998; 106:396

UAB Liver Tumor Clinic

Referrals: 205 996 6970 (phone)
205 996 9037 (fax)
800 UAB MIST

Question 1

- A 35 year old woman who has been on oral contraceptives for 10 years presents with a 6 month history of right upper quadrant discomfort. CT reveals a 6.5cm tumor in segment IV. Complications of this tumor include which of the following?
  - A. 5% lifetime risk of malignant transformation
  - B. 90% to 95% risk of spontaneous rupture and intraperitoneal hemorrhage
  - C. 30% risk of spontaneous thrombosis
  - D. Compression of the portal vein leading to portal hypertension
  - E. Compression of the common hepatic duct, leading to obstructive jaundice
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Question 2

- A 63 year old female with a history of unresectable cholangiocarcinoma and biliary stenting presents with a one week history of fevers, chills and jaundice. CT reveals multiple rim-enhancing fluid collections in the liver. What is the most likely diagnosis?
  - A. Echinococcal cysts
  - B. MRSA bacteremia
  - C. Pyogenic liver abscess
  - D. Polycystic liver disease
Question 3

- Which of the following organisms is the most common cause of pyogenic liver abscess?
  - A. Echinococcus
  - B. Schistosoma mansoni
  - C. Escherichia coli
  - D. Entamoeba histolytica

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Question 3

- A 35 year old asymptomatic female has been diagnosed with focal nodular hyperplasia (FNH) of her liver. How should you advise her to proceed with treatment?
  - A. She will likely require surgery
  - B. She may be observed
  - C. She should be referred to a medical oncologist for chemotherapy
  - D. She should be referred to a radiation oncologist
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