THESE ARE THE CASES YOU ARE SEEING IN YOUR OFFICE TODAY!

Clinical vignettes with a  leitmotif

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Introduction

- Extensive use of imaging techniques has increased the detection rates of hepatic lesions
- A mass/lesions can be found either incidentally or during screening for liver cancer in patients with cirrhosis
- Lesions can be benign or malignant and thus the right approach for assessing these masses is important

Liver Lesions

Benign

- Hemangioma
- Focal nodular hyperplasia
- Adenoma
- Nodular regenerative hyperplasia
- Regenerative nodules
- Liver cysts

Malignant

1. Primary liver cancers
   - Hepatocellular carcinoma
   - Fibrolamellar carcinoma
   - Cholangiocarcinoma
2. Metastases

Clinical Manifestations

- Most patients are asymptomatic
- When present, symptoms are related to the primary disease process: pain, pruritus, early satiety, weight loss
- Patients with cirrhosis manifest with related symptoms

Diagnostic Approach

- Identify risk factors for specific lesions or conditions
- If the history and examination suggest a potential diagnosis→ evaluation starts with focus on this
- If HPI and PE are negative →start with Labs, perform cost effective imaging studies- Ultrasound, CECT (Contrast Enhanced CT), MRI
- Biopsy

Is Sampling of a Liver Lesion (FNA) Necessary to Establish a Diagnosis?

- 160 patients with focal liver lesions
- Initial evaluations (HPI, PE, Labs, Imaging) could not exclude malignancy
- Followed with more detailed evaluation (extensive labs, including tumor markers, additional imaging studies)
- FNA not used to diagnose any lesion
- Patients underwent surgical excision
- Pre-operative diagnoses were correct in 156/160 (98%)

Torzilli G, Minagawa M, Takayama T, et al. Accurate preoperative evaluation of liver mass lesions without fine- needle biopsy. *Hepatology* 1999; 30:889

Room 1

- 47 y/o AAM with RUQ pain x 1 month

- Constipation and rectal bleeding x3 months
- Constipation responding to OTC laxatives

- FH of CRC in mother at age 45

Labs

- **CBC:**
  - WBC 13,000 ↑
  - Hgb 8.0↓
  - Hct 29.7 ↓
  - PLT 275K
  - MCV 78 ↓
- **Chem: WNL**

- **Liver tests:**
  - AST 234 ↑
  - ALT 210↑
  - AP 389↑
  - TB 1.8 ↑
  - DB 1.5↑
- Order imaging ?

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You order the most cost-effective test: Abdominal Ultrasound

Multiple echogenic solid lesions with halos were seen in the entire liver

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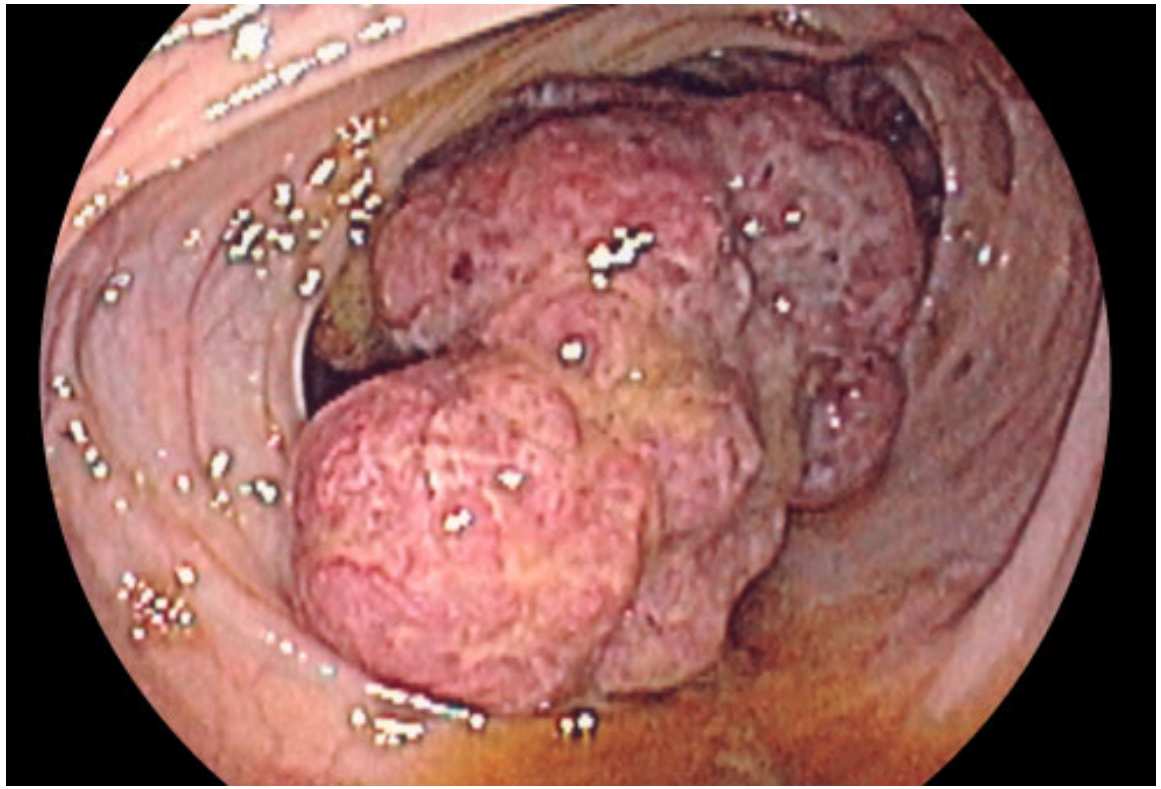
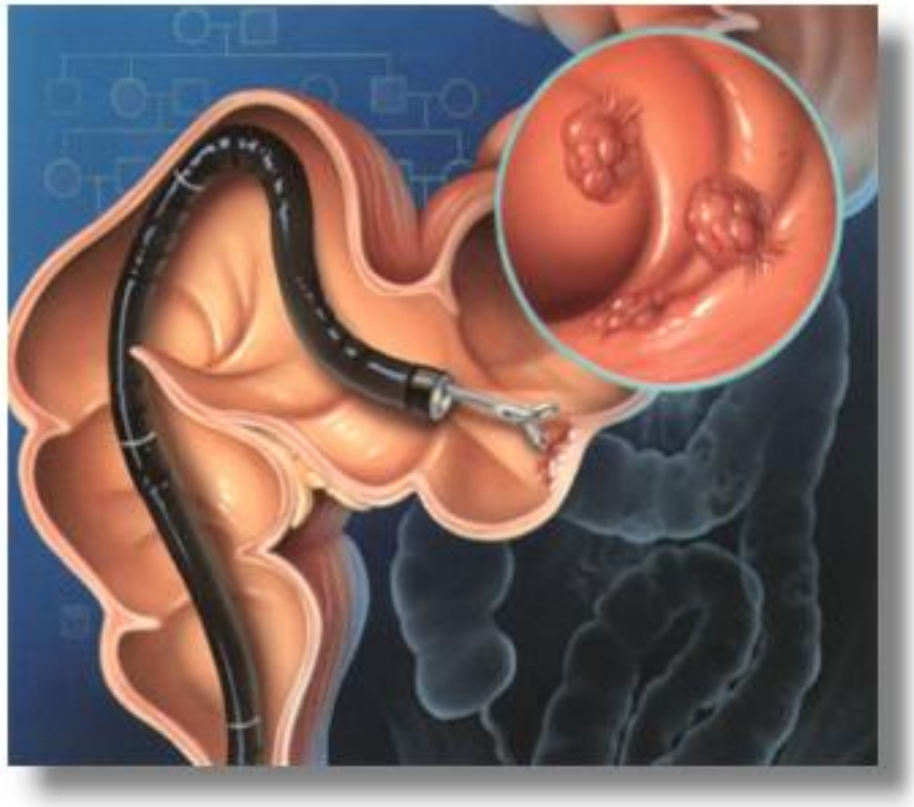
What test next?





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CRC Risk in the U.S.

- CRC burden is not equal among populations in the US
- African Americans have the highest CRC incidence and mortality of all US populations
- Adenoma risk is higher in African Americans
- Both adenomas and cancers occur more frequently in the proximal colon and at younger ages in African Americans
- Reasons for such differences:
  - Tumor biology
  - Genetic risk
  - Access to health care
  - Screening rates

Gastroenterology 2015;149:1302-1304

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CRC Risk in the U.S.

- Patients in this population category are less knowledgeable about CRC and screening guidelines, and are less likely to transmit a FH of CRC
- Lack of provider recommendation is an important barrier to screening
- Controversial strategy –> now recommended: lower the initial screening age for AA to 45.

Gastroenterology 2015;149:1302-1304

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Room 2

- 82 y/o AAM with RUQ pain x 2 weeks

- History of Prostate cancer 15 years prior, lost follow-up with Urologist, Primary Care
- You order a CT scan after reviewed his

Liver tests

AST 127 ↑

ALT 147↑

AP 297↑

TB3.4↑

DB 3.0↑

Albumin 2.9↓

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The CT scan shows:

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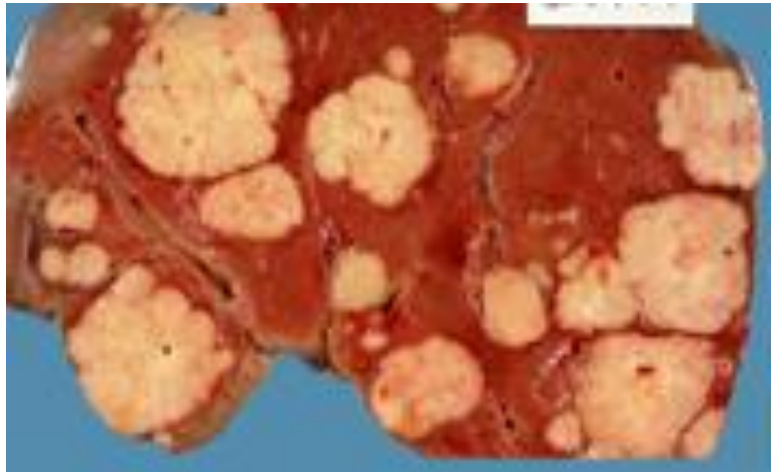
Metastatic Disease

- A primary tumor should be sought in patients with characteristic lesions on imaging
- 18-40 times more common than primary liver tumors
- The most common sites of primary malignancy that seeds to liver are
  - **Gastrointestinal tract** (via portal circulation)
    - Colorectal carcinoma (CRC)
    - Pancreatic adenocarcinoma
    - Esophageal cancer
    - Gastric carcinoma
    - Gastrointestinal stomal tumor
    - Neuroendocrine tumors
  - **Breast** cancer
  - **Lung** cancer
  - **Genitourinary system**
    - Ovarian cancer
    - Endometrial cancer
    - Renal cell carcinoma (RCC)
    - Melanoma
    - Sarcomas



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Active Surveillance for Prostate Cancer

- Most common malignancy affecting men
- Nearly 70% increase in new prostate cancer cases, mostly low risk
- Active surveillance = conservative management approach conducted for those patients with “low risk” disease, which avoids long term adverse effects on the patients QOL.
- Protocol monitoring with DRE, periodic biopsy, serial PSA testing

ModernMedicine/Cancernetwork. May 16, 2017. Home of the Journal Oncology

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Room 3

- 70 y/o woman with 2 week progressive jaundice, pruritus, dark urine
- 1 month of abdominal bloating associated with non-bloody diarrhea
- 10 lb unintentional weight loss x 2 months

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Room 3

- PE:
  - Thin lady in NAD, jaundiced
  - Scleral icterus
  - Palpable mass in the RUQ- GB- Courvoisier sign

You ordered labs:

- CBC WNL
- Chem: Na 130, K 3.3, Cr 1.3
- Liver tests:
  - AST 127 ↑
  - ALT 147↑
  - AP 297↑
  - TB3.4↑
  - DB 3.0↑
  - Albumin 2.9↓

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Cheap test, first!

Dilation of the intrahepatic ducts

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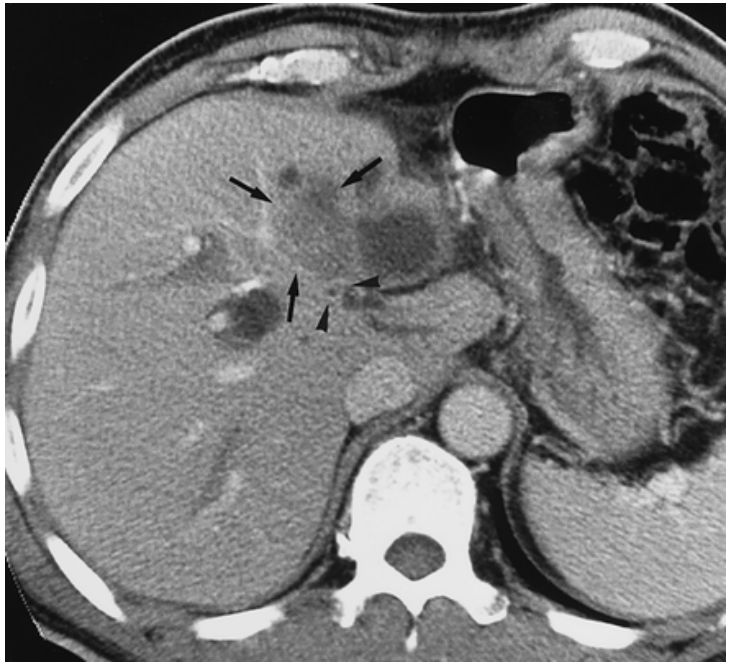

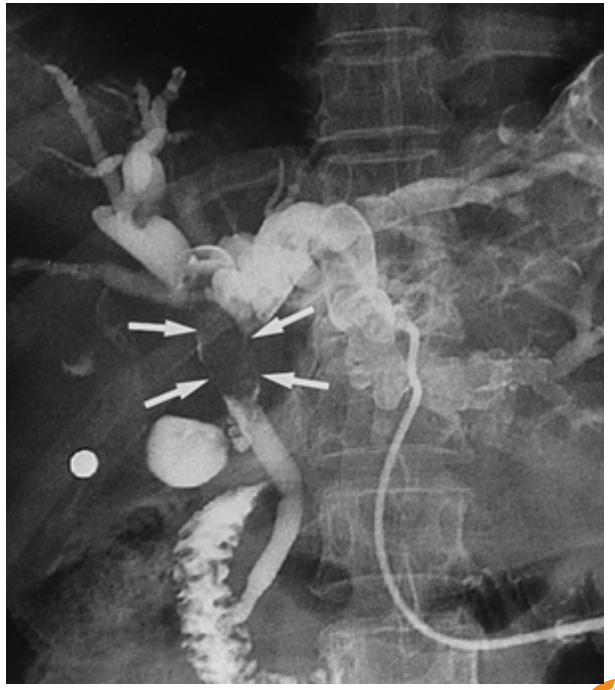

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Cholangiocarcinoma

- Malignancies of the biliary ductal system that may originate in three anatomic regions- intra, extrahepatic (perihilar), and distal extrahepatic
- Surgical resection is the only therapy with intention to cure- unfortunately many patients present with unresectable disease
- Palliative therapies
  - Stenting
  - PDT, XRT, Chemotherapy

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Room 4

- 43 y/o man with painless jaundice x 3 weeks
- Associated dark urine, acholic stools
- Unintentional weight loss, 10 lbs x 6 months
- Attributed to diarrhea
- Past surgical history: total colectomy
  - Reason for colectomy was fulminant colitis, toxic megacolon at age 20

Labs

- CBC WNL
- Chem: Na 130, K 3.7, Cr 1.0
- Liver tests:
  - AST 127↑
  - ALT 147↑
  - AP 297↑
  - TB3.4↑
  - DB 3.0↑
  - Albumin 2.9↓

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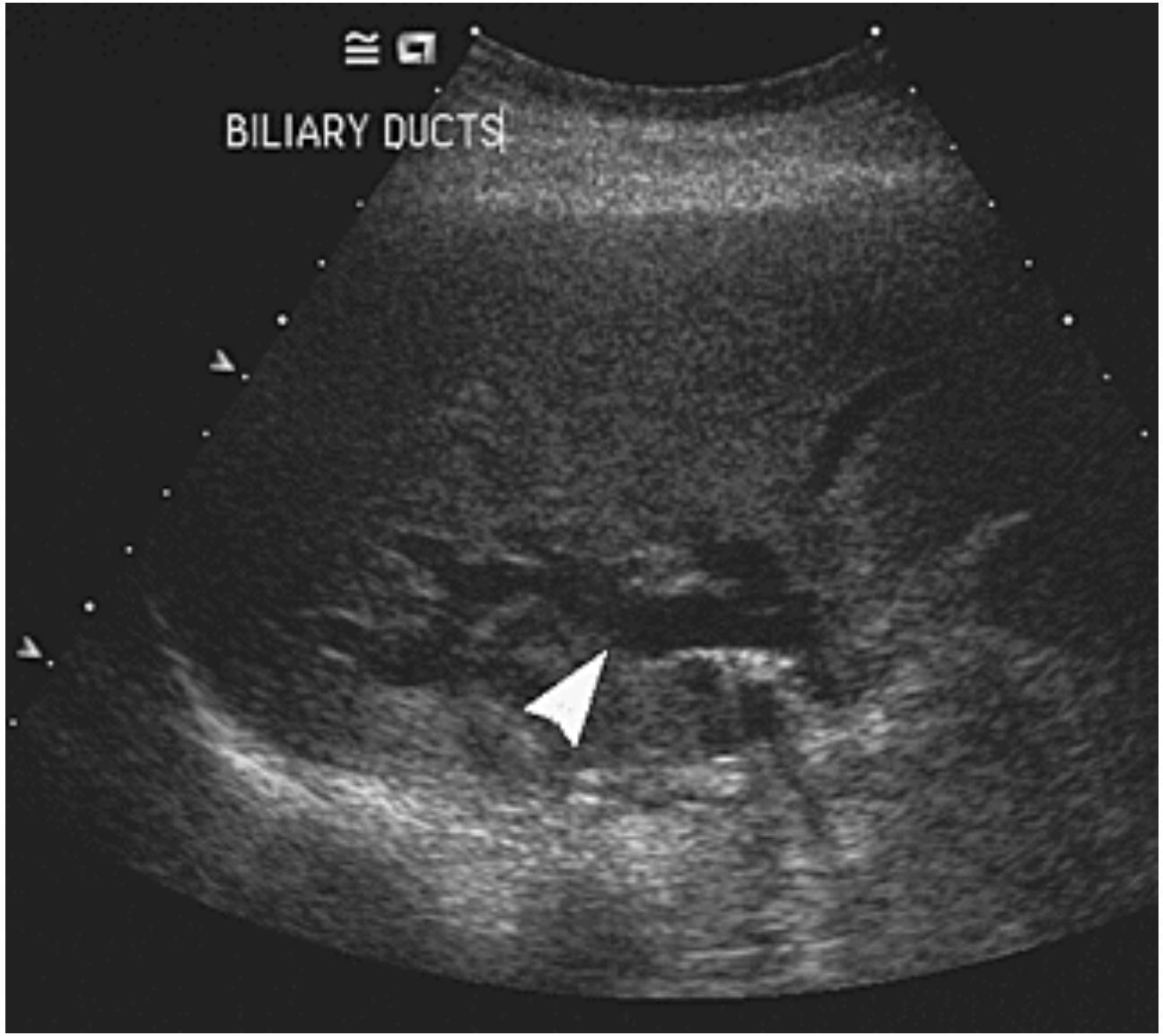
Cheap test, first!



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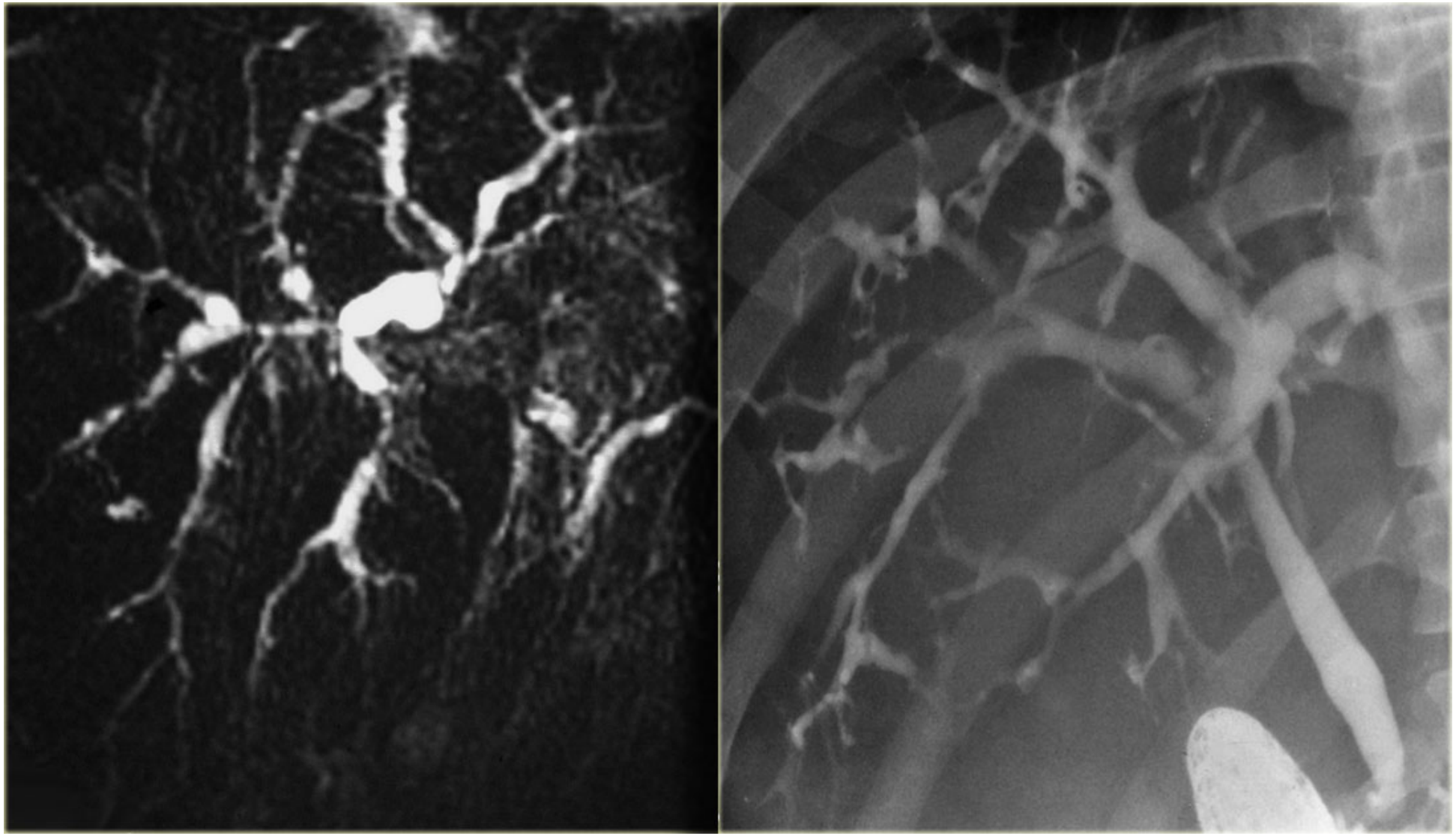

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Primary Sclerosing Cholangitis

- PSC associates with IBD in 70% of cases

- Over 75% cases patients with PSC have UC
- 13% have Crohns colitis

- Disease activity of IBD in PSC patients is often mild/asymptomatic
- IBD diagnosis precedes that of PSC

- Most patients are male and are diagnosed at a mean age of approximately 40 years

Palmela et al. *Gut and Liver,* Vol 12, No. 1, Jan 2018, 17-29

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Cholangiocarcinoma risk in PSC

- Prolonged duration of IBD -> Increased risk of CCA in PSC patients

- The risk was not altered by colectomy

Palmela et al. *Gut and Liver,* Vol 12, No. 1, Jan 2018, 17-29

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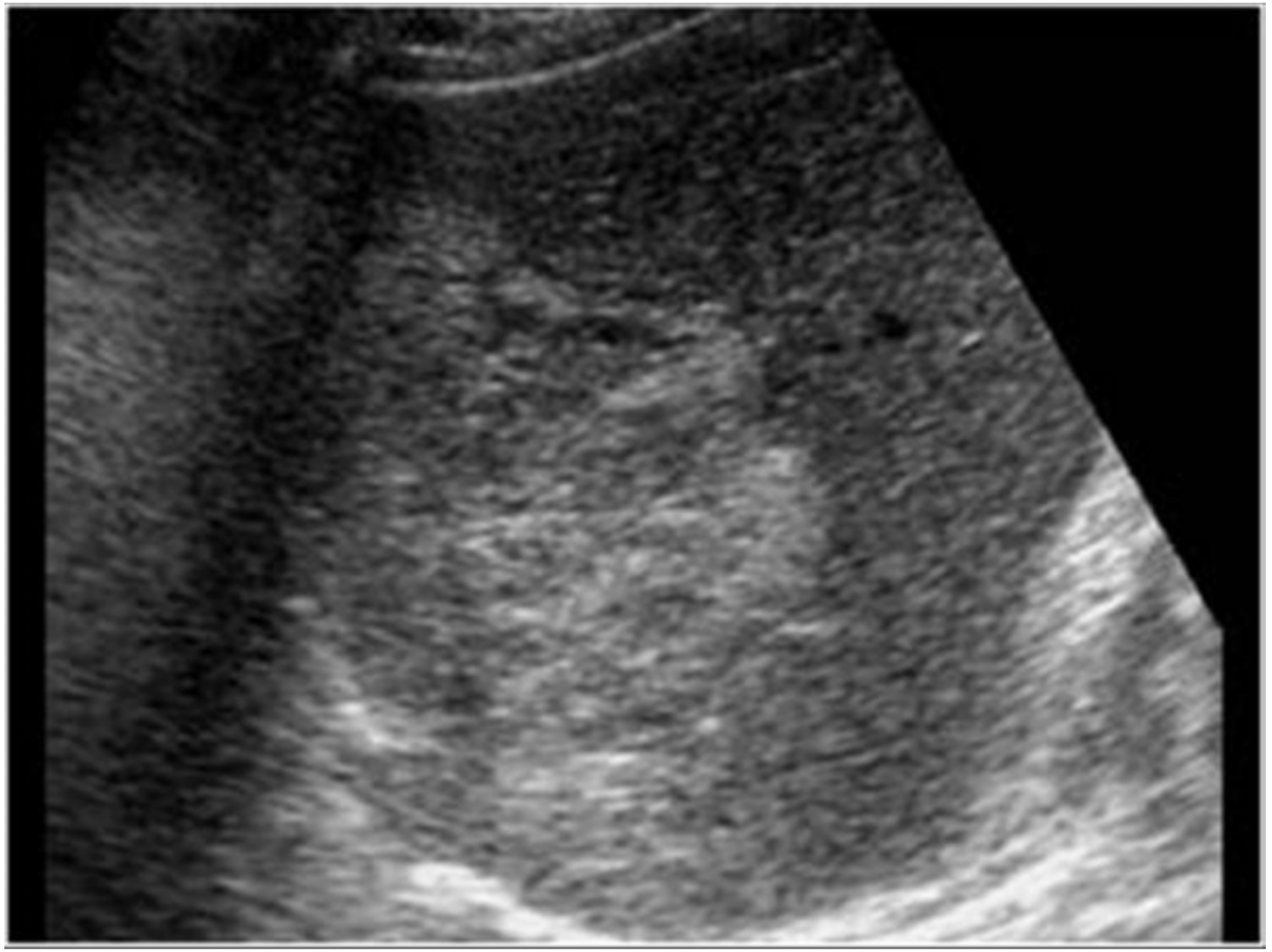
Room 5

- 43 y/o woman with intermittent RUQ discomfort and occasional nausea

- RUQ US was ordered after you noted normal CBC, chemistries and liver tests

The US reveals:



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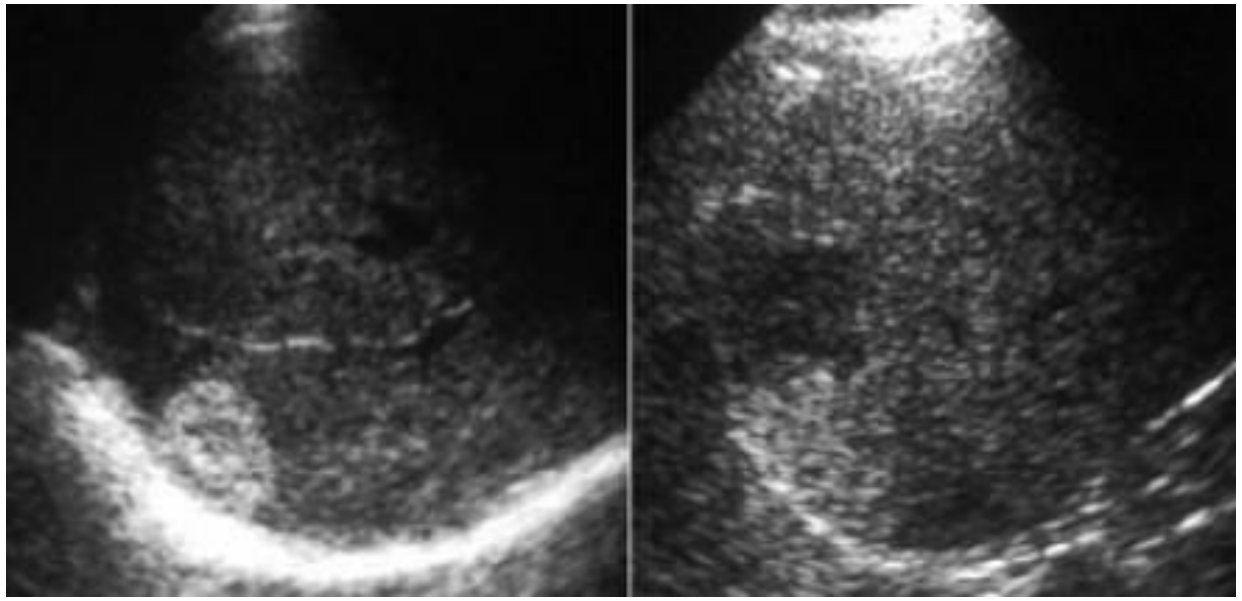
Hemangioma on US

- Most hemangiomas are detected with US
- Hemangioma on US appears “hyperechoic”
- If the liver is hyperechoic due to steatosis, the hemangioma can appear hypoechoic



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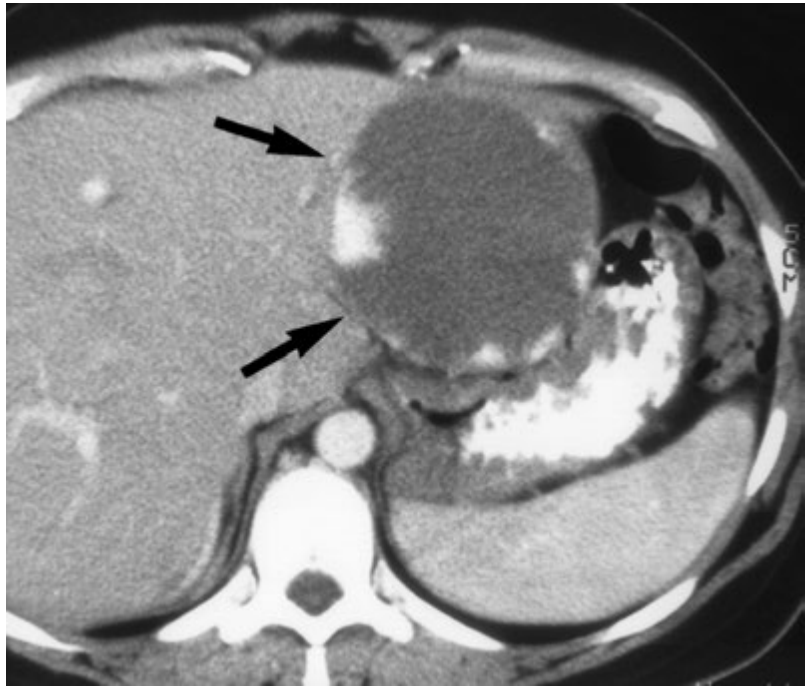
Incidental finding of a liver lesion

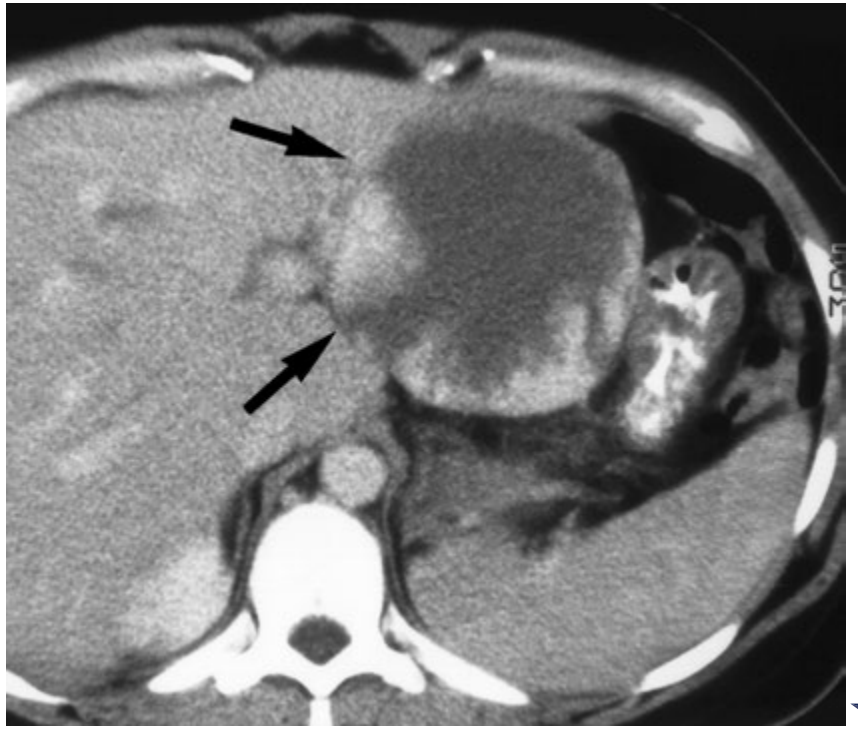
- The patient is very concerned about the liver lesion found on US
- She wants you to make sure this lesion is not cancer
- She has family history of HCC (father) and hepatic adenoma (mother)
- She wants to know if she can have a biopsy to confirm?

Hemangiomas

- Biopsy contraindicated due to risk of hemorrhage
- CT would help to confirm



- Contrast-enhanced spiral CT scan obtained during the arterial phase demonstrates an 8.5-cm mass in the left hepatic lobe
- Characteristic puddling of contrast material noted in the periphery



- During the portal phase there is progressive enhancement of the lesion

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Hepatic Hemangioma

- The most common benign mesenchymal hepatic tumor
- Incidentally found at autopsy, laparotomy, unrelated imaging studies
- 60-80% of hemangiomas are diagnosed in patients between ages 30 and 50
- F:M = 3:1
- Symptomatic patients: young women and lesions >4 cm
- Reassurance for therapy
- Intervention for large, symptomatic

Hepatic Hemangioma (Cavernous Hemangioma)

- In 60% of cases >one hemangioma
- The size varies from a few millimeters to more than 10 cm (giant hemangiomas)
- Calcification is rare (<10%), usually in the central scar of giant hemangioma

Room 6

- 25 y/o woman with no past medical or surgical history
- In for routine visit
- Complained on prior visits of occasional post-prandial RUQ discomfort
- You ordered LTs, among other basic labs
- RUQ sonogram

Room 6

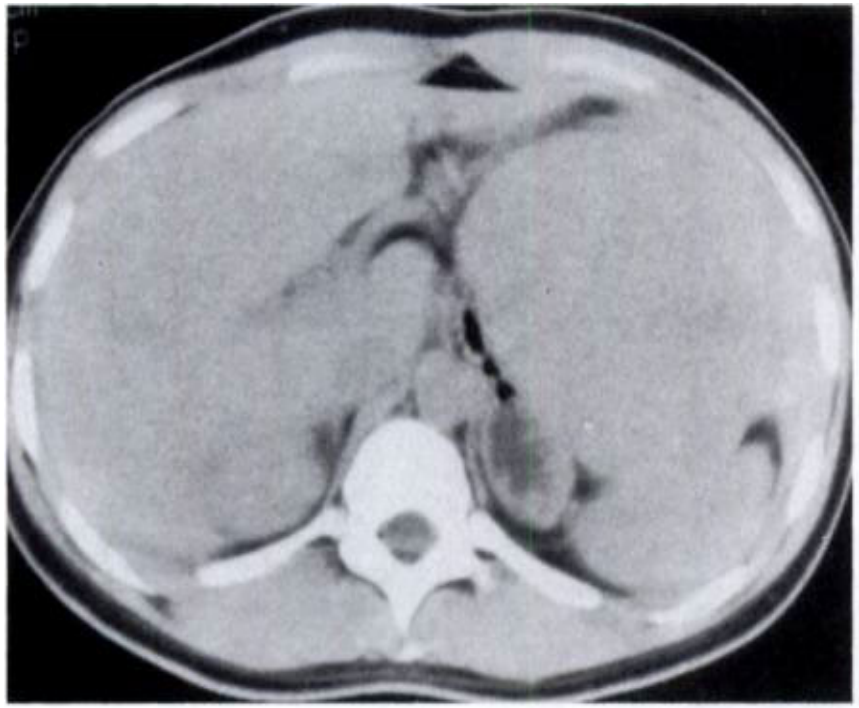
- Upon reviewing the LTs results, you called the patient and reported the following:

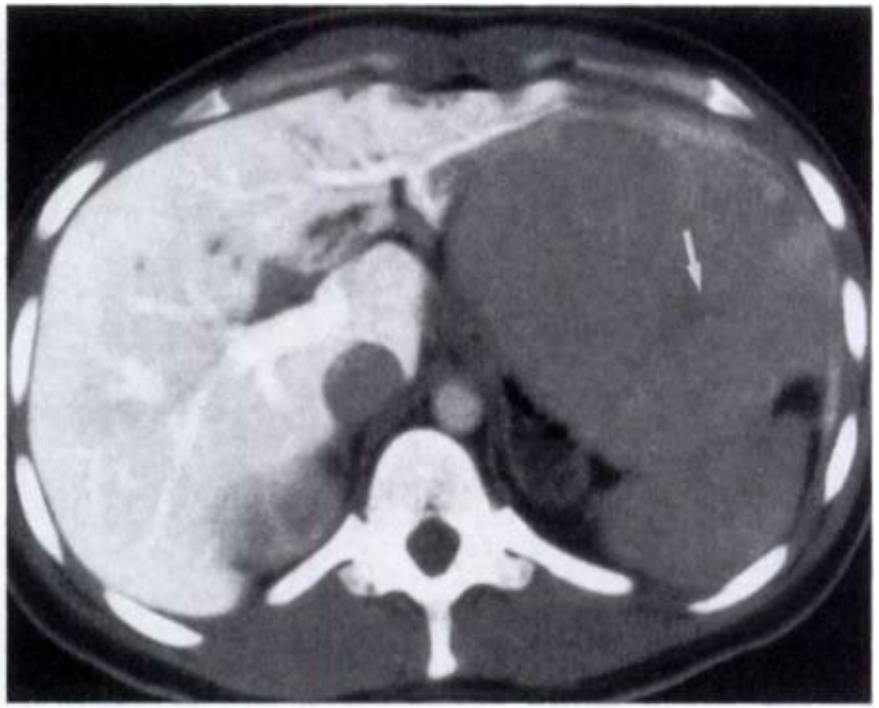
- Albumin 3.7, AST 235, ALT 256, AP 345, TB 1.2

- The radiologist called her to discuss the findings of the US and she was very concerned having been told there was a “mass in the liver”

Room 6

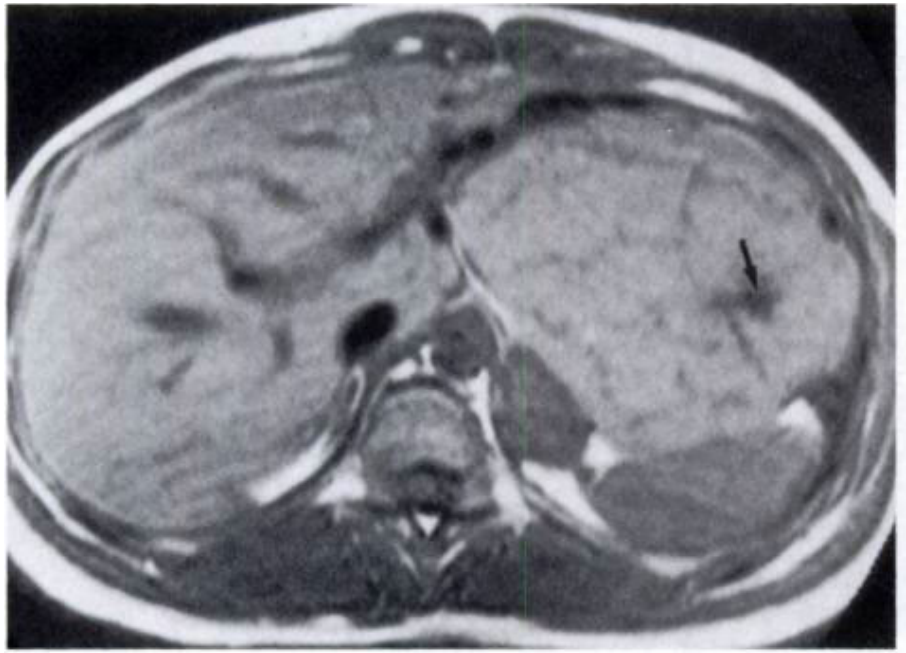
- You ordered CT scan and the radiologist asked you to please, order an MRI after having reviewed the CT





CT

MRI



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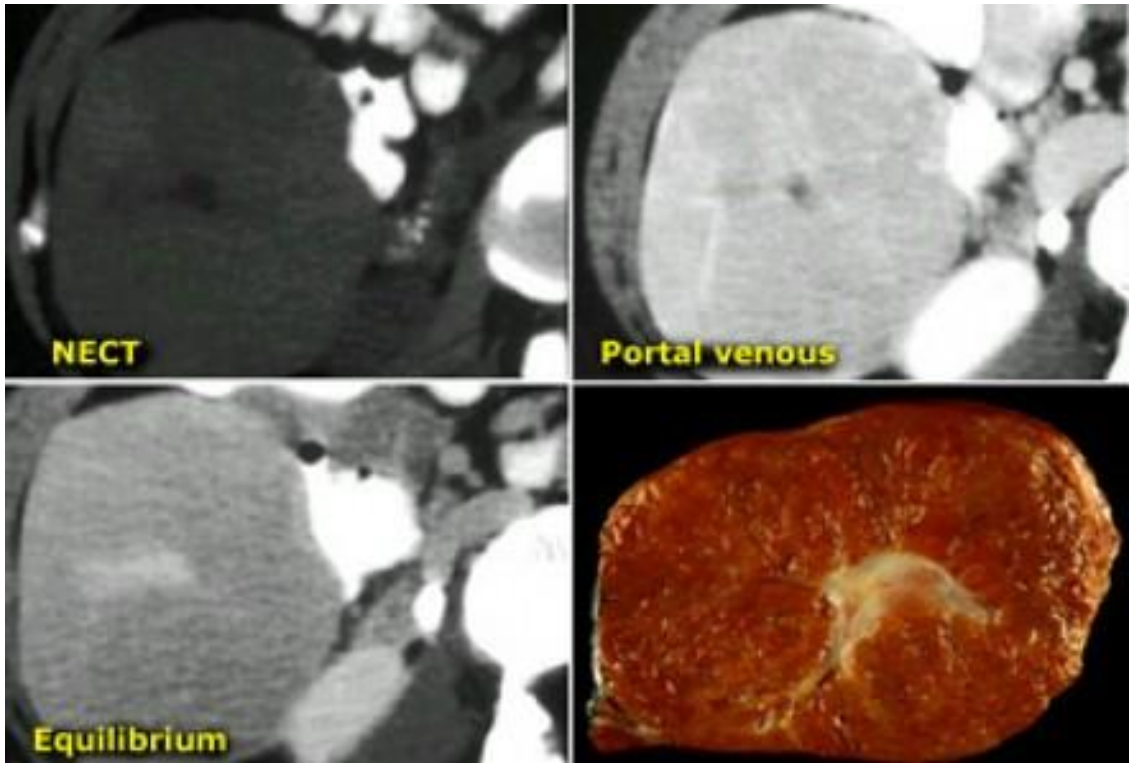
Focal Nodular Hyperplasia



- CT shows FNH as a vascular tumor, that is hyperdense in the arterial phase, except for the central scar.
- A typical FNH with a central scar is hypodense in the portal venous phase and hyperdense in the equilibrium phase.

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Focal Nodular Hyperplasia

- Benign liver tumor believed to be a hyperplastic response to an anomalous artery
- Most commonly seen in women in their 30s and 40s
- Incidentally found during imaging studies or laparotomy performed for unrelated reasons

Focal Nodular Hyperplasia (FNH) Clinical Features

- Benign nodule formation of normal liver tissue
- Central stellate scar
- More common in young and middle age women
- No relation with sex hormones
- Usually asymptomatic
- May cause minimal pain

Focal Nodular Hyperplasia (FNH) Diagnosis and Management

<u>Diagnosis</u>

- US: Nodule with varying echogenicity
- CT: Mass with central scar

<u>Treatment</u>

- No treatment necessary if patient asymptomatic and lesion is not large
- Pregnancy and hormones OK

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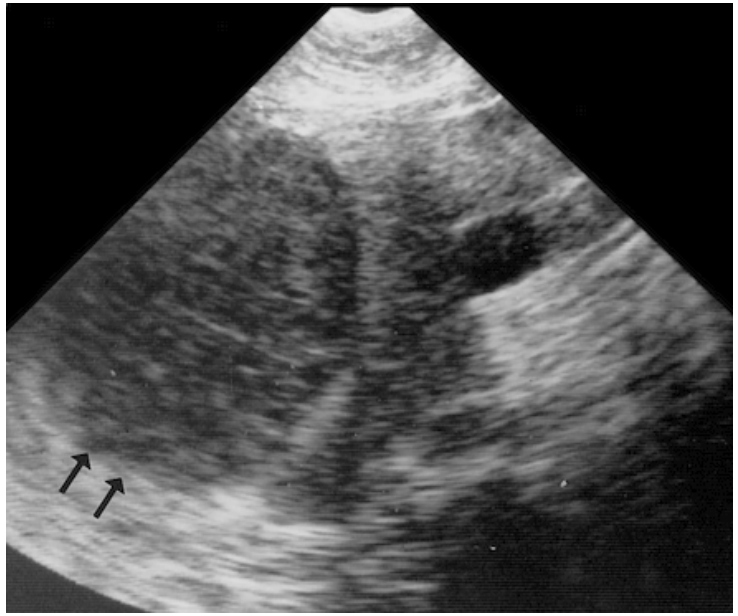
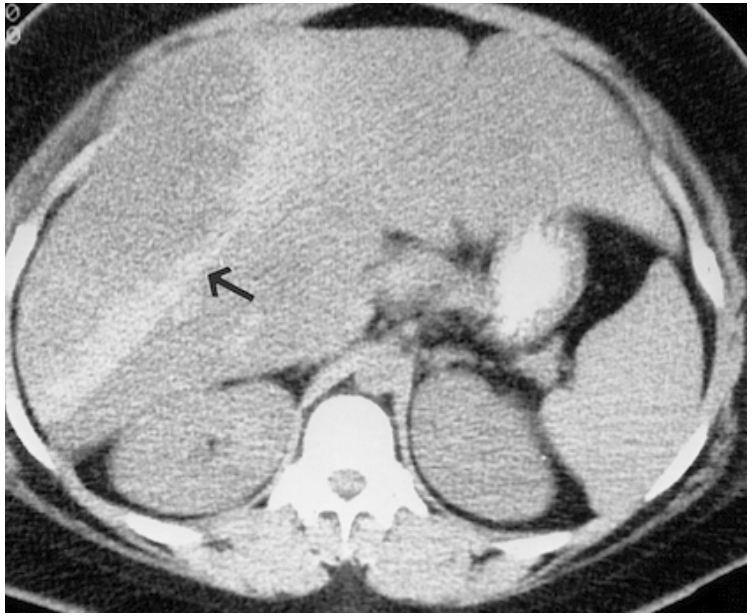
Room 7

- 42 y/o woman with acute onset, intense RUQ pain
- Associated: diaphoresis, near-syncope
- Was in good health otherwise
- Mother of 2 children
- 15 year history of OCP (none used in the past 7 years)

You start with the most cost-effective test, correct?



- Bleeding hepatocellular adenoma
- US shows a subcapsular fluid collection with internal echoes in the right hepatic lobe (arrows)



- Nonenhanced CT scan shows a large subcapsular liver hematoma (arrow)

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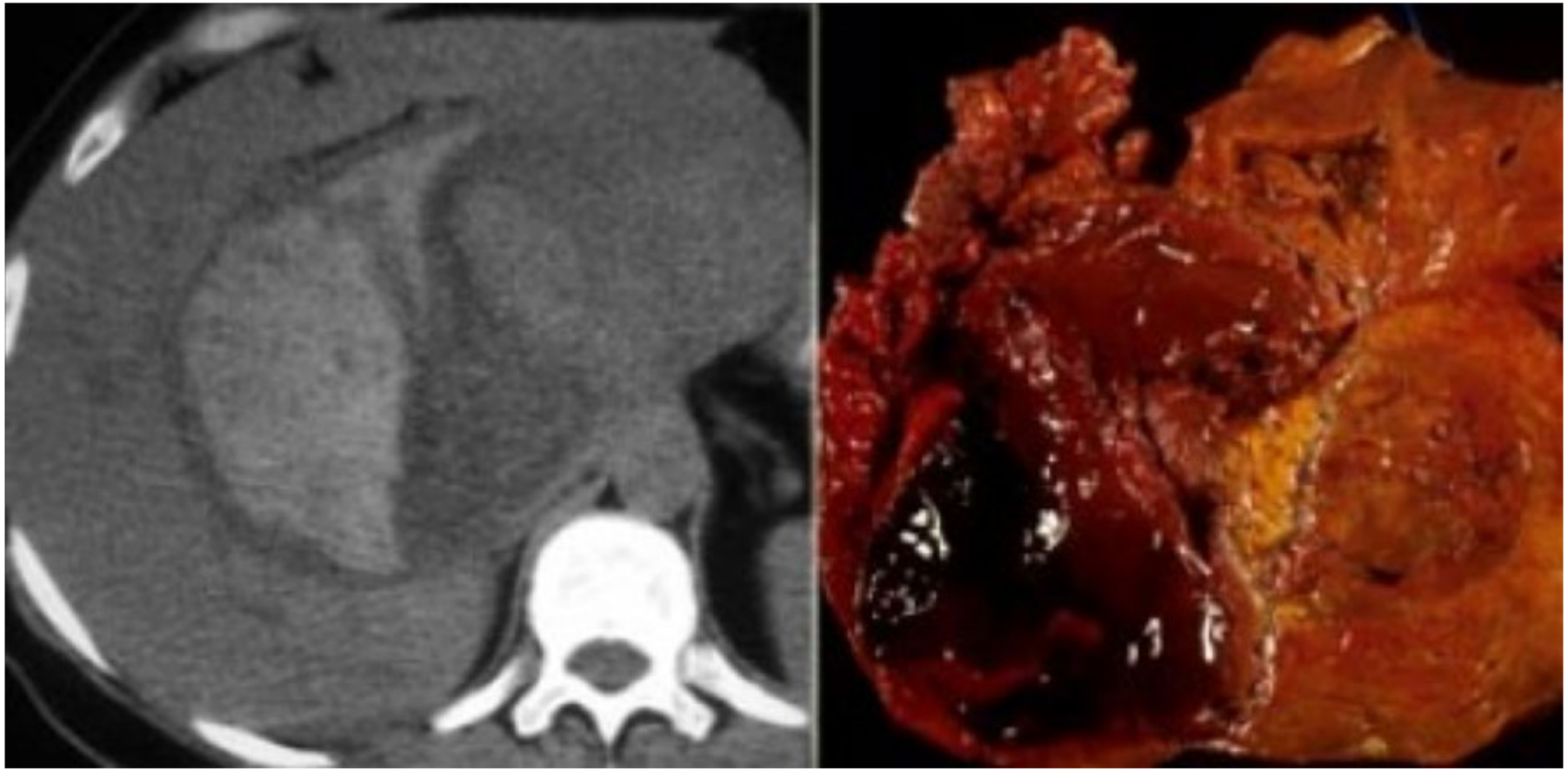
Adenoma, complicated



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Hepatic Adenoma

- Benign epithelial liver tumor
- Single/multiple lesions
- Occurs in non-cirrhotic liver
- Most commonly seen in premenopausal women older than 30 years of age
- Association with Type 1 Glycogen storage diseases
- Most patients have used oral contraceptives for more than two years prior to diagnosis
- Small risk of neoplastic transformation

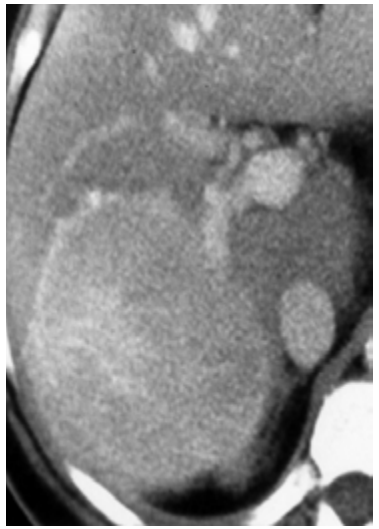
Hepatic Adenoma

- Pregnancy should be avoided
- Symptomatic tumors = resection
- Stop OCP and anabolic steroids
- Surgical resection → patients who desire to become pregnant
- Asymptomatic, <5 cm → close monitoring
- MRI = preferred surveillance
- Ruptured hepatocellular adenomas during pregnancy should be managed with resuscitation and resection

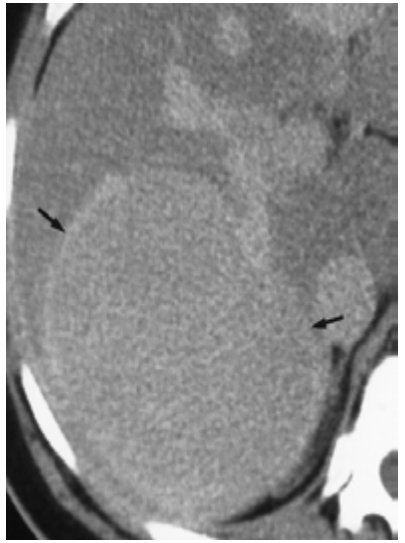
Hepatic adenoma

Nonenhanced CT mass (arrows)

Heterogeneous and hyper-attenuating enhancement of the tumor (arrows).



Homogeneous enhancement. Tumor margins are non-lobulated and sharp.



Delayed (10-min) CT section. Adenoma is homogeneously enhanced.

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Room 8

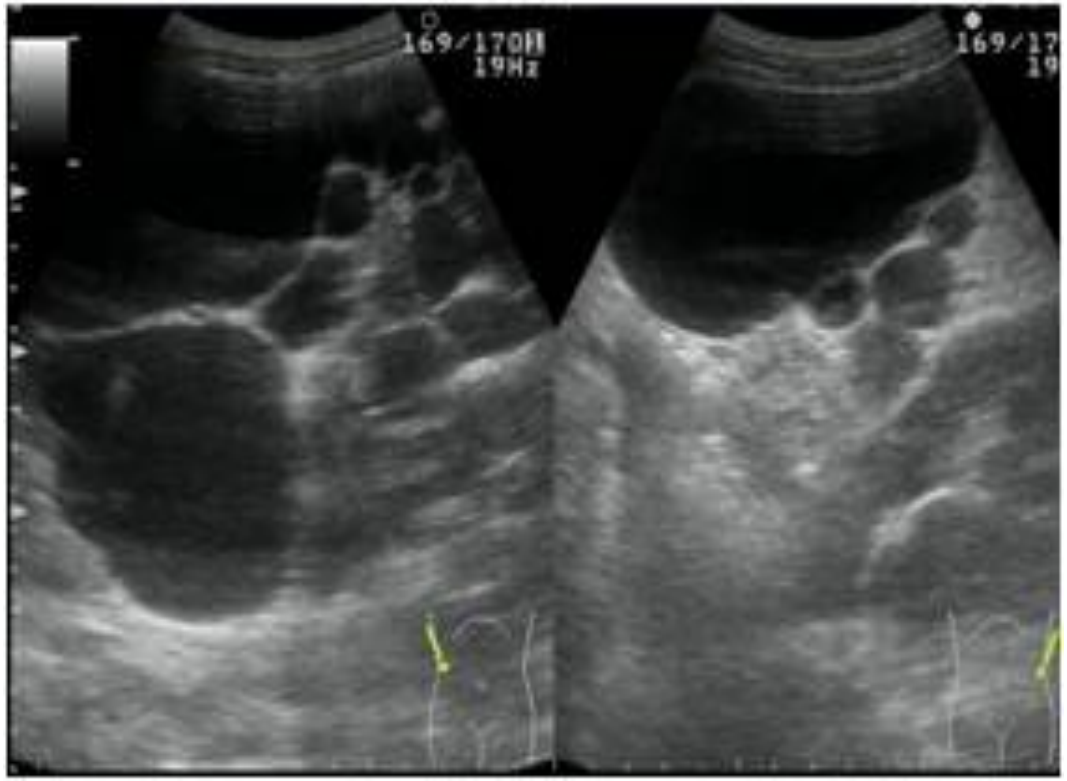
- 35 y/o man with occasional mild RUQ discomfort and nausea
- Not related to oral intake
- Mostly associated with strenuous exertion
- You noticed that for the past year he received 5 treatments for UTIs and today his T is 100.7 in the office
- First degree relatives with brain aneurysms and some kidney disease

Case

- You order routine labs and RUQ sonogram

- LABS are WNL exc WBC 12,000 without left shift
- Liver tests WNL, Chem WNL

Polycystic Liver Disease



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Polycystic liver disease

- Hepatic cysts can be part of polycystic liver disease, an autosomal dominant disorder →renal polycystic disease
- Hepatic cysts are found in 40% of cases of autosomal dominant polycystic disease
- Patients with autosomal dominant polycystic liver disease are asymptomatic and liver dysfunction occurs only sporadically
- Advanced disease can result in hepatomegaly, liver failure, or Budd-Chiari syndrome

Liver Cysts

- May be single or multiple
- May be part of polycystic kidney disease
- Patients often asymptomatic
- No specific management required

Summary of Recommendations

- There are numerous etiologies of liver lesions, both benign and malignant
- The majority of patients are asymptomatic and have normal PE and LABS
- Some patients will have findings related to the lesion or to predisposing conditions

Summary of Recommendations

- Risk factors for specific lesions should be identified
- The evaluation should focus on the specific lesion
- Patients with HCV and HBV, NASH, ETOH, HHC are at increased risk for HCC. Diagnostic approach should be based on the size of the lesion.

Summary of Recommendations

- If metastases to the liver are found, search for a primary extrahepatic malignancy
- If the HPI and PE are negative, start with LABS and triphasic CECT or MRI
- Of course, after you perform the “cheaper/cheapest” test…
- If imaging fails to diagnose, FNA or resection may be necessary

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