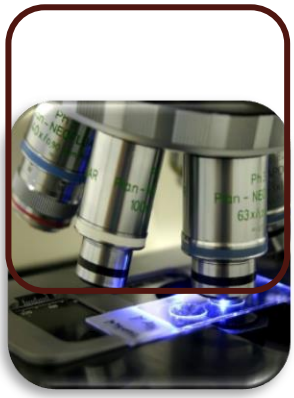

Pathology

3rd Stage

Dr. Abeer Ali

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Lecture 3

Diseases of the liver

Histopathological features of liver cirrhosis

1. Loss of normal liver architecture
2. Bridging Fibrous septa dissecting the parenchyma
3. Round nodules of regenerating hepatocytes
4. Lymphocytes and less commonly plasma cells are often present in fibrous septa and portal tracts

Complications of liver cirrhosis

- Progressive **liver failure** (manifested as e.g. hepatic encephalopathy, coagulopathy, hypoalbuminemia, hypogonadism and gynecomastia)
- Complications related to **portal hypertension** (e.g. portosystemic shunts (like esophageal varices, hemorrhoids, caput medusae), splenomegaly and ascites)
- The development of **hepatocellular carcinoma**

Portal hypertension: is continued elevation in portal venous pressure

Causes of portal hypertension :

a. Prehepatic causes e.g. portal vein thrombosis

b. Posthepatic causes e.g. thrombosis of one or more major hepatic veins

c. Intrahepatic e.g. liver cirrhosis, schistosomiasis, amyloidosis and sarcoidosis. The dominant intrahepatic cause is cirrhosis
Cirrhosis (in general) is the **most common** cause of portal hypertension

Cholestatic diseases (Cholestatic syndromes)

Cholestasis is systemic retention of bilirubin and other solutes eliminated in bile.

Examples of cholestatic diseases:

1. **Autoimmune Cholangiopathies :** (Primary biliary cholangitits (PBC) and primary sclerosing cholangitis)

***Primary Biliary Cholangitis (PBC)** :is an autoimmune disease characterized by non-suppurative, inflammatory destruction of small and medium-sized intrahepatic bile ducts. Retention of bile salts due to bile duct injury leads to secondary hepatocellular injury which can eventually produce cirrhosis. It is primarily a disease of middle-age women.

***Primary sclerosing cholangitis :**is a chronic disorder characterized by inflammation and obliterative fibrosis of intrahepatic and extrahepatic bile ducts, leading to dilation of preserved segments. It can progress to cirrhosis.

2. Bile Duct Obstruction : The most common cause of bile duct obstruction in adults is extrahepatic cholelithiasis (gallstones) followed by malignancies of the biliary tree or head of pancreas and postsurgical strictures. Common obstructive causes in children include biliary atresia, cystic fibrosis and choledochal cysts. If the obstruction persists, it can lead to fibrosis and cirrhosis.

Tumors of the liver

Benign tumors: e.g.

1. **Cavernous hemangioma:** The most common benign tumor of the liver
    - Well defined, red-blue nodule, often beneath the capsule
    - H/P: similar to cavernous hemangiomas elsewhere (the tumor consists of dilated thin-walled vascular channels).
2. **Hepatocellular adenoma:** Benign hepatocellular tumor
    - Occurs in women, child baring age, strongly associated with the use of oral contraceptive pills
    - Several subtypes with varying degrees of malignant potential
    - It can be asymptomatic or causes abdominal pain
    - Rupture can cause massive abdominal bleeding
- **Gross features:** Majority are solitary and well circumscribed, but unencapsulated
- **Microscopical features:** The cells are arranged as sheets and cords with prominent arterial vessels, while, bile ducts and portal tracts are absent.

Malignant tumors of the liver

1.Metastatic tumors : The most **common hepatic neoplasms** are metastatic carcinomas (mainly from colon, lung and breast) .The liver enlarges, with nodular surface and central necrosis (umbilication) of the masses.

2.Primary malignant tumors of liver

1.Hepatocelluar carcinoma (hepatoma): is the commonest primary malignant tumor of the liver. High serum α-fetoprotein is present in 50% of cases with advanced HCC

Etiology

- Patients with cirrhosis from any etiology are at risk for developing HCC
- Chronic viral hepatitis (HBV { Asia and sub-Saharan Africa} and HCV {western countries})
- Aflatoxin exposure causes P53 mutations
- Alcohol and NAFLD
- Hereditary disorders: e.g. Hemochromatosis, α1antitrypsin deficiency
- Progression from certain types of hepatocellular adenoma

The risk for HCC in cirrhosis due to Wilson disease and chronic biliary diseases is lower than the other etiologies

Pathogenesis:

. Most HCCs occur in the setting of chronic liver disease with cirrhosis.

.HCC is induced by acquired mutations in oncogenes and tumor suppressor genes (it is believed that the chronic injury, inflammation and hepatocyte regeneration contribute to the achievement of these mutations).

Morphology of hepatocellular carcinoma

Gross features : Unifocal, multifocal or diffusely infiltrative tumor

Histopathological features

- Well , moderately , poorly differentiated or undifferentiated
- Pattern of growth of HCC: may be thick trabeculae, solid or pseudoglandular
- Stroma usually scant

2. Hepatoblastoma : is the most common liver tumor of early childhood.

THANK YOU