Hypervascular Liver Lesions in the Non-Cirrhotic Patient

Ihab R. Kamel, M.D., Ph.D.
ikamel@jhmi.edu
Professor of Radiology and Oncology
Clinical Director, MRI
Department of Radiology
The Johns Hopkins University
School of Medicine
What is “Hypervascular”?

- Enhancement in HAP (CT/MRI)
- Most are hypovascular
- Hypervascular (some)
  - Benign tumors: hemangioma, focal nodular hyperplasia, adenoma
  - Vascular lesions: AVMs; AVFs, peliosis hepatis
  - Malignant: hepatocellular carcinoma
  - Mets: carcinoid, renal cell, melanoma, pancreatic islet cell
What is “Washout”? 

- Compared to liver parenchyma:
  - Hypervascular on HAP
  - Hypovascular on PVP or delayed

- Always a “bad” finding:
  - Adenoma
  - Hepatocellular carcinoma
  - Mets: carcinoid, renal cell, melanoma, pancreatic islet cell
Clinical Features

• Age, gender
• Chronic liver disease
• Extrahepatic malignancy
• Others:
  – Birth control pills
  – Glycogen storage disease
  – Aflatoxin
  – IBD/PSC/cholangio
  – HIV

Can be misleading
Imaging Features

- Size
- Margins
- Peritumoral halo
- Central scar
- Capsule
- Hemorrhage
- Fat; Calcifications
- Invasiveness
Hypervascular in HAP

- Multiple, known primary: mets
- Cirrhotic liver: HCC

Imaging features:
- Periph nod enh → Typical Hemang.
- Central scar → FNH Hemang. HCC
- Fibrous Capsule → Adenoma HCC (not FNH)
- Fat/Calcif → Adenoma
- Bleeding → HCC Adenoma

Vascular shunts??
Hypervascular in HAP

Clinical features (can be misleading)

- Known Primary
  - Mets
- Chronic Liver Ds (Cirrhosis, Viral hep., Primary hemochromatosis)
  - HCC
- Young female on BCP
  - Adenoma

Difficulty: Atypical hemangioma or FNH in a patient with known primary or cirrhosis
Hypervascular in HAP
Clinical and imaging features

1. Peripheral nodular enh. → Yes → Typical hemangioma
   No

2. Known primary → Yes → Mets (until proven otherwise)
   No

3. Ch liver disease → Yes → HCC (until proven otherwise)
   No

4. Capsule/fat/hge → Yes → HCC in non-cirrhotic
    No → Adenoma in young female on BCP

5. ? FNH, ? Atypical hemangioma ? Vascular shunts

Difficulty: Atypical hemangioma or FNH in a patient with known primary or cirrhosis