Hepatocellular Lesions

Note: All of these lesions stain with Hepatocellular stains (Hepar-1 and Arginase)!

Macregenerative Nodule
An unusually large regenerative nodule (often >0.8 cm) that develops in the setting of cirrhosis.
Hyperplastic liver parenchyma. Plates may be slightly thickened (usu. 1-2 cells thick, maybe focally 3).
Have normal constituents (bile ducts, arteries, veins, etc...). No atypia (Unless dysplastic).

Focal Nodular Hyperplasia (FNH)
Not a true neoplasm
Regenerative hyperplastic response of hepatocytes secondary to vascular abnormalities
Well-circumscribed with central stellate scar with fibrous septae with entrapped vessels, bile ducts, and inflammatory cells
Normal plate thickness; “Map-like” staining with glutamine-synthetase

Hepatocellular Adenoma
Subtypes:
Inflammatory/Telangiectatic \(\rightarrow\) Stain with serum amyloid A and CRP; associated inflammatory infiltrate and bile ductular reaction
B-catenin activated \(\rightarrow\) Nuclear B-catenin, increased risk of malignant transformation
HNF1alpha-inactivated \(\rightarrow\) Loss of LFABP staining
Benign liver neoplasm.
Assoc. with oral contraceptive use.
\(>10\) \(\rightarrow\) “Adenomatosis”
Can transform to HCC
Benign-appearing hepatocytes,
Normal plate thickness (1-2 cells thick)
Unpaired arteries, absent bile ducts

Hepatocellular Carcinoma
Malignant tumor with hepatocellular differentiation
Often occurs in setting of cirrhosis (associated with viral hepatitis, EtOH, and NASH)
Dx often made clinically (Radiology + \(\uparrow\) AFP = HCC)
Treat with embolization, resection, or transplant
Widening of hepatic plates (>2 cells thick)
Absent portal tracts, often unpaired arteries
Architecture and cytologic atypia varies
Fibrolamellar Variant \(\rightarrow\) often young, non-cirrhotic patients, recurrent DNAJB1-PRKACA transl.
Staining:
Reticulin \(\rightarrow\) Widening of hepatic plates
CD34 \(\rightarrow\) Diffuse sinusoidal (“capillarization”)
Glypican-3 \(\rightarrow\) +/- (but negative in benign liver, Positive staining supports malignancy)

Hepatoblastoma
Most common liver tumor in Children. Shows a variety of epithelial (e.g., fetal and embryonal) and mesenchymal cell types recapitulating hepatic ontogenesis
Other Liver Lesions

**Bile Duct Adenoma**
*Benign bile duct proliferation*
- Usu. <1 cm, subcapsular, and well-circumscribed.
- Small, uniform, small ducts with cuboidal cells and regular nuclei.
- Biliary adenofibroma → more complex epithelial growth with abundant fibroblastic stromal components.

**Bile Duct Hamartoma**
*Benign, may be multiple.*
- Usu. small (several mm)
- Irregular to round bile dilated bile ducts
- Associated with fibrous/hyalinized stroma
- Lumens contain bile and proteinaceous material.

**Cholangiocarcinoma**
*Adenocarcinoma arising from intrahepatic bile ducts*
- Inflammatory disorders can predispose (e.g., PSC or parasite infection). Must clinically distinguish from met.
- Usu. tubular pattern. Often sclerotic center.
- Can have mixed HCC/cholangiocarcinoma

**Additional DX:**
- **Cavernous Hemangioma** → Most common benign tumor of the liver. Often asymptomatic and diagnosed radiographically.
- **Intraductal Papillary Neoplasms** and **Mucinous Cystic Neoplasms** → Just like in the pancreatic ducts!
- **PEComa/Angiomyolipoma** → Like in the kidney! Think of this if you see fat.
- **Epithelioid Hemangioendothelioma** → Endothelial tumor of variable malignancy. Eosinophilic, slightly epithelioid cells with signet ring-like features representing intracytoplasmic lumina (often contain RBCs in lumina). Associated fibrous stroma.
- **Angiosarcoma** → Malignant endothelial tumor. Spindled to epithelioid. Assoc. with exposure to Vinyl Chloride or Thorothrast
- **Embryonal Sarcoma** → Malignant tumor composed of undifferentiated mesenchymal cells. Usu. older children. Loose myxoid tissue with immature and giant cells. Characteristic eosinophilic intracellular hyaline globules.