2020 Third Annual National Conference

November 19-21, 2020

Red Rock Hotel – Las Vegas, NV
When Is a Liver Biopsy Necessary?

Allison Hobbs, MSN, APRN, FNP-C
Hep C Center
University of Louisville Hospital
Disclosures

All faculty and staff involved in the planning or presentation of continuing education activities provided by the Annenberg Center for Health Sciences at Eisenhower (ACHS) are required to disclose to the audience any real or apparent commercial financial affiliations related to the content of the presentation or enduring material. Full disclosure of all commercial relationships must be made in writing to the audience prior to the activity. Staff at the Annenberg Center for Health Sciences at Eisenhower and Gastroenterology and Hepatology Advanced Practice Providers have no relationships to disclose.
Allison Hobbs, MSN, APRN, FNP-C
No financial relationships to disclose.
Liver biopsy currently has three major roles:

1. For diagnosis
2. For assessment of prognosis (disease staging)
3. To assist in making therapeutic management decisions

Liver Biopsy Indications

- Liver biopsy is particularly useful in patients with atypical clinical features; diagnostic dilemma
- Parenchymal liver disease and staging
  - Alcohol-related liver disease/ nonalcoholic steatosis
  - Viral vs. autoimmune hepatitis
  - Heavy metal storage disorders (hemochromatosis, Wilson disease)
  - Suspected rejection or other complication after liver transplant
  - Unexplained intrahepatic cholestasis (primary biliary cholangitis vs. primary sclerosing cholangitis vs. drug induced liver injury)
  - Drug induced liver injury (hepatotoxic drugs, i.e methotrexate)
- Chronic abnormal liver tests of unknown etiology after noninvasive evaluation
- Fever of unknown origin
- Abnormalities on imaging studies

https://www.uptodate.com/contents/approach-to-liver-biopsy?search=liver+biopsy
### Complications
- Pain
- Bleeding
- Infection
- Injury
- Seeding a tumor
- Intra-abdominal hemorrhage
- Bile peritonitis
- Lacerated liver
- Hospitalization
- Death

**Complications usually become evident within 3-4 hours**

### Contraindications
- Severe thrombocytopenia <50,000
- Bleeding tendency (INR > 1.5)
- Suspected vascular lesion (e.g., hemangioma)
- Patient’s inability to remain still, uncooperative patient
- Profound anemia
- Peritonitis, infection of the hepatic bed
- Marked ascites
- Right pleural infection or effusion
- Morbid Obesity

Factors that May Influence Complication Risk with Liver Biopsy Patient:

- Cooperation
- Coagulation status
- Operator experience
- Use of image guidance
- Type of technique (percutaneous/transvenous)
- Number of needle passes
- Needle diameter
- Type of needle
Limitations

- Sampling error (many liver diseases do not uniformly affect the liver)
- Sampling size (at least 3cm in length, 16g or larger core needle)
- Occasional errors
- Risk of complications vs. noninvasive methods
- Varying interpretations by pathologist
- Expense, costly
- Need for interventional radiologist

Alternatives

- Fibroscan
- APRI (AST to Platelet Ratio Index)
- Fib 4 (Fibrosis-4)
- Liver imaging: Ultrasound, CT, MRI, MRCP, ERCP
- Liver workup: ANA, ASMA, AMA, Quantitative Immunoglobulin panel, Ferritin, Alpha 1 antitrypsin/phenotype, viral workup
• APRI<0.5 will rule out cirrhosis
• APRI<0.5 will rule out cirrhosis
• All non-invasive tests do not work as well with intermediate levels of fibrosis

Case #1-LG

- New patient: 56 year Hispanic female
- Referred by PCP after patient presented to a local ED for abdominal pain
- Complete abdominal US noted hepatic steatosis
- Elevated LFTs
Medical History

• Hypertension
• Diabetes mellitus, type 2
• Obesity, BMI 40
• Obstructive sleep apnea

Medications

• Metformin 1000 mg BID
• Glipizide 5 mg daily
• Amlodipine 10 mg daily
• Ibuprofen 200 mg PRN
Diagnostic Tests:

- Complete abdominal US: hepatomegaly with fatty infiltration. Spleen normal in size, no ascites
- Fibroscan: 14.5 kPa, CAP 300

Labs:

- AST 75/ALT 44
- Alkaline phosphatase 175
- Total bilirubin 0.4
- Albumin 3.7
- INR 1.1
- PLT 250,000
- HbA1c 9.8
- Creatinine 1.0
Case #1 Discussion

• What’s your diagnosis?
• Do you have enough information to confidently make a diagnosis? If not, what more do you need?
• Do you need a liver biopsy? Why?
Case #1 Biopsy

- Biopsy performed to confirm diagnosis and fibrosis staging due to inconsistent findings between Fibroscan and indirect markers (US, PLT, etc)
- Biopsy: hepatic steatosis with steatohepatitis (NASH), NAS 4/8, stage 2/4 fibrosis
Case #2 – BS

- 66 year old White female, status post liver transplantation in 2015 for primary biliary cholangitis (PBC).
- Has done well.
- Immunosuppression decreased 3-4 weeks ago due to rising creatinine.
- Last liver biopsy (2016): mild, chronic, nonspecific inflammation, no fibrosis or steatosis, no findings to suggest biliary issues.
- On routine labs, patient noted to have elevated alkaline phosphatase, AST/ALT. Repeat testing continues to show elevations.
### Medical History
- Liver Transplant – 2015
- Hypertension
- Impaired fasting glucose
- Asthma
- Chronic back pain
- Arthritis
- Hyperlipidemia

### Medications
- Tacrolimus 2mg BID
- Ursodiol 500 mg BID
- Lisinopril 10 mg daily
- Acetaminophen 500 mg prn
- Tramadol 50 mg prn
- Atorvastatin 40 mg daily
Case #2 Diagnostic Testing and Labs

Diagnostic Tests
- Fibroscan: 7.5 kPa, CAP 240

Labs
- Alkaline phosphatase 180
- AST 77, ALT 89
- Total bilirubin 0.8
- INR 1.0
- Albumin 3.5
- PLT 160,000
- HbA1c 7.1
- Tacrolimus level 6.1
- Creatinine 1.4
Case #2 – Discussion

• What’s your diagnosis?
• Do you have enough information to confidently make and diagnosis? If not, what more do you need?
• Do you need a liver biopsy? Why?
Case #2

Biopsy was performed.

- Pathology describes active inflammation, no steatosis, no fibrosis. Findings consistent with acute cellular rejection.
Case #3 AM

- 26 y/o white male who presents to clinic for initial evaluation of chronic HCV
- Unknown fibrosis stage and elevated AST/ALT
- Sober from injection drug use and intranasal drug use for the past 3 years, but admits to taking illicitly obtained Suboxone and Gabapentin
Case #3 – PMH and Medications

**Medical History**
- Hypertension
- Tobacco Use
- Substance use history
- Obesity
- Schizoaffective Disorder
- Depression
- Obesity

**Medications**
- Melatonin 10mg qhs
- Nortriptyline 300mg qhs
- Olanzapine 15mg qhs
- Propanolol 20mg TID
- Duloxetine 60mg daily
### Case #3 Labs and Diagnostic Testing

- **HCV RNA 4,480,000**
- **HIV Nonreactive**
- **AST 194 / ALT 466**
- **Albumin 4.4**
- **Alk phos 73**
- **Total bilirubin 0.2**
- **Creatinine 0.6**
- **Plts 279,000**
- **INR 1.0**
- **APRI 0.669. Fib 4 0.47**

- **Abd U/S:** no focal liver lesions, spleen normal, borderline increased liver echogenicity suggesting mild hepatic steatosis, no ascites, no intrahepatic biliary dilation. Likely reactive peripancreatic lymph node.
- **Fibroscan 6.5 kPa, 217 CAP**
Case #3 Labs and Diagnostic Testing Cont…

- Hep A IgG nonreactive
- Hep B sAg nonreactive
- **Hep B core Ab total reactive**
- Hep B surface Ab >1000
- CMV IgM negative
- EBV IgM negative
- HSV IgM negative
- Hep a IgM nonreactive
- Ferritin 49
- AMA <20
- Actin smooth muscle AB 17
- Alpha-1 antitrypsin 155
- Ceruloplasmin 32.9
- Immunoglobulin G 1423, IgA 224, IgM 119
Case #3 Discussion

- What are the differential diagnoses?
- Do you have enough information to make a diagnosis?
- Do you need a liver biopsy? Why?
Case #3 Biopsy

• Biopsy performed due to marked elevation in liver enzymes, concerns of drug induced liver injury (Zyproxa vs. street drug contamination) vs. other liver disorder such as autoimmune hepatitis.

• Biopsy: Chronic hepatitis with mild activity, mild steatosis with no steatohepatitis, portal fibrosis (stage 1).
• 60 y/o African American male with genotype 1B chronic HCV and HIV co-infection presents to clinic for initial evaluation.
• His fibrosis score is unknown.
• He drinks 5-6 24oz beers daily.
• He attends AA meetings “here and there” and verbalizes he “probably needs to go more.”
• He complains of itchy skin, but otherwise has no other complaints.
PMH and Medications

- HIV/AIDS
- Depression
- Hx of HSV
- Hypothyroid
- Sleep Apnea
- Alcohol Dependence
- Tobacco use
- Schizophrenia, not taking meds
- Chronic HCV

- Sulfamethoxazole
  Trimethoprim DS 800mg-160mg 1tab daily
- Tenofovir Alafenamide
  200mg-25mg 1tab daily
- Dolutegravir 50mg daily
Labs and Diagnostic Testing

- Creatinine 1.0
- Albumin 4.1
- Total bili 0.7
- Alk phos 82
- AST 57 / ALT 33
- Plt 171,000
- INR 1.0
- APRI= 1.150, Fib 4=3.40 (>3.25 suggestive of advanced fibrosis)
- Fibroscan: 5 kPa, 198 CAP

- CD4 54
- HIV viral load 100
- HCV RNA 7,370,000, Genotype 1b
- Hep A IgG reactive
- Hep B sAg nonreactive
- Hep B core IgG nonreactive
- Hep B sAb <3.1
- AFP 2.3
Case #4 Discussion

- What are the differential diagnoses?
- Do you have enough information to make a diagnosis?
- Do you need a liver biopsy? Why?
Case #4 Biopsy

- APRI Fib 4 scores do not correlate with the Fibroscan results. Also, length of HCV infection, coinfection with HIV and daily alcohol use suggest more advanced liver disease or cirrhosis.

- Biopsy: No definite hepatocellular ballooning or Mallory hyaline is observed. Chronic hepatitis with minimal activity and periportal fibrosis (stage 2). No significant steatosis. No definite hepatocellular ballooning or Mallory hyaline is observed.
Q&A