Liver FNA: Uncovering Pitfalls and Problems

Liver Cytopathology: Main Questions

- Neoplasm?
- Malignant?
- Metastatic?
- (if a met) Site of the Primary Tumor?
Benign Liver Lesions

Macoregenerative Nodule
Macoregenerative Nodule

Differential Diagnosis

- Normal Liver
- Focal Nodular Hyperplasia
- Hepatic Adenoma
- Well-differentiated HCC

➤ Needs Core Biopsy

Focal Nodular Hyperplasia
Focal Nodular Hyperplasia

*A diagnosis of exclusion*

**Differential Diagnosis**

- Normal Liver
- Cirrhosis
- Hepatic Adenoma
- Well-differentiated HCC
- Clinico-Radiologic Correlation Is Imperative
- Accurate Sampling of the Lesion Is Critical

➢ Needs Core Biopsy
Hemangioma
(Pathognomic Features)
Hepatic Adenoma

Cytomorphologic Features
- Could Be Entirely Non-specific
- Abundant Normal-appearing Hepatocytes
- Lack of Biliary Epithelium or Fibrous Tissue Fragments
- Lack of Endothelial/vascular Proliferation

Differential Diagnosis
- Normal Liver
- Focal Nodular Hyperplasia
- Well-differentiated HCC
Hepatocellular Carcinoma (HCC)

Cytologic Grading

- Well Differentiated
- Moderately Differentiated
- Poorly Differentiated

Cytologic Grading of HCC

Why Do We Grade?

- Differences in Clinical Prognosis and Survival
- Treatment Options
- For Differential Diagnosis

Well Differentiated HCC
Moderately Differentiated HCC
Quiz On HCC Grading
Poorly Differentiated HCC

Differential Diagnosis
- Metastatic Cancers
  - Adenocarcinoma
  - Malignant Melanoma
  - Other Cancers
  - Cholangiocarcinoma

HCC – Immunoperoxidase Profile

- Conventional Markers
  - CAM5.2
  - AE1/AE3
  - pCEA (canalicular) (Sn-82%)
  - CD34/CD31
  - HepPar-1 (Sp-90%, Sn-84%)

- Newer Markers
  - Arginase (Sp-96%, Sn-94%)
  - Glypican-3 (GPC3) (Sp-100%, Sn-90%)
  - CD13 (canalicular) (Sn-94%) or CD10 (Sn-62%)

![Images of pCEA staining]
Cholangiocarcinoma

Diagnosed by
- Biliary Brushing
- Fine Needle Aspiration
Pediatric Liver Tumors

- Fibrolamellar Hepatocellular Carcinoma
- Hepatoblastoma
- Embryonal Sarcoma
Primary Hepatic Sarcomas

- Angiosarcoma
- Kaposi Sarcoma
- Leiomyosarcoma
- Epithelioid Hemangioendothelioma
Metastatic Neoplasms

- Most Common Cancer In The Liver
- Most Common Indication For Hepatic FNA
- Most Common - Colon, Pancreas, Breast, Lung, Kidney, Melanoma
- Metastasis Could Be From An Occult Primary
- Cytomorphology Alone May Not Be Able To Diagnose An Unknown Primary (IHC Stains Are Needed)
Metastatic Neuroendocrine Neoplasms
Lymphoid Lesions

- Non-Hodgkin Lymphoma
  - Primary
  - Secondary
- Hodgkin Lymphoma
- Clinical Features:
  - Most Common Presentation Is Pain or Liver Mass
  - Hepatic Involvement Has Important Clinical Significance
  - Usually Multiple Lesions
  - Serum AFP Not Elevated