

20
18

NCSCG 4TH ANNUAL POST-AASLD SYMPOSIUM



Jointly provided by the New Mexico Medical Society (NMM5) through the joint
providership of Rehoboth McKinley Christian Health Care Services (RMCHCS)
and the Northern California Society for Clinical Gastroenterology.

Northern California Society
for Clinical Gastroenterology



Benign Liver Masses: Evaluation and Management

Renu Dhanasekaran MD

Stanford University

Dec 2018

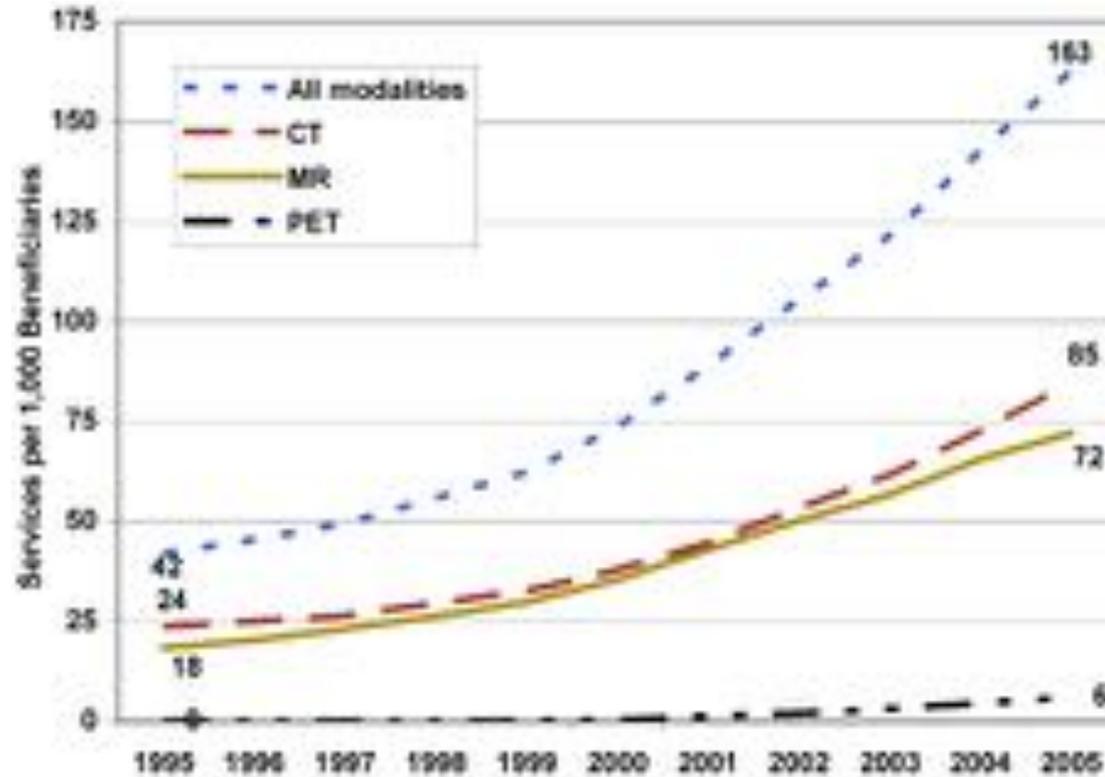
Why you should care



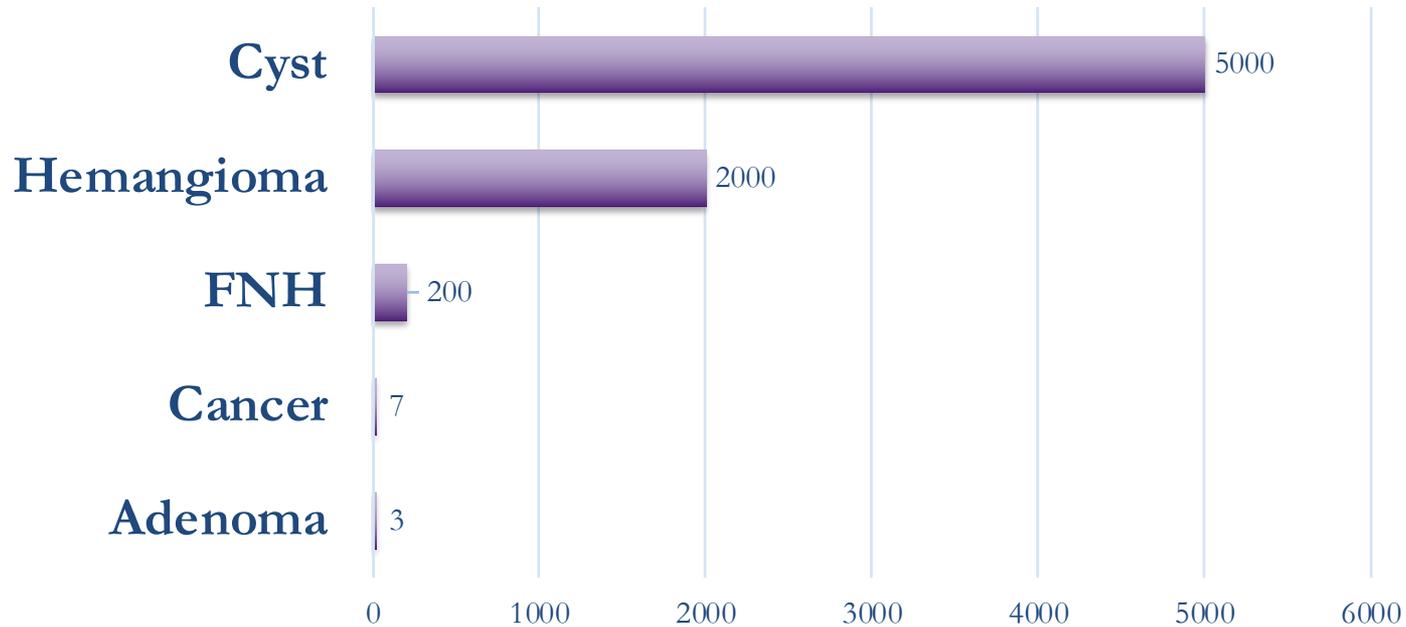
3/10

*Adults > 40
Liver lesions will be detected
incidentally*

Rise of Incidentalomas



Benign liver lesions are common



- **Incidence per 100,000*

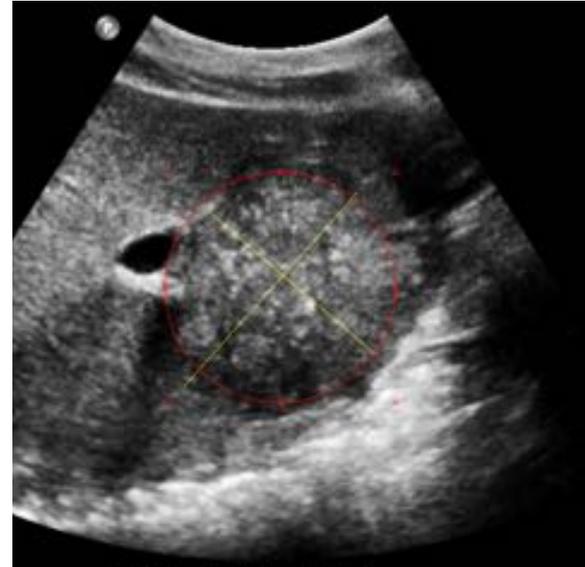
Case #1

- A **34 yr Caucasian female** with no history of chronic medical conditions presents to her primary care physician in
 - May 2018 with abdominal bloating and vague discomfort.
 - She is given a PPI trial for 4 weeks.
 - She returns in July 2018 still feeling bloated with RUQ discomfort.

Ultrasound findings



**Gall bladder, collapsed,
but normal, no stones**



**5.5 cm mass in left lobe of
liver**

CT scan

- A follow up CT shows 5.5 cm lesion with peripheral arterial enhancement with no uptake in the delayed phase. The radiologist report says “Favor atypical hemangiomas, cannot rule out primary liver malignancy or metastatic disease.”

What would you do next?

- What would you do next-
 - Order MRI with contrast
 - Order biopsy of the lesion
 - Order follow up CT in 6 months
 - Refer for surgical resection as she is symptomatic

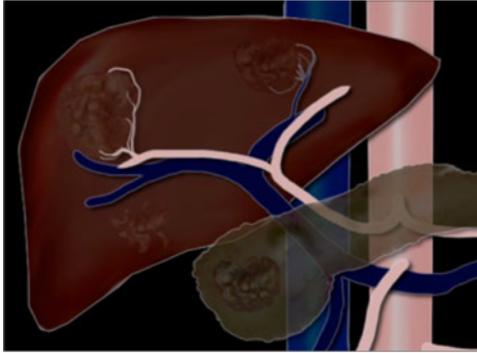


Approach to Benign Liver lesions

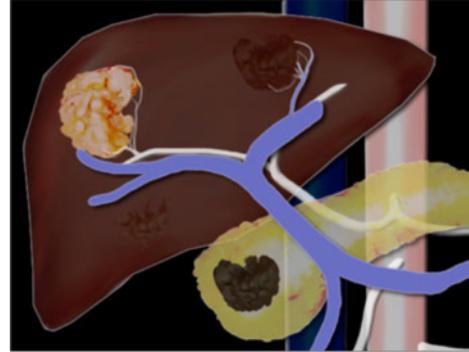
BRIEF INTRO TO LIVER IMAGING

Phases of contrast imaging

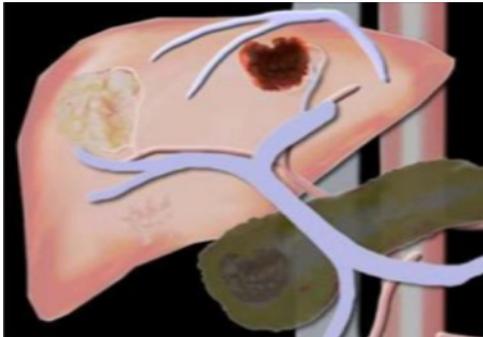
Early Arterial Phase (6 secs)



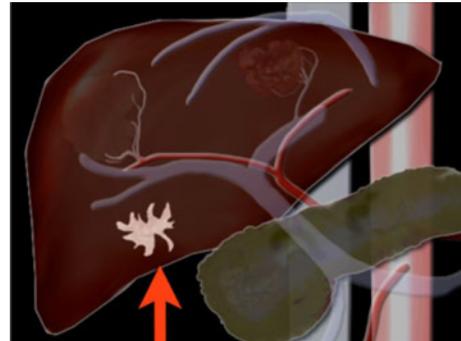
Late Arterial Phase (35 secs)



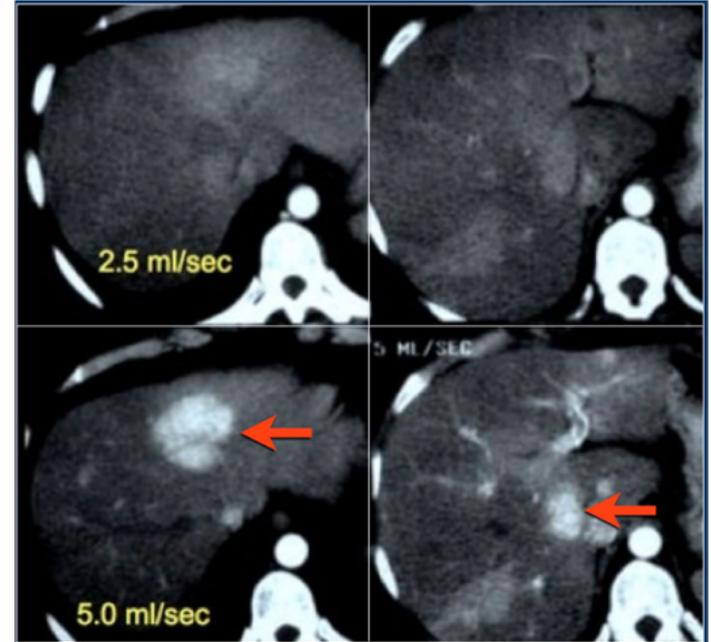
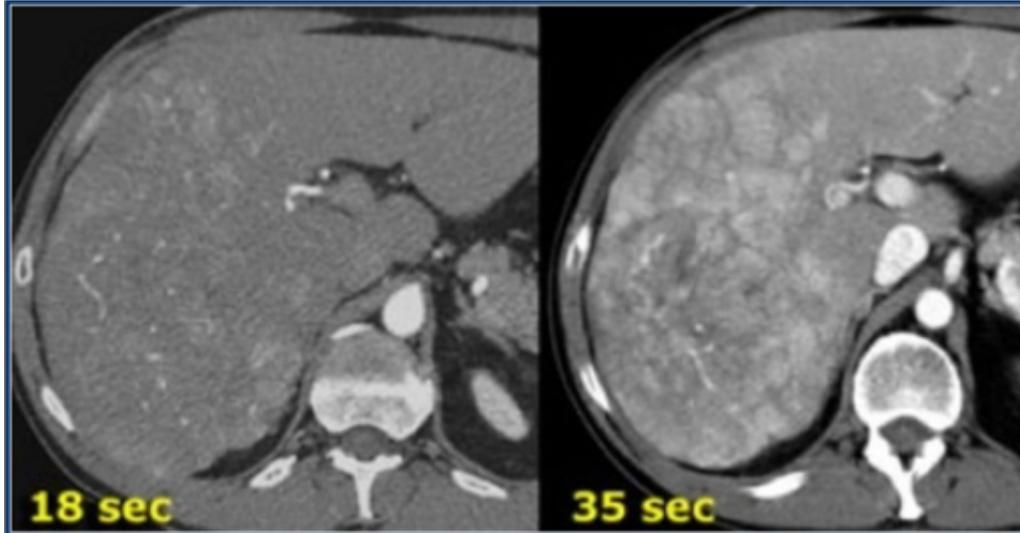
Portal Venous Phase (75secs)



Delayed Phase (6-10 mins)



Timing and speed of contrast is key



Which imaging to use.

- Ultrasound is usually the first investigation that detects the focal mass.
- Tripe-phase CT is an excellent modality for characterizing lesions
- Magnetic resonance imaging is the best imaging modality in terms of specificity for diagnosing hepatic lesions.

Most common benign lesions

1. Hemangioma
2. FNH
3. Adenoma
4. Cysts

Questions patients ask

- Will it grow?
- Will it turn into cancer?
- Should I stop Oral contraceptives?
- Can I get pregnant?
- Does it need serial imaging?
- Should it be removed surgically?

Hemangioma

- Most common benign mass
- Prevalence 4-7%
- More common in women (3:1)
- Most diagnosed in 4th-5th decade of life
- Mostly solitary, 40% multiple

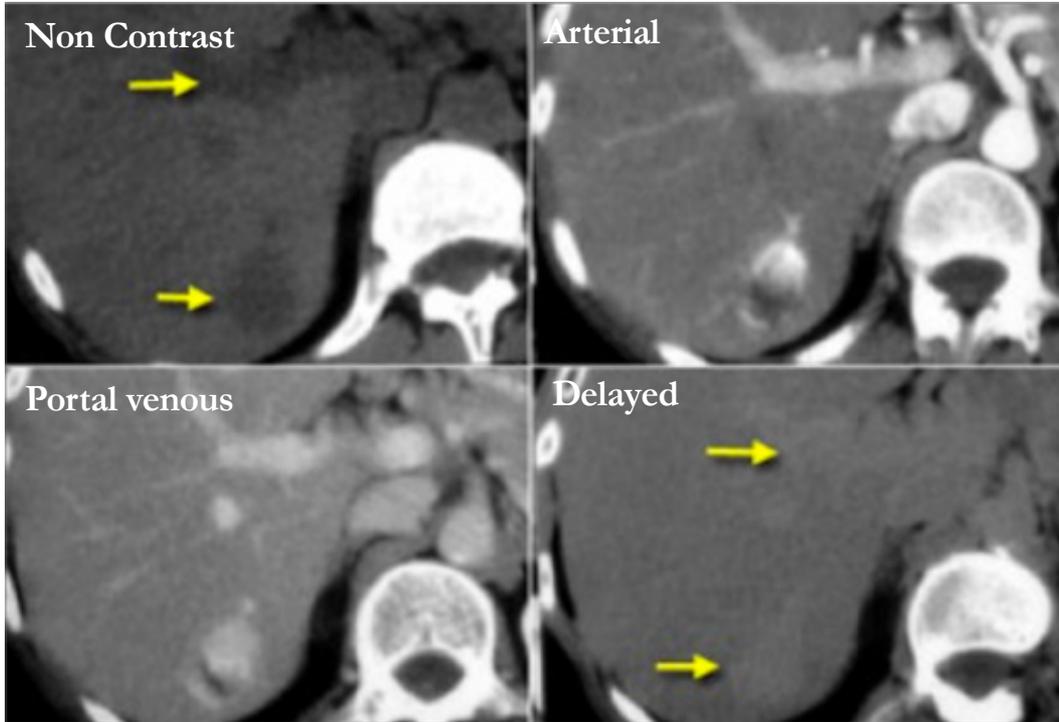
Hemangioma

FNH

Adenoma

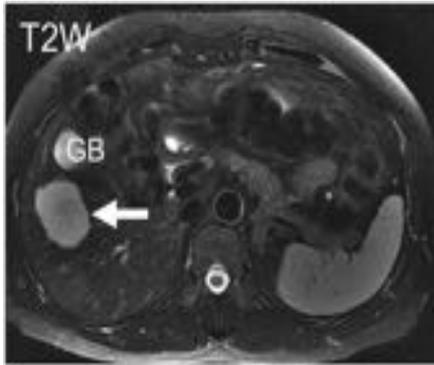
Cysts

CT Features



Compare to **blood pool** in every phase. Has to **match!**

MRI features



- Hyperintense T2
- Hypointense T1
- Nodular enhancement
- Arterial phase
- Centripetal filling



Hemangioma

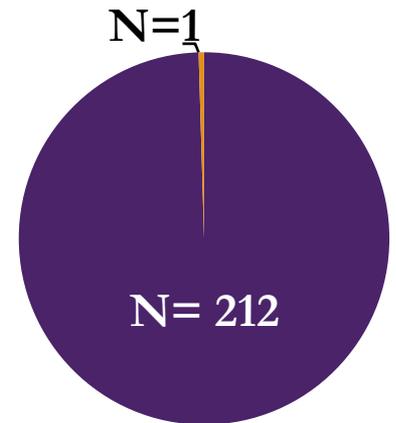
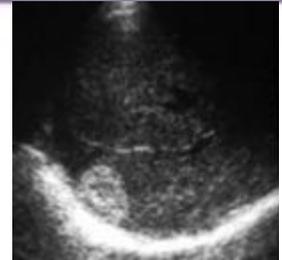
FNH

Adenoma

Cysts

Ultrasound

- Well-demarcated homogeneous hyperechoic mass
- If ultrasound shows typical hemangioma do you need to follow unless
 1. Cirrhosis
 2. Malignancy
 3. Atypical features



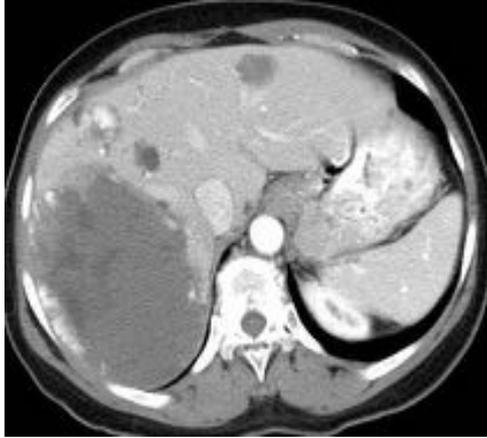
Hemangioma

FNH

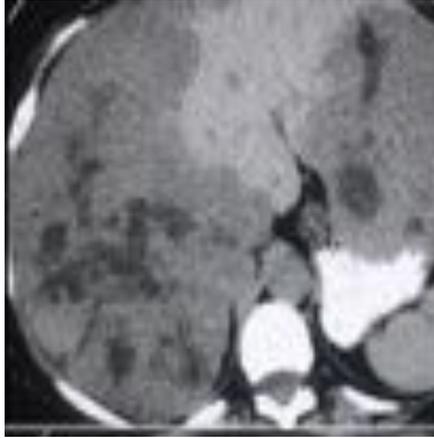
Adenoma

Cysts

Atypical hemangiomas



Giant hemangioma



Central scar



Calcification

- Wait and watch approach. Serial imaging to demonstrate stability.
- Surgery if causing pain or compromising synthetic function

Hemangioma

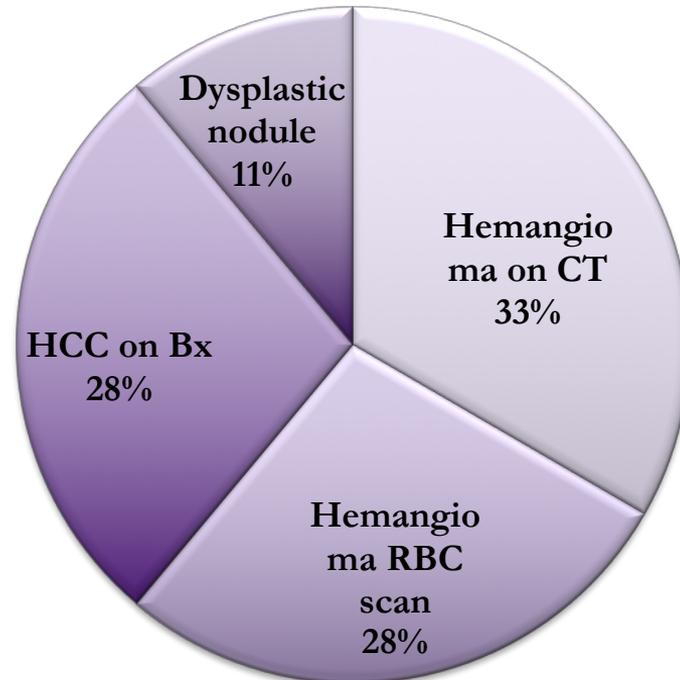
FNH

Adenoma

Cysts

Cirrhosis and Hemangioma

44 hyperechoic lesions found on ultrasound with features consistent with hemangioma



Can you Biopsy?

- Fifteen patients with liver masses detected with imaging were **strongly considered clinically** to have malignant disease.
- In each case, the **possibility of a hepatic cavernous hemangioma was raised** upon review of the images.
- Percutaneous hepatic biopsy performed in all 15 cases, the diagnosis of cavernous hemangioma was confirmed.
- There were **no complications** from the biopsy.

Hemangioma

FNH

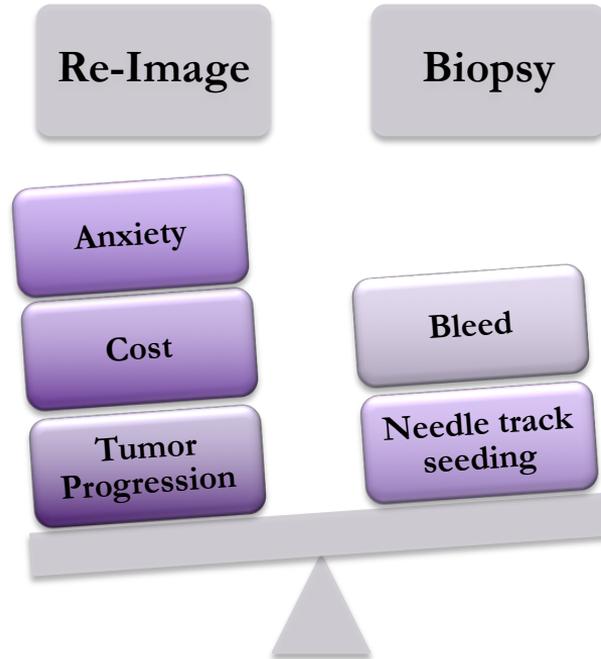
Adenoma

Cysts

Take-Home Point

- When imaging data are not sufficient to determine that a liver mass is benign, *even if the possibility of cavernous hemangioma is entertained*, a percutaneous biopsy can be safely performed and can yield a specific histologic diagnosis.

Recommendation



Hemangioma

FNH

Adenoma

Cysts

Questions patients ask

- Will it grow? **Generally No**
- Is there malignant potential? **No**
- Should I stop OCPs? **No**
- Can I get pregnant? **Yes**
- Does it need serial imaging? **Generally No**
- Should it be removed? **Generally, No**

Hemangioma

FNH

Adenoma

Cysts

FOCAL NODULAR HYPERPLASIA

Hemangioma

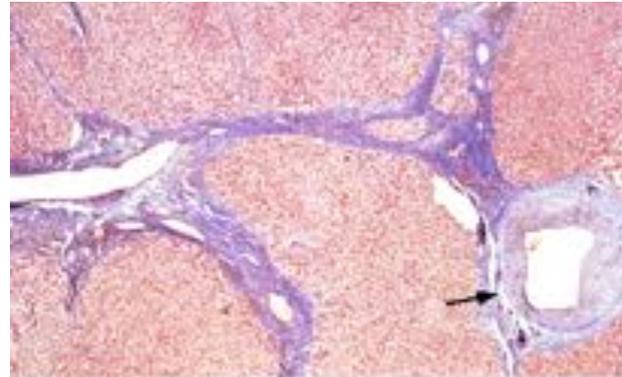
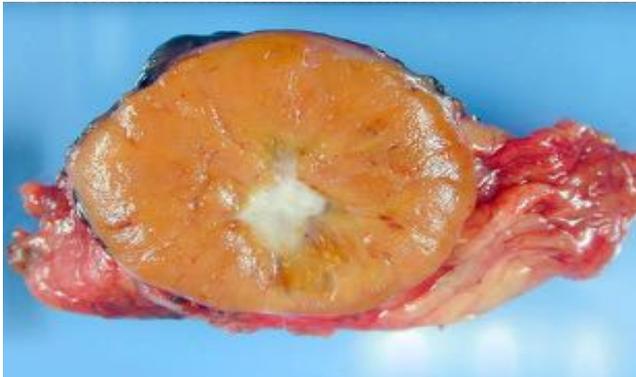
FNH

Adenoma

Cysts

FNH

- Prevalence 4%
- More common in women 8:1



Hemangioma

FNH

Adenoma

Cysts

CT features



Hyperenhancement

Isointense

Scar enhances

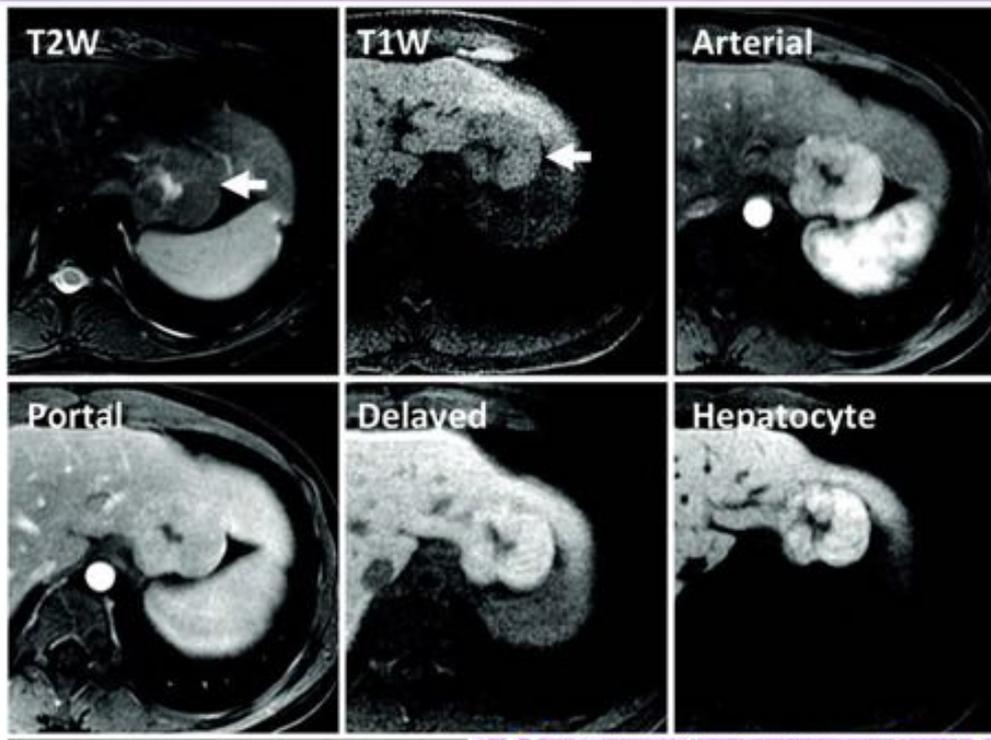
Hemangioma

FNH

Adenoma

Cysts

MRI features



Hemangioma

FNH

Adenoma

Cysts

FNH

- 216 patients with FNH followed over 9 years
 - (1) neither the size nor the number of FNH lesions are influenced by OC use;
 - (2) size changes during follow-up are rare and do not seem to depend on OC use; and
 - (3) pregnancy is not associated with FNH changes or complications.

Hemangioma

FNH

Adenoma

Cysts

Answers

- **Will it grow-** Generally No
- **Is there malignant potential-** None Reported
- **Should one stop OCPs-** Generally no. If continuing, reasonable to re-image in 3-6 months.
- **Does it need serial imaging-** Only if
 - On OCP
 - Is Pregnant
 - Lesion > 5 cms

HEPATIC ADENOMA

Hemangioma

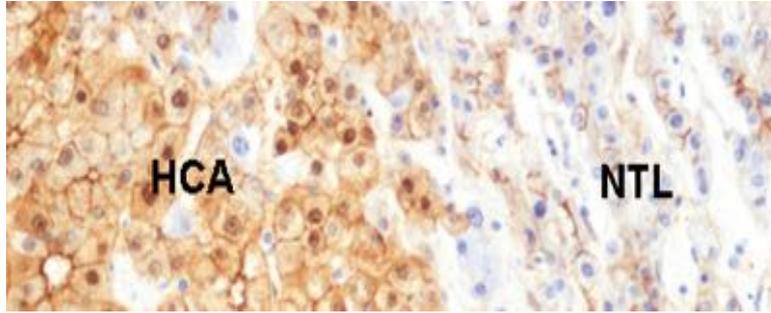
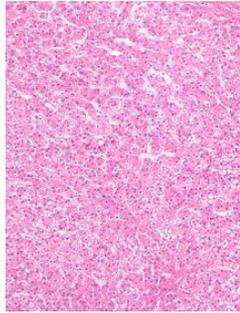
FNH

Adenoma

Cysts

Hepatic adenoma

- Relatively uncommon benign lesions
- More common in women (8-9:1)
- Young women (20-44 yrs)
- Strong association with OCP (40 fold increase)



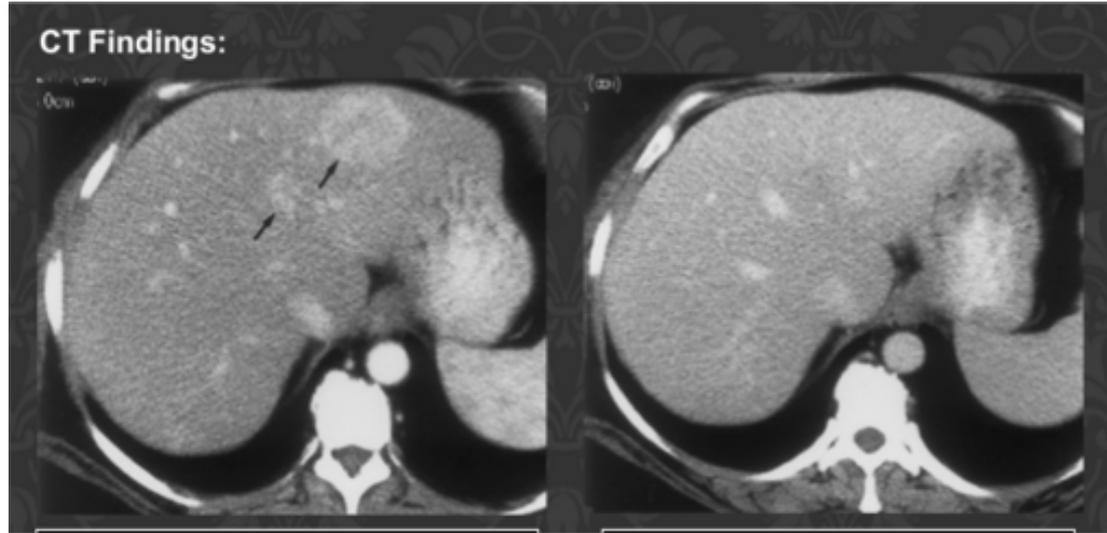
Hemangioma

FNH

Adenoma

Cysts

CT features



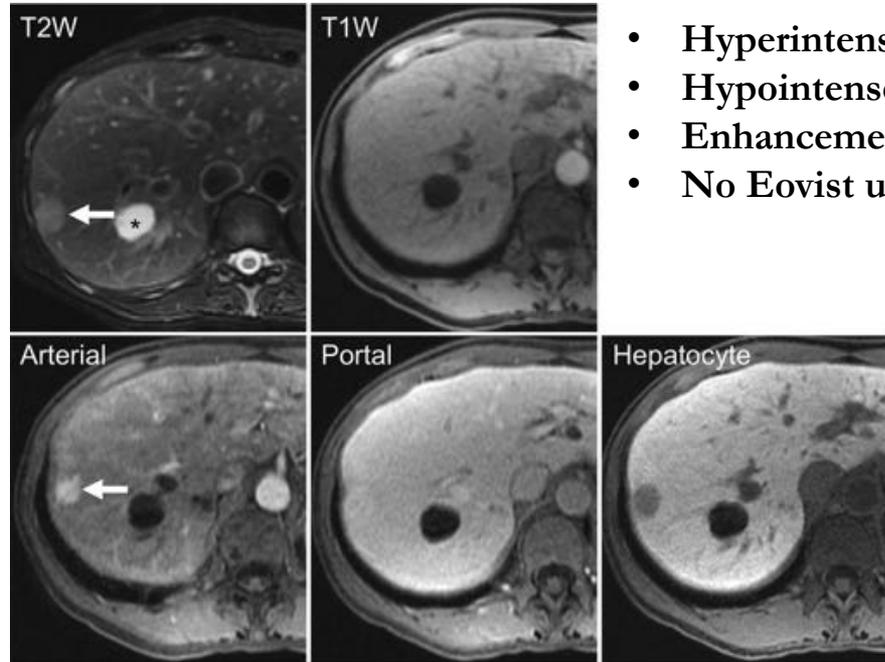
Hemangioma

FNH

Adenoma

Cysts

MRI characteristics



- Hyperintense T2
- Hypointense T1
- Enhancement arterial phase
- No Eovist uptake in late phase

Hemangioma

FNH

Adenoma

Cysts

Answers

- **Will it grow-** Likely if on OCP
- **Is there malignant potential-** Yes 3-5%
- **Should one stop OCPs-** Generally, yes. If continuing, reasonable to re-image in 3-6 mos
- **Does it need serial imaging-** Generally, Yes

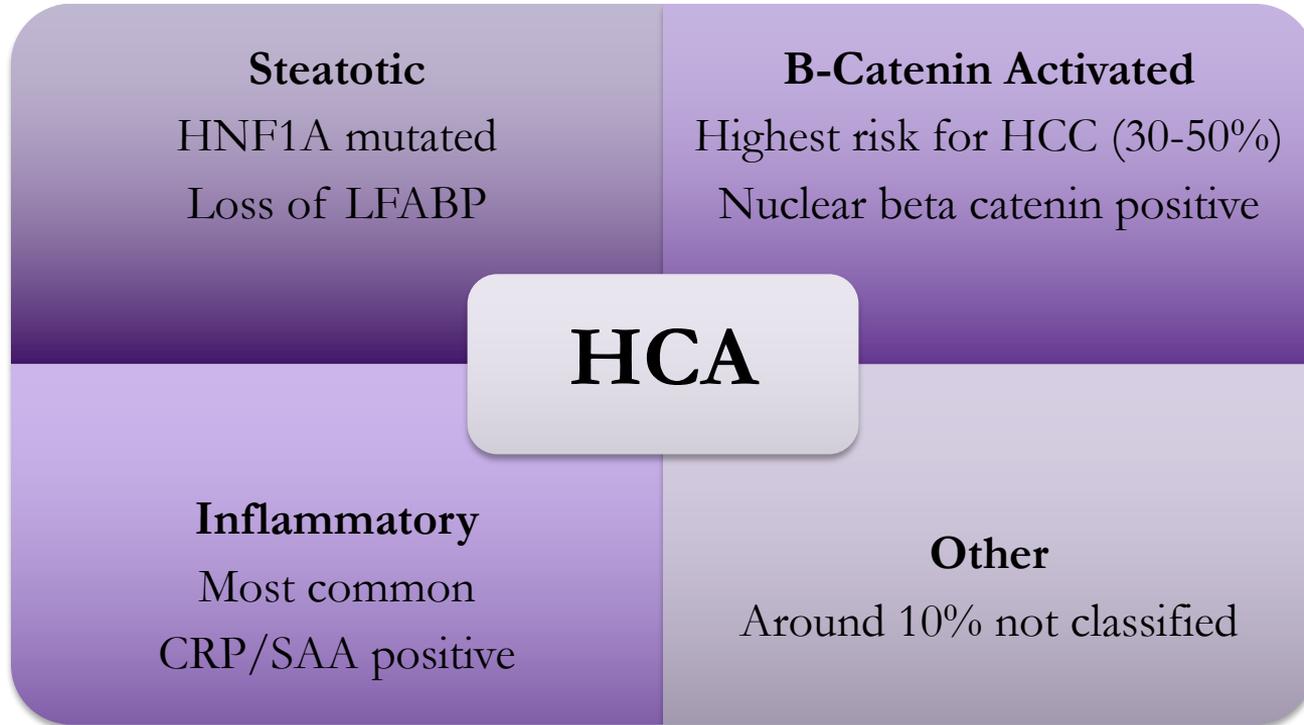
Hemangioma

FNH

Adenoma

Cysts

Genotype-Phenotype Classification



Special populations

- **>5 cms/ Symptomatic/ β -catenin+ /Male**
 - Resection
- **Women with small HCA on OCP**
 - Stop if possible
 - If not possible, monitor every 3-6 months
- **Women who want to get pregnant**
 - Resect prior to Pregnancy
- **Women who are pregnant**
 - If large resect electively second trimester

#893 Development and Validation of a Model to Predict Regression of Hepatocellular Adenoma

- Strongest predictors for regression to <5cm were
 - HCA diameter at T0
 - T0 to T1 regression over time
 - HCA subtype

Predictors	Value
Diameter at diagnosis [mm]	70
Date diagnosis [dd-mm-yyyy]	05-09-2017
Diameter at first follow-up [mm]	65
Date first follow-up [dd-mm-yyyy]	29-05-2018
Subtype [0=H-HCA 1=I-HCA 2=U-HCA]	1

Predicted risk of regression to <5cm (%)	
1 year after diagnosis	4,7
2 years after diagnosis	25,7

HEPATIC CYSTS

Hemangioma

FNH

Adenoma

Cysts

Hepatic cyst



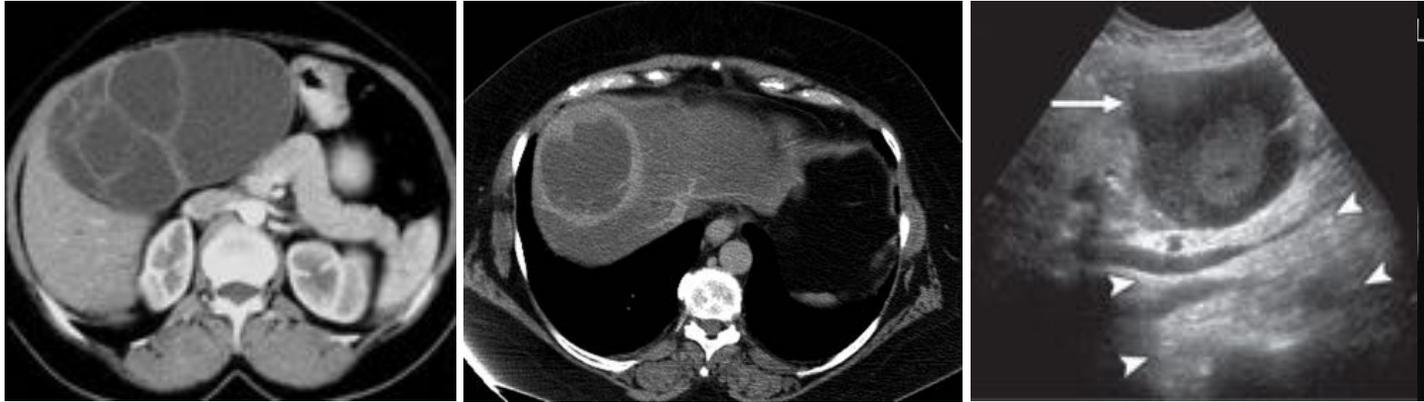
Hemangioma

FNH

Adenoma

Cysts

Complex cysts



- Complex cyst- Septations, thick wall, internal hemorrhage, daughter cysts, mural nodules
- Cystic metastases- (sarcoma, melanoma, carcinoid, NET)

Hemangioma

FNH

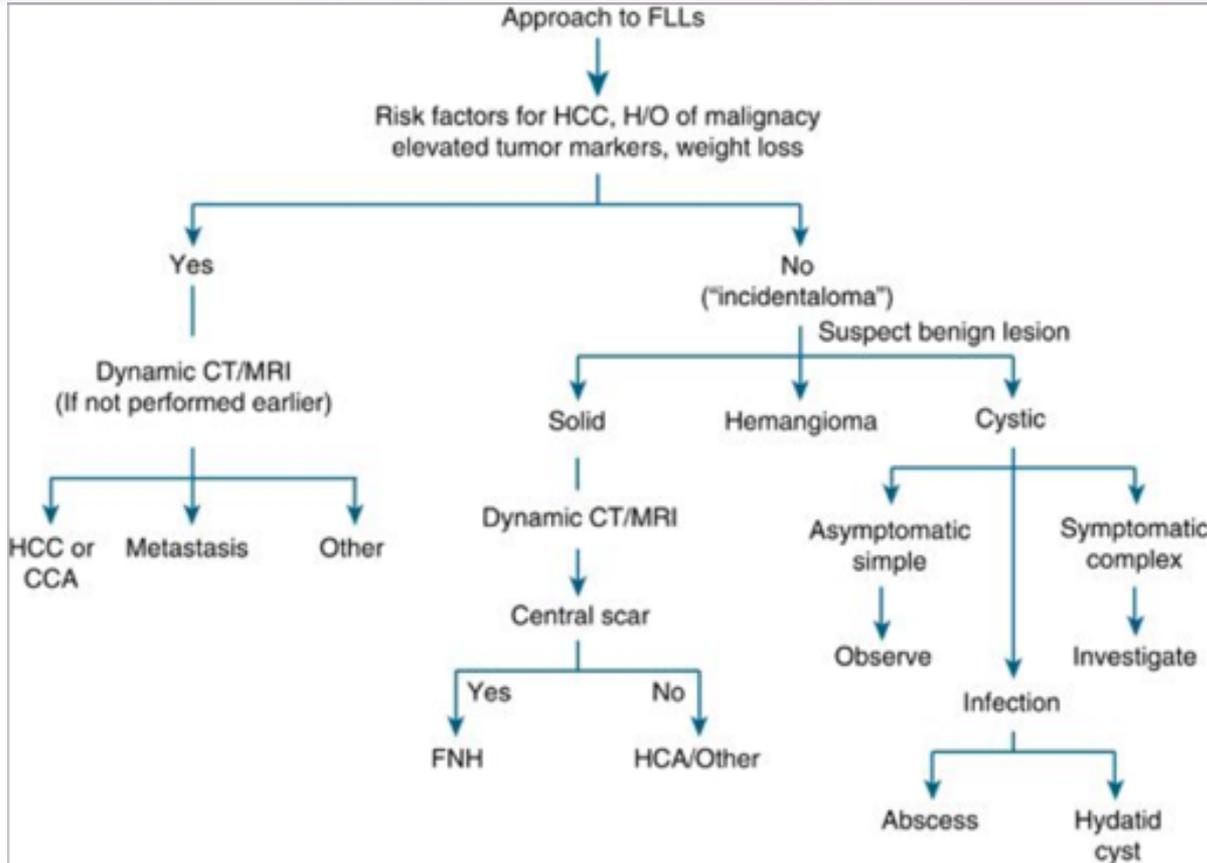
Adenoma

Cysts

Questions

- Will it grow? *Generally No*
- Is there malignant potential? *No*
- Should I stop OCPs? *No*
- Can I get pregnant? *Yes*
- Does it need serial imaging? *Generally No*
- Should it be removed? *Generally, No*

Diagnostic approach to liver lesions



Answer to Question #1

- ***1. Order MRI with contrast-***

According to American College of Radiology (ACR) Appropriateness criteria for imaging liver lesions, MRI should be considered for further characterization of liver lesions that are considered indeterminate on other imaging, as MRI as higher sensitivity and specificity.

- Biopsy of hemangiomas has been shown to be safe but should be reserved for cases where the imaging findings are truly indeterminate.
- If lesions have features of typical hemangiomas, no further follow up will be needed.
- Hemangiomas are benign lesions and surgical resection is not needed in general. Her symptoms are likely unrelated to the mass and she should pursue management for functional dyspepsia.

Take Home Points

- *All lesions in cirrhotics should be considered HCC unless proven otherwise.*
- Good quality triphasic cross sectional imaging can establish imaging.
- Do not hesitate to biopsy if diagnosis remains indeterminate.
- Know the natural history of lesions, so you can reassure patients.



Thank you!