Spotlight on Liver Lesions: Uncovering the Mystery of Focal Findings

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- Outline
  - Review what are the major benign lesions in the liver
  - Characteristic imaging findings
  - Discuss management of benign liver lesions

- Key References for this Talk
  - ACG Guidelines: Frenette C, Mendiratta-Lala M, Salgia R, Wong RJ, Sauer BG, Pillai A. ***ACG Clinical Guideline: Focal Liver Lesions.*** Am J Gastroenterol. 2024 Jul 1;119(7):1235-1271.
  - AASLD- Reguram R, Ghonge A, Tse J, Dhanasekaran R. ***Practical approach to diagnose and manage benign liver masses.*** Hepatol Commun. 2024 Oct 30;8(11)

Case

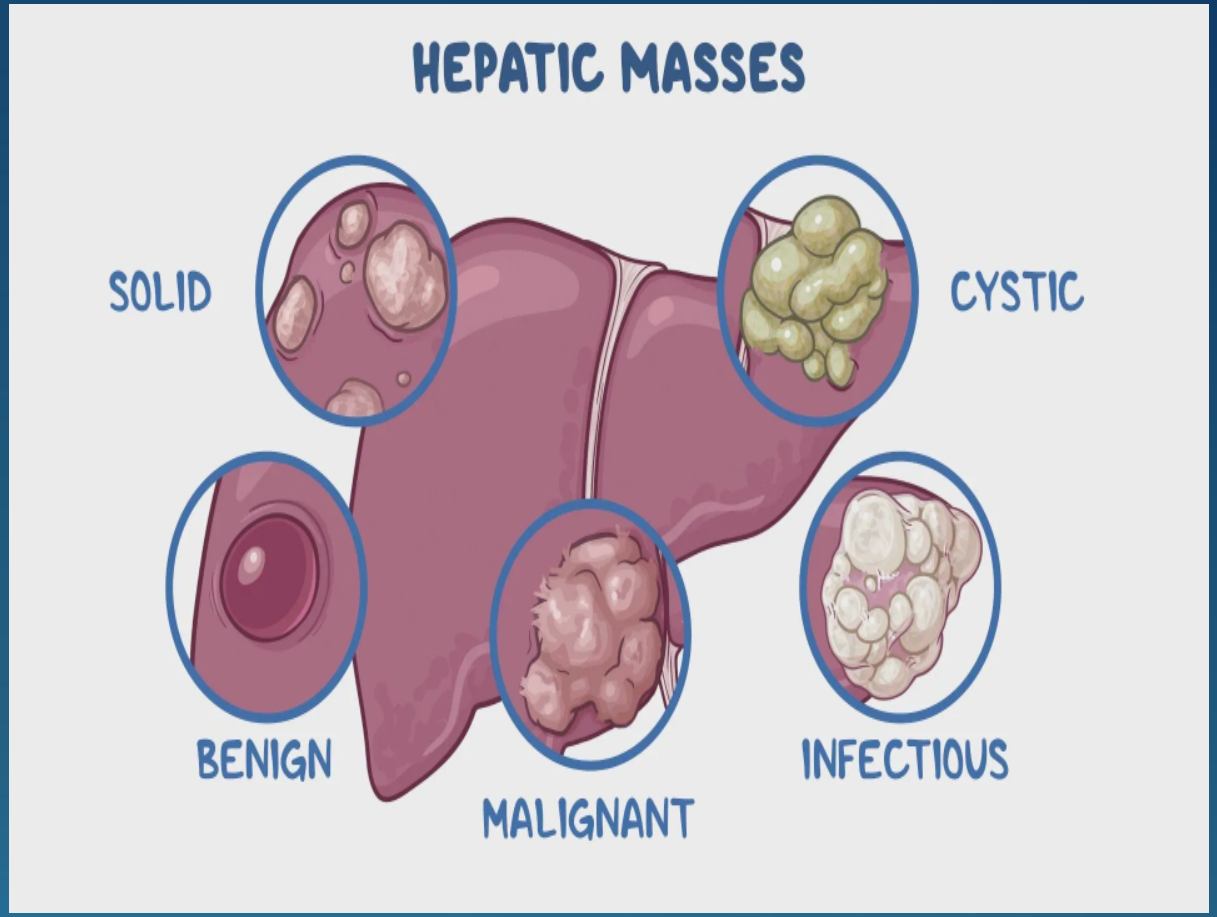
- 32yo obese female presents after imaging in ER following a motor vehicle accident noted an incidental lesion in her liver. Her only medication is a OCP. CT with contrast notes a 6 cm peripheral enhancement during the early (arterial) phase and centripetal flow during the portal venous phase. The lesion then becomes isodense during the late (venous) phase and hypodense on post-contrast phases.

- What is the likely diagnosis?
  - A. Hemangioma
  - B. Focal Nodular Hyperplasia
  - C. Hepatic Adenoma
  - D. Hepatocellular Carcinoma

https://radiopaedia.org/articles/hepatic-adenoma?lang=us

Benign Liver lesions

- Most commonly diagnosed abnormalities in liver imaging
- Up to 52% of patients without cancer have a benign liver lesion at autopsy.
- The American College of Radiology reports that up to 15% of patients have an incidental liver lesion detected on routine non-surveillance imaging.
- A thorough history key to management

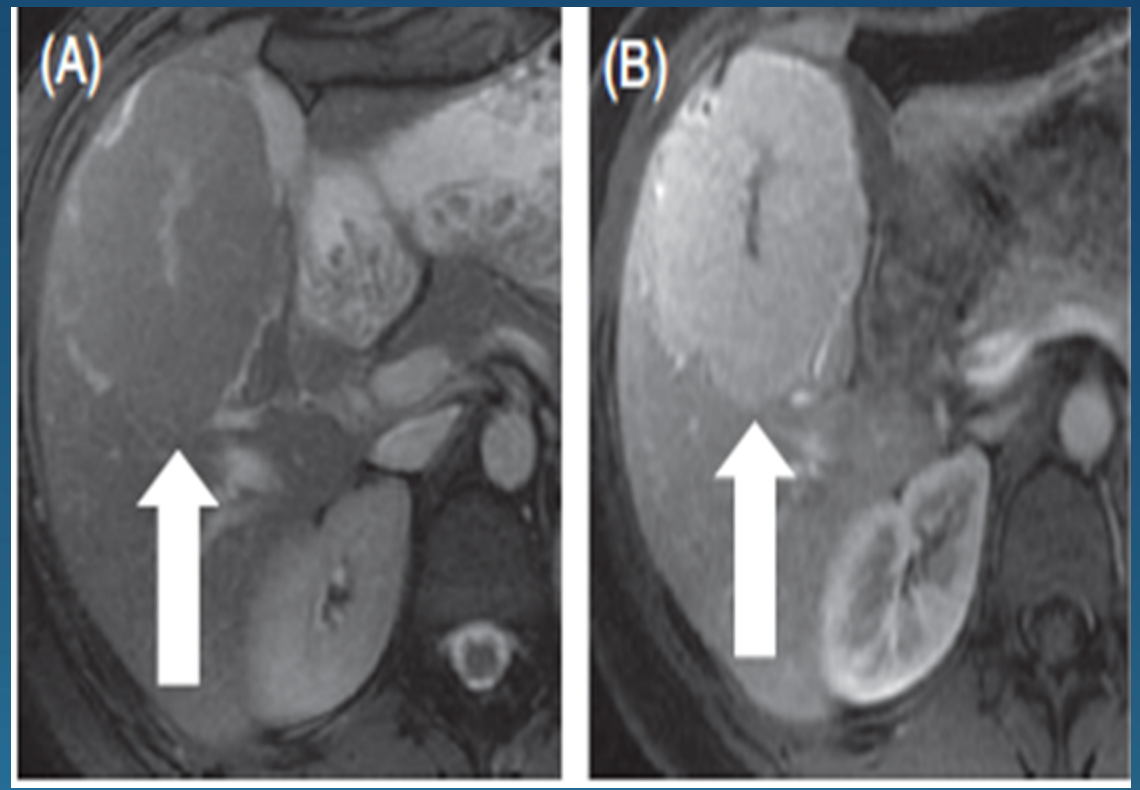


Osmosis

1. Washington K. Masses of the liver. In: Goldblum JR, Odze RD (eds). SurgicalPathologyoftheGITract,Liver,BiliaryTractandPancreas.2nd edn. Saunders, an imprint of Elsevier: Philadelphia, PA, 2009, pp 657–789.
2. Kaltenbach TE, Engler P, Kratzer W, et al. Prevalence of benign focal liver lesions: Ultrasound investigation of 45,319 hospital patients. Abdom Radiol (NY) 2016;41(1):25–32.

Focal Nodular Hyperplasia

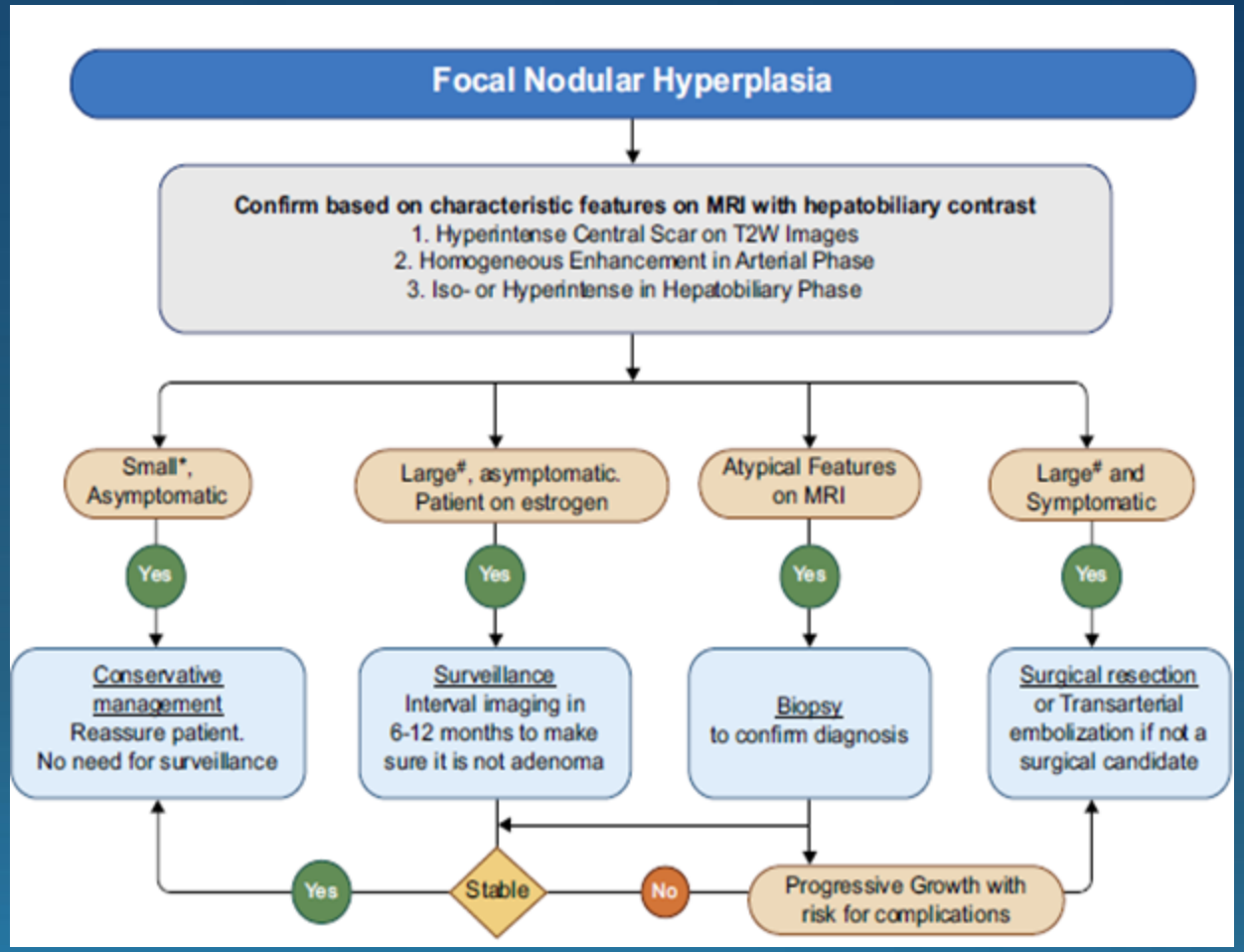
- Second most common benign solid liver lesion
- 8% of all primary liver lesions
- Highest prevalence in 30-50 yo women
- No link to hormonal exposures/OCPs
- Virtually no risk of undergoing malignant transformation, necrosis, rupture, or hemorrhage



Frenette et al. ***ACG Clinical Guideline: Focal Liver Lesions.*** Am J Gastroenterol. Jul 2024.

Focal Nodular Hyperplasia

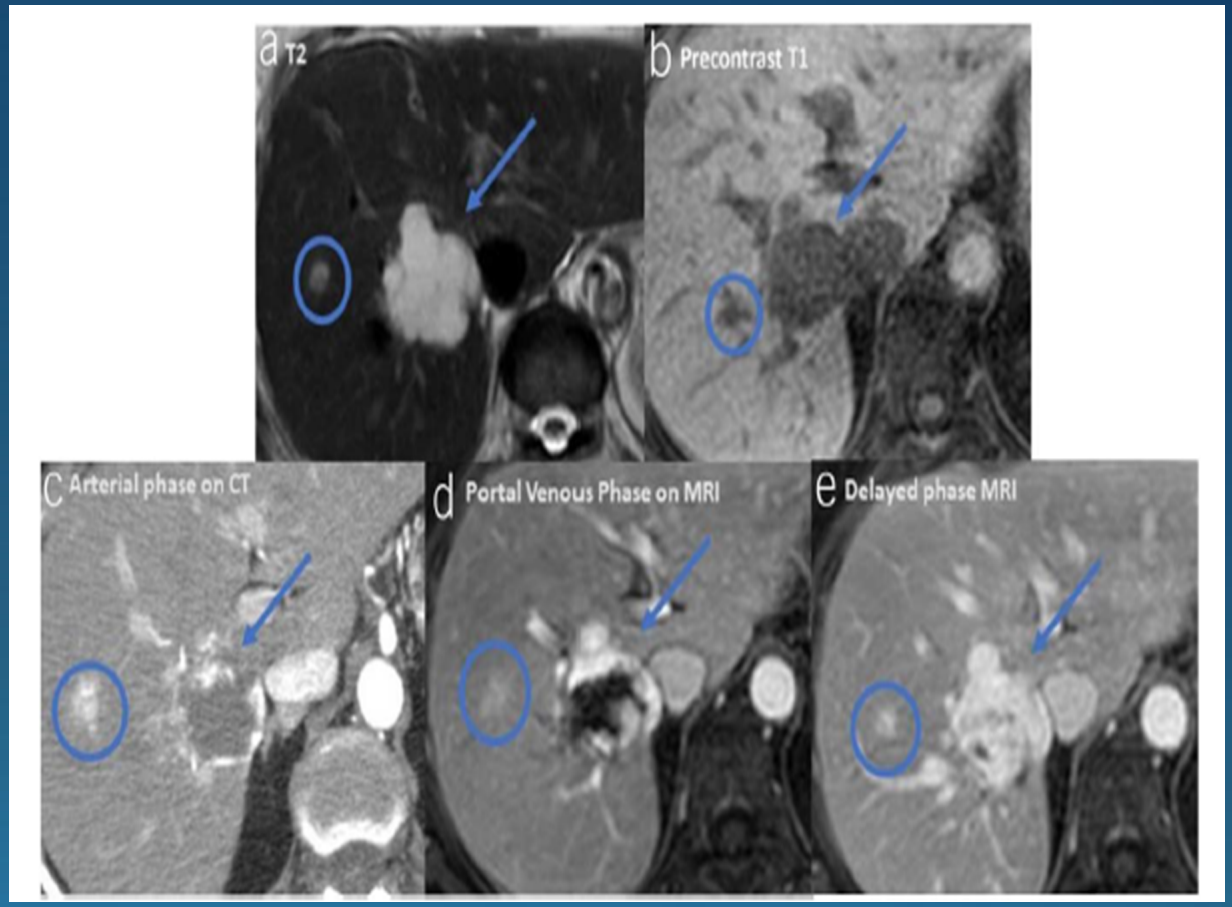
- Leverage advanced imaging to distinguish FNH from other lesions such as adenoma
- If FNH confirmed, no further follow up required
- If FNH diagnosis not conclusive, consider follow-up cross sectional imaging
- Surgical resection if large and symptomatic
  - TAE if not surgical candidate



Reguram R et al. Practical approach to diagnose and manage benign liver masses. Hepatol Commun. Oct 2024.

Hepatic Hemangioma

- Most common benign non-cystic liver lesion
- Up to 20% of the population
- Benign mesenchymal vascular lesions consisting of clusters of blood filled cavities lined by endothelial cells
- Small risk of bleeding
- Classic types: cavernous, capillary, and sclerosed.
- No causative link to sex hormones/OCPs
- Kasabach-Merritt Syndrome
  - Thrombocytopenia, DIC, Bleeding
  - Giant Cavernous Hemangioma



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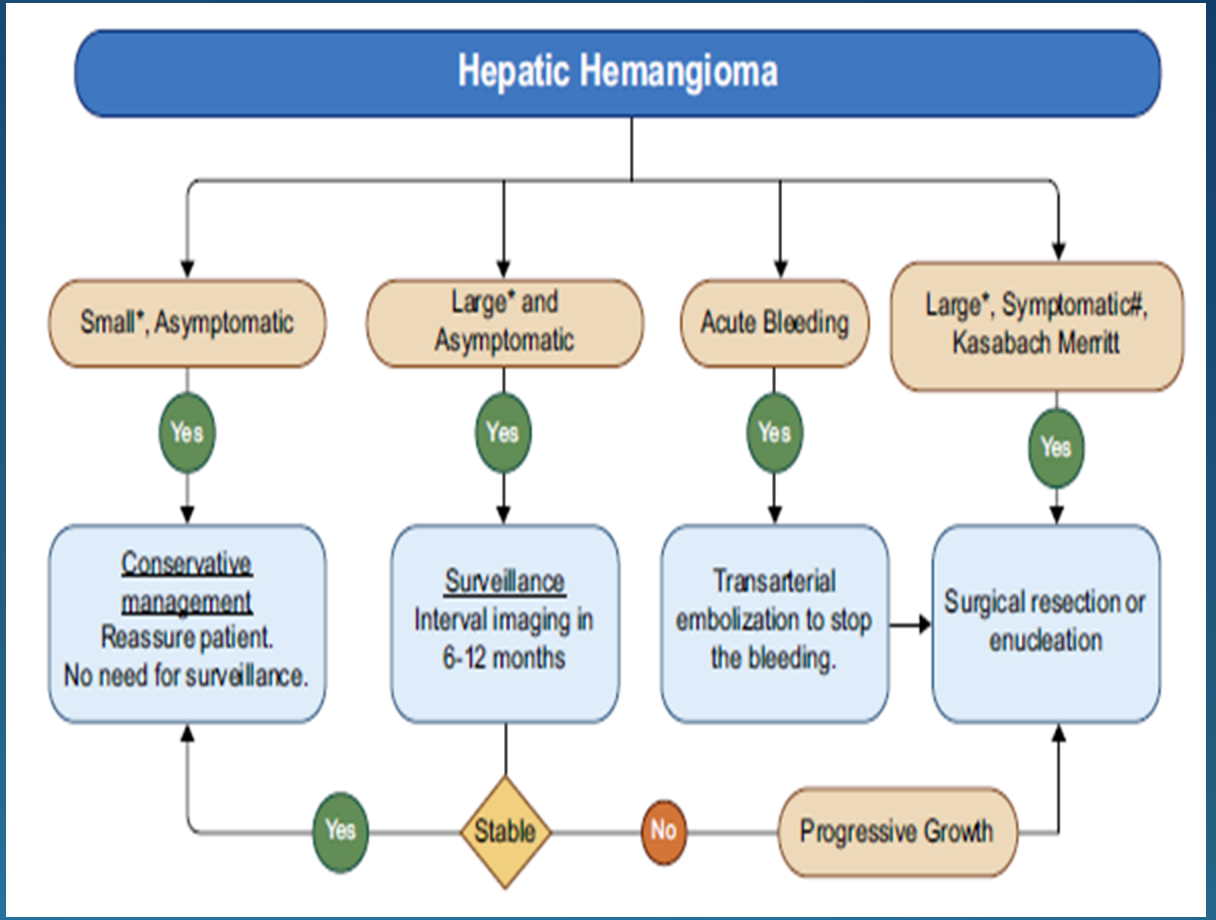
Hepatic Hemangioma

- MRI particularly helpful with diagnosis given occasional atypical features (sclerosing)
- Avoid biopsy given risk of bleeding
- If small (<5cm), asymptomatic, no further management needed.
- If large, repeat imaging in 6-12 months
- If symptomatic, consider surgery versus TAE



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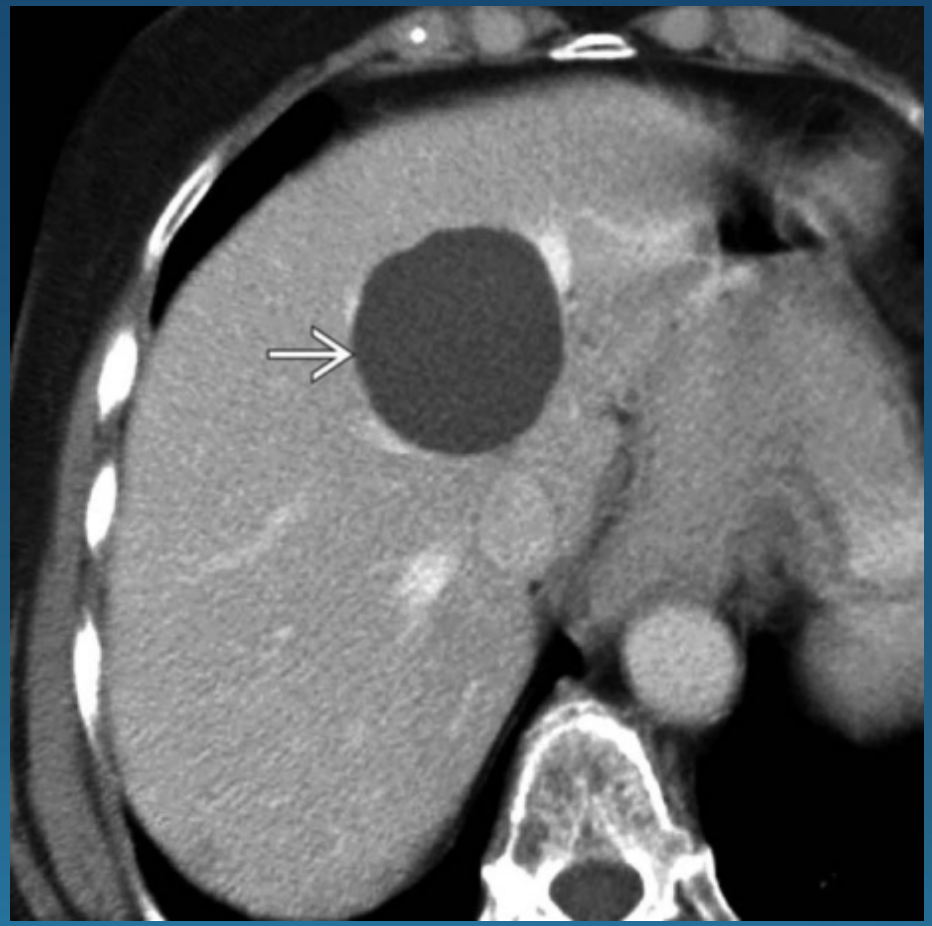
Cystic Liver Lesions

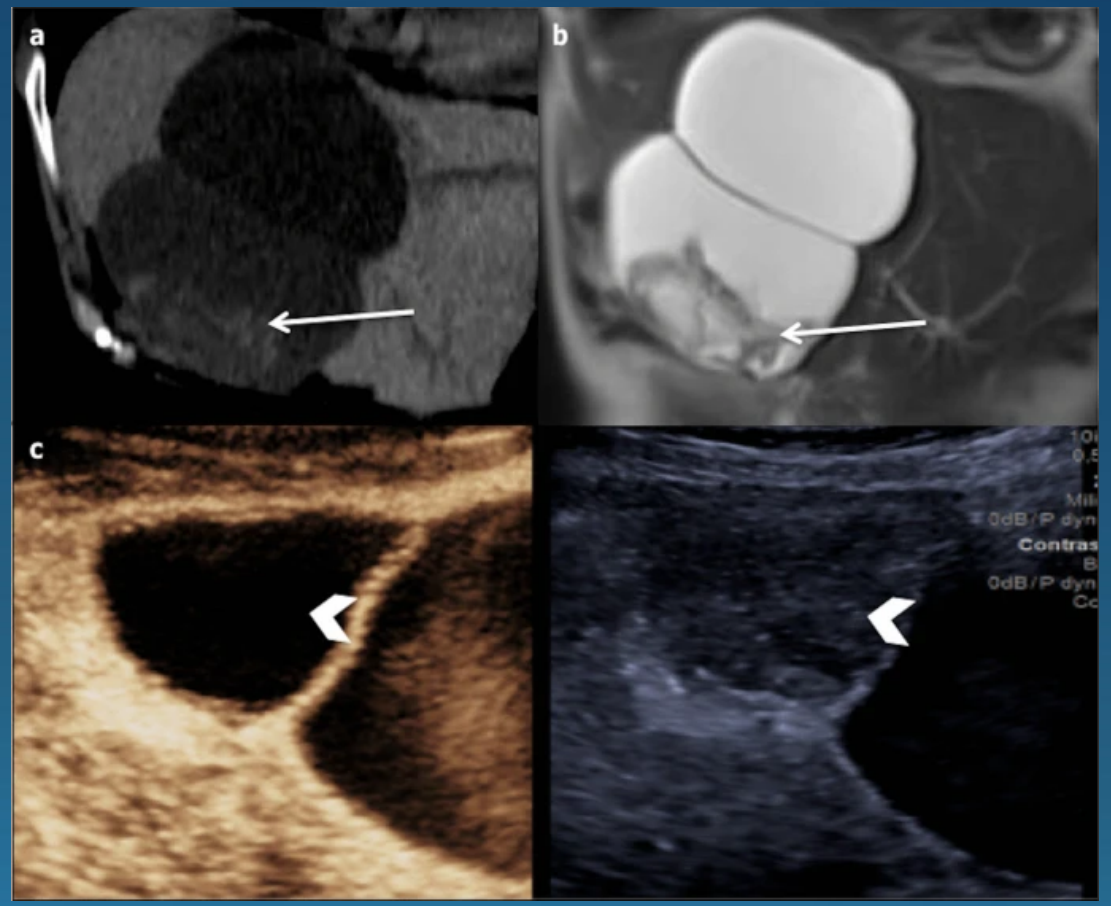
- Heterogeneous group of lesions
- Prevalence of 2.5-18%
- Most indolent, but some can be malignant
- High risk features
  - Septations
  - Fenestrations
  - Calcifications
  - Mural thickening
  - Heterogeneity/nodularity



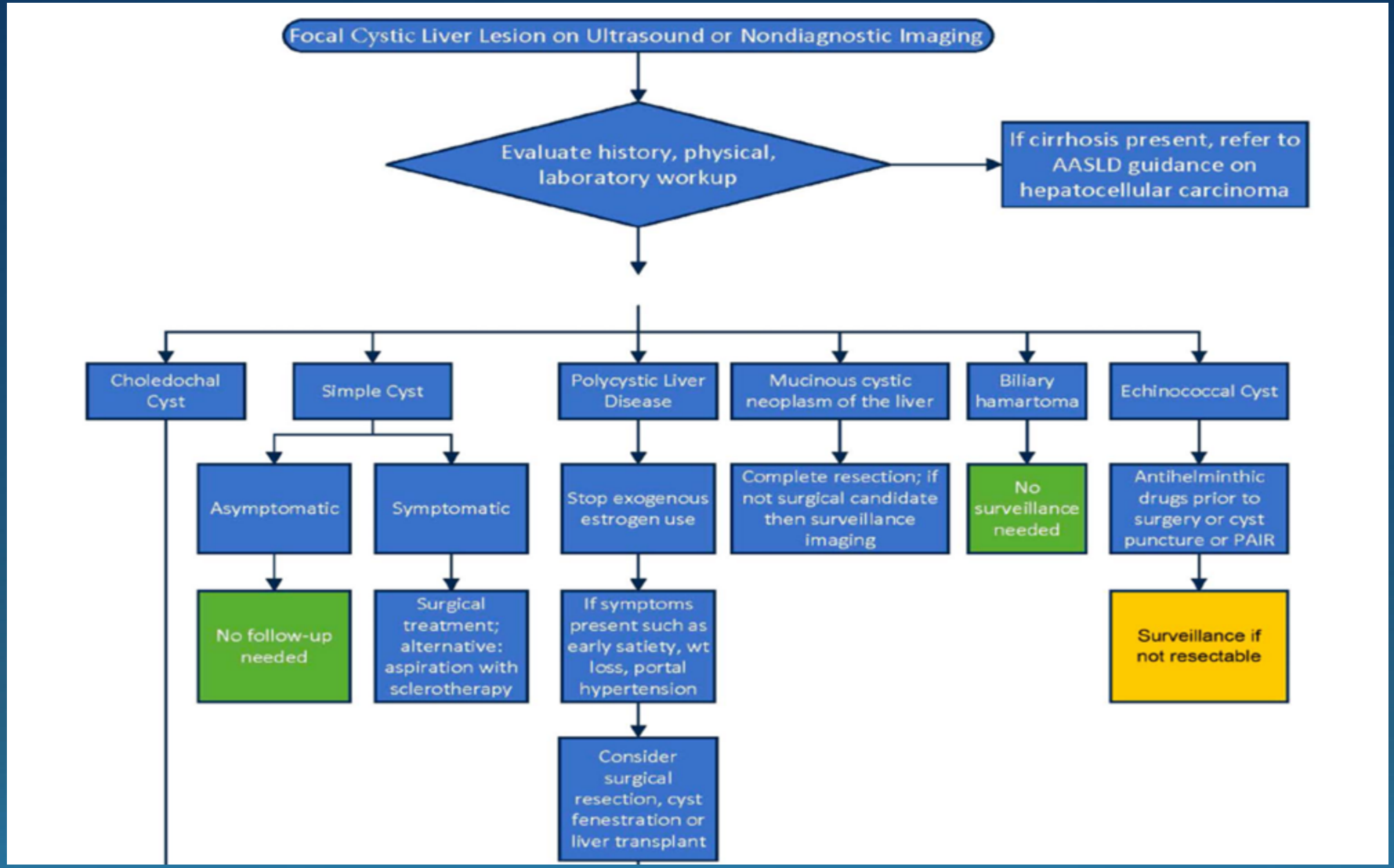
Frenette et al. ***ACG Clinical Guideline: Focal Liver Lesions.*** Am J Gastroenterol. Jul 2024.

Cystic Liver Lesions

- Congenital malformations, inherited disorders, infection
- Women more likely to develop large cysts
- Mostly benign overall
  - Simple most common with no correlation with estrogen exposure
  - Polycystic Liver Disease
  - Clinical correlation vital to diagnosis



Vachha et al. Cystic Lesions of Liver. Amer J of Roentgenology. Nov 2012



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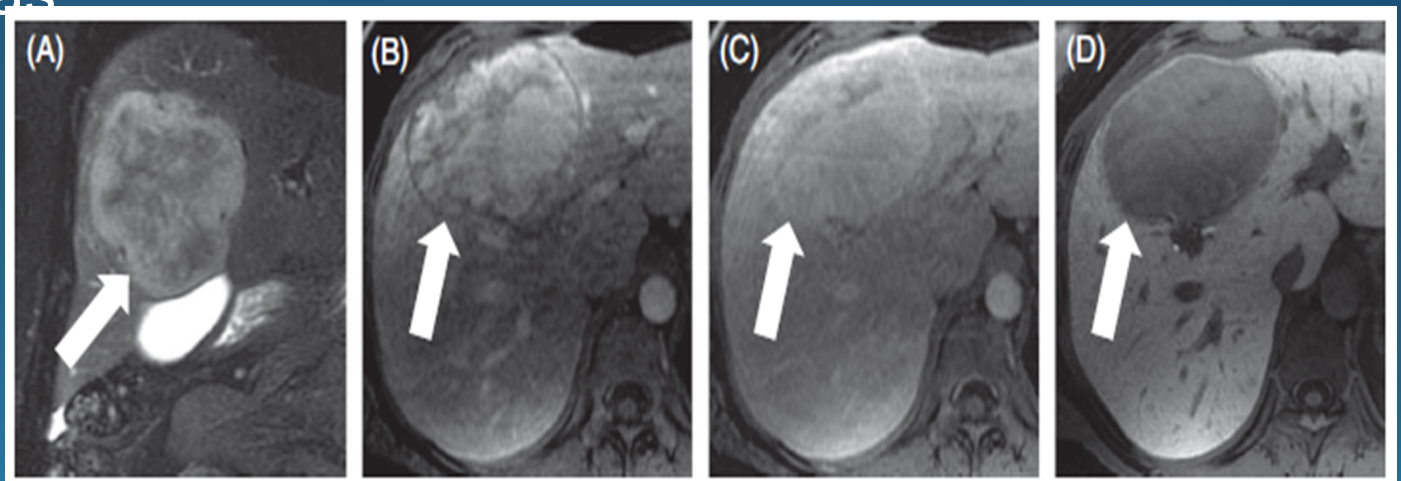
Hepatic Adenoma

- Predominately affect women
- OCPs/Estrogen linked
- Distinct molecular subtypes, each with unique genetic, pathological, and radiologic characteristics that guide clinical management
  - Inflammatory adenoma (most common)
  - HNF1A-inactivated adenomas
  - β-catenin–mutated variant
  - Sonic hedgehog adenoma
  - → Mixed variants



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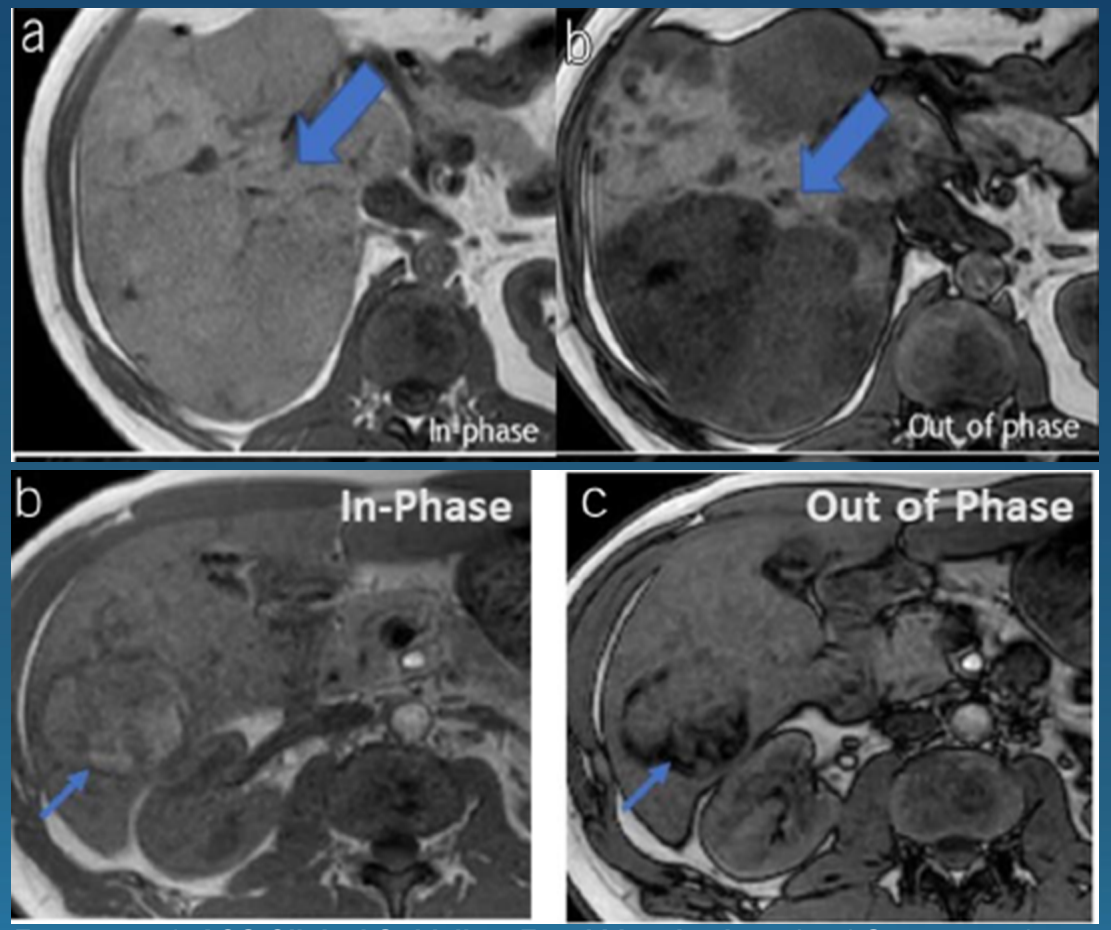
Hepatic Adenoma

- Inflammatory adenoma (most common)
  - Obesity, ETOH, MASLD, glycogen storage → elevated LFTs
- HNF1A-inactivated adenomas
  - Associated with Maturity-Onset Diabetes of the Young
- β-catenin–mutated variant
  - Exon 3 mutant carries high risk of malignant transformation, more common in men
- Sonic hedgehog adenoma
  - Highly vascular and prone to bleeding



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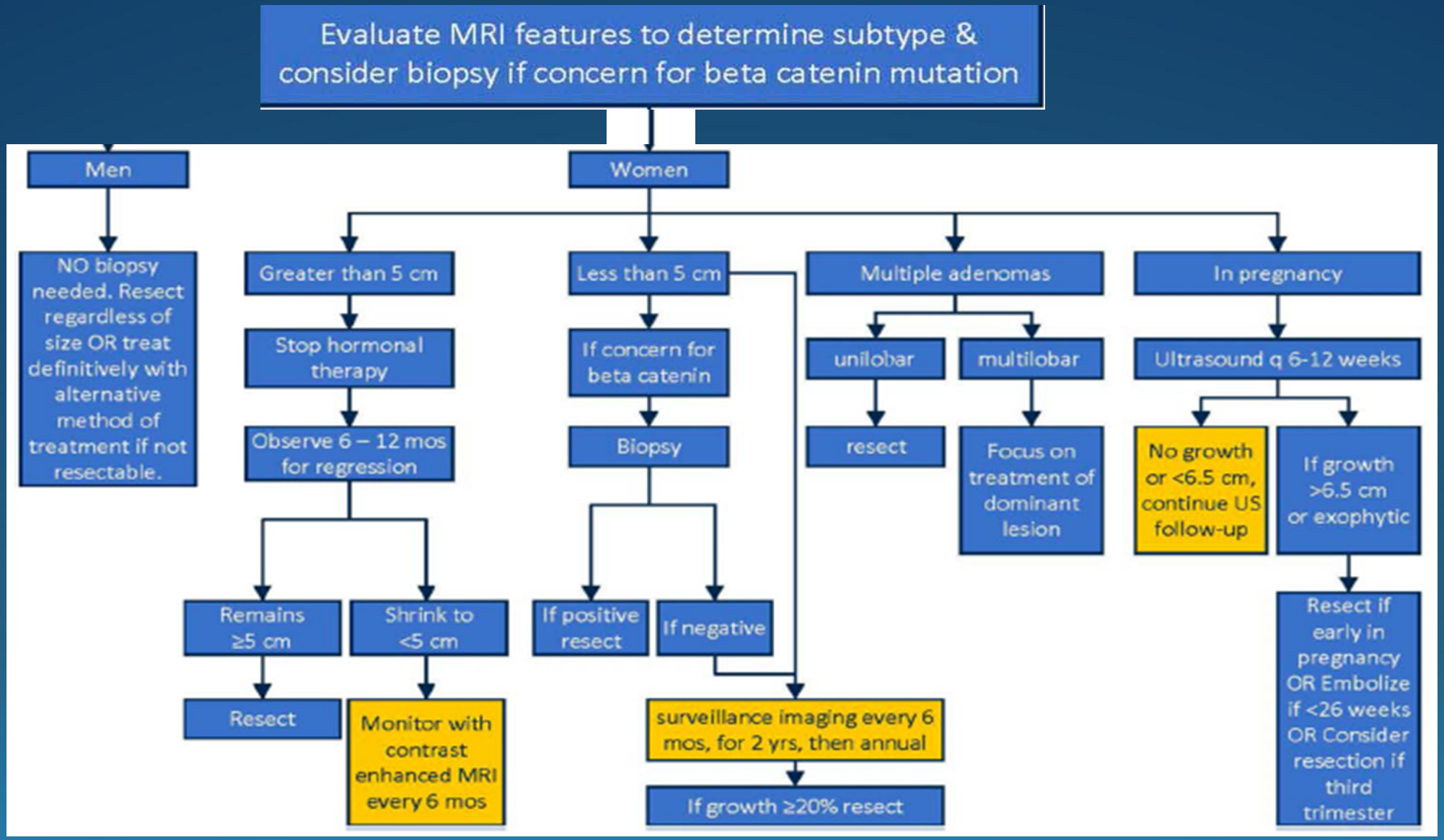
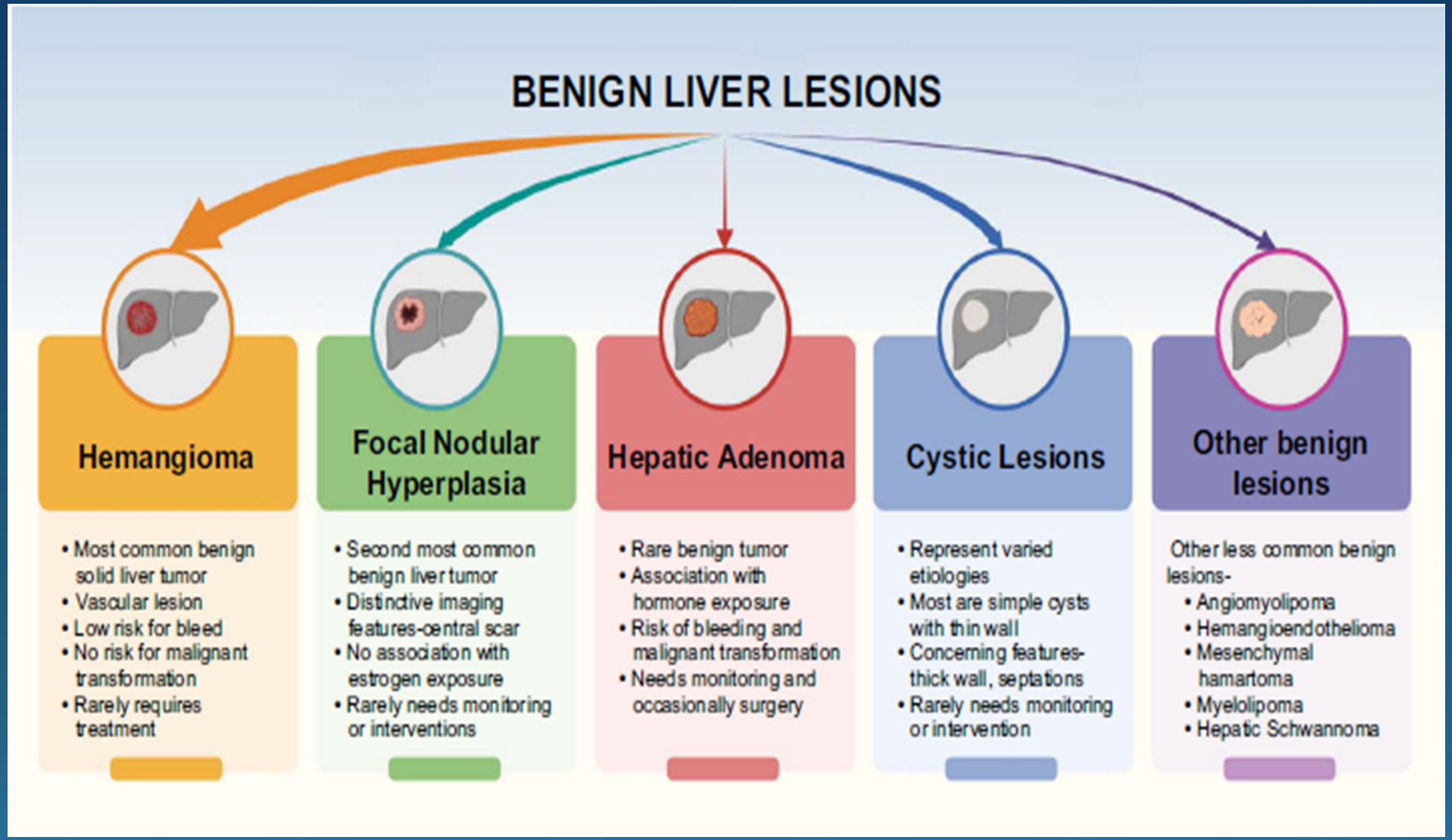
Hepatic Adenoma





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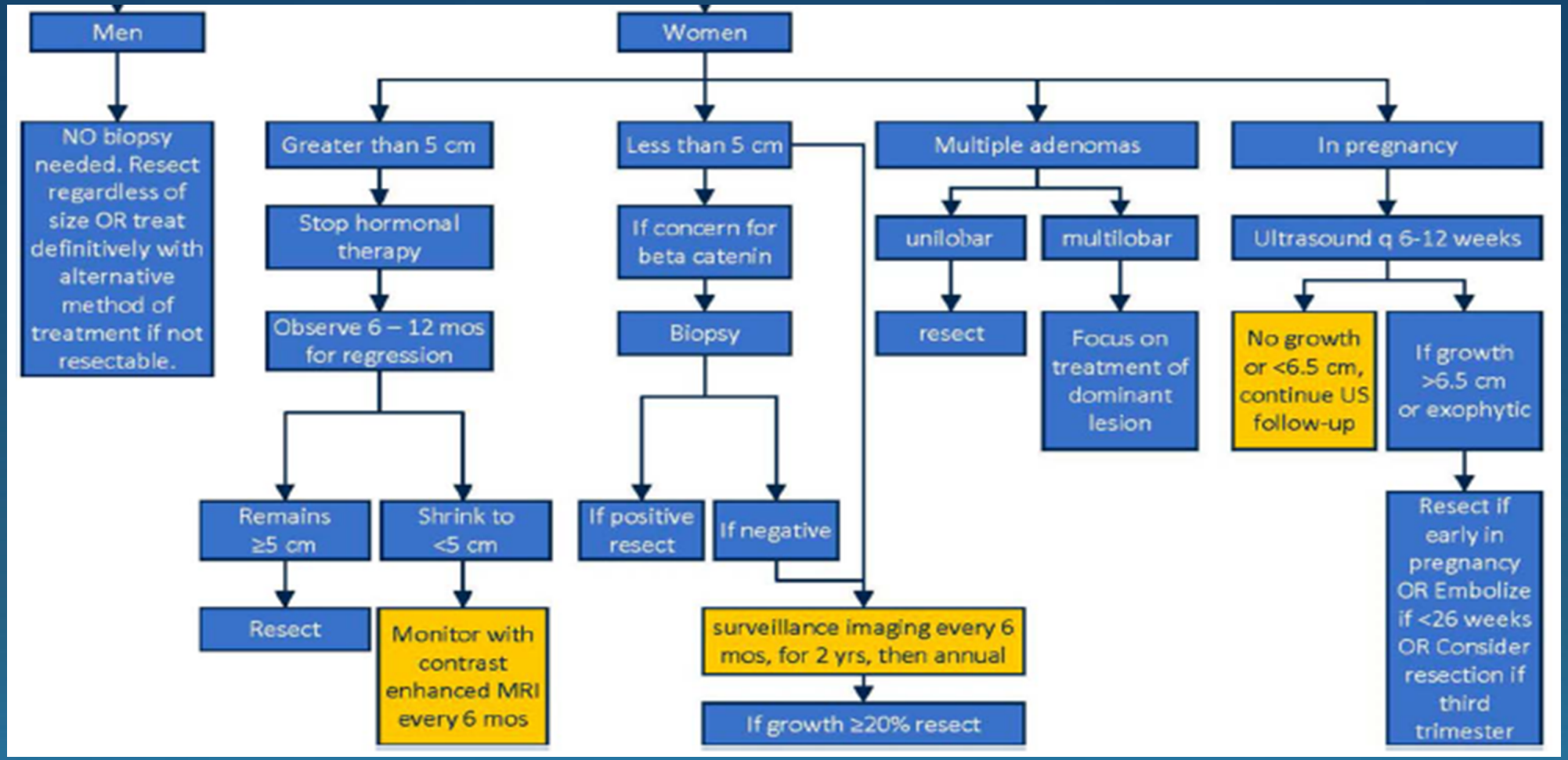

Key concepts in managing Liver lesions

- Thorough clinical history is vital to diagnosis
- Leverage cross sectional imaging (MRI/CT)
- Biopsy adenomas if atypical features
- If FNH or hemangioma are confirmed, no follow up required
- If asymptomatic complex cyst, regardless of size, consider MDC/tumor board discussion and surveillance imaging

Thank You!!