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Pathology Review

Chapter 15: Liver and Pancreas Pathology

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Page 403

3. An 18-year-old male with elevated liver enzymes, increased copper in the urine, and Kayser-Fleisher rings on slit lamp eye exam will most likely have:

a. A high serum level of antinuclear antibody and anti–smooth muscle antibody.

b. Glucose intolerance.

c. Degeneration of the putamen in the brain.

d. High serum ceruloplasmin level.

e. Low serum copper level.

Answer: c

Page 405

22. Which of the following statements about mucinous cystic neoplasms of the pancreas is true?

a. These tumors are all associated with a poor prognosis.

b. Genetic alterations of K-ras, p53, and SMD4/DPC4 play a role in their pathogenesis.

c. They occur more frequently in males than females.

d. Obstructive jaundice is usually the first clinical presentation.

e. They are associated with von Hippel-Lindau syndrome.

Answer: b

Page 406

24. What is the risk of becoming infected with hepatitis B (HBV) or hepatitis C (HCV) from a needle stick?

• HBV is 6–30% and HCV is 1.8%.

• HIV (for comparison): 0.3% risk.

Page 406

30. List histologic clues that can aid in the differential diagnosis of the common types of viral infection of the liver.

• In immunocompetent patients:

- Abundant plasmacytes and cholestasis: hepatitis A (HAV).

- Predominant central ballooning degeneration: Ground glass cytoplasmic inclusions HBV.

- Dense lymphoid aggregates, bile duct damage, sinusoidal lymphocytes: Steatosis HCV.

- Portal and sinusoidal small lymphocytes, and granulomas with minimal hepatocyte damage: Epstein-Barr virus (EBV)/cytomegalovirus (CMV).

- Confluent necrosis and cholangitis: hepatitis E (HEV).

• In immunocompromised patients:

- Nuclear/cytoplasmic inclusions and microabscesses with neutrophils: CMV.

- Portal infiltration of large lymphocytes (polymorphic B-cell hyperplasia or lymphoma): EBV.

- Randomly distributed coagulative necrosis and nuclear inclusions: herpes virus or adenovirus.

- Extensive hepatocyte necrosis, prominent cholestasis, and pericellular fibrosis: fibrosing cholestatic hepatitis HCV.

Page 407

35. Give the differential diagnosis of "ground glass" hepatocytes in a nonneoplastic setting.

• Hepatitis B.

• Drug induced hypertrophy of smooth endoplasmic reticulum (e.g., phenobarbital): centrilobular, PAS diastase negative, orcein negative.

• Fibrinogen storage disease: random location, PAS diastase positive.

• Alcohol aversion drug (cyanamide): secondary lysosome accumulation, periportal, PAS positive, PAS diastase negative.

• Glycogen storage disease type IV or abnormal glycogen metabolism due to multidrug intake: mostly periportal, PAS positive, PAS diastase negative.

• Lafora disease (myoclonic epilepsy): periportal; positive for PAS, and for colloidal iron and polyglucosan immunostains. Composed of smooth endoplasmic reticulum and glycogen.

Page 408

45. List four clinical consequences of liver cirrhosis.

• Portal hypertension: ascites; formation of portosystemic venous shunts leading to upper GI bleeding; splenomegaly.

• Hepatic dysfunction: coagulation defects, hypoalbuminemia, hepatic encephalopathy, hyperestrinism in males.

• Renal dysfunction due to hepatorenal syndrome.

• Increased incidence of hepatocellular carcinoma.

• Hepatopulmonary syndrome.

Page 410

60. List three different types of pigments in the liver and the stains that can differentiate them.

- Iron: Perl stain, blue color.
- Copper: rhodamine stain, reddish orange, orcein.
- Bilirubin: Hall stain, green color.

Page 411

71. List four clinical complications of chronic ethanol consumption.

- Liver: steatosis, steatohepatitis, cirrhosis, hepatocellular carcinoma.
- CNS: Wernicke-Korsakoff psychosis.
- Gastrointestinal: pancreatitis, gastritis.
- Malnutrition and deficiency of vitamins: anemia, dilated cardiomyopathy due to thiamine deficiency.
- Pregnancy: fetal alcohol syndrome.

Page 413

86. List entities that cause macrovesicular steatosis and entities that cause microvesicular steatosis.

- Macrovesicular:

- Alcohol.
- Diabetes.
- Drugs.
- Deficient diet (TPN).

- Microvesicular:

- Pregnancy.
- Reye syndrome.
- Drugs/toxins: valproic acid, mushrooms, tetracycline.
- Adult onset diabetes.

Page 414

95. List five autopsy findings of portal hypertension other than cirrhosis.

- Portal vein thrombosis.
- Hepatoportal sclerosis.
- Nodular regenerative hyperplasia.
- Incomplete septal cirrhosis.
- Splenomegaly.
- Esophageal varices.
- Other: artery-portal vein fistula, schistosomiasis.

Page 420

132. What clinicopathological clues differentiate mechanical duct obstruction, primary biliary cirrhosis (PBC) from primary sclerosing cholangitis (PSC)?

Features	Mechanical duct obstruction	Primary biliary cirrhosis	Primary sclerosing cholangitis
Associated other diseases	• Biliary atresia. • Gallstones. • Stricture. • Carcinoma of pancreatic head.	• 30% associated with inflammatory arthropathy, other autoimmune diseases.	• 70% associated with inflammatory bowel disease (CUC).
Sex predilection	• No.	• F:M = 6:1. • Middle age.	• 70% male. • 70% < 45 years old.
Cancer risk	• Not established.	• Mostly hepatocellular carcinoma.	• Mostly cholangiocarcinoma.
Laboratory findings	• Conjugated hyperbilirubinemia.	• Elevated serum IgM, M2 form of anti-mitochondrial antibody highly specific.	• Elevated serum IgM, hypergammaglobulinemia, atypical p-ANCA.
Cholangiogram	• Based on etiology, proximal dilatation.	• Normal.	• Beading.
Characteristic histology	• Acute cholangitis, cholestasis (canalicular or ductal), bile lakes, ductular proliferation with surrounding neutrophils, portal tract edema.	• Intrahepatic small duct. • Florid duct lesion. • Granulomas adjacent to bile duct.	• Extrahepatic and intrahepatic small and large bile ducts, periductal portal tract fibrosis, segmental stenosis.

Page 423

154. List five common complications of gallstones.

• The spectrum of complications varies depending on where the stone is located in the biliary system: gallbladder, common bile duct, or intrahepatic ducts.

- Calculus cholecystitis, acute or chronic, hydrops/mucocele, empyema, perforation, fistulas.
- Obstructive cholestasis or pancreatitis.
- Cholangitis or hepatic abscess.
- Secondary biliary cirrhosis.
- Carcinoma of gallbladder.
- Gallstone ileus.