CIRRHOSIS OF LIVER (PATHOLOGY)

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- It represents the **irreversible end- stage** of several diffuse disease causing hepatocellular injury and is characterized by the following 4 features

1. It involves the entire liver
2. The normal lobular architecture of hepatic parenchyma is disorganized
3. There is formation of nodules separated from one another by irregular bands of fibrosis
4. It occurs following hepatocellular necrosis of varying etiology so that there is alternate area of necrosis and regenerative nodules.

- **Pathogenesis**

Alcohol abuse

Hepato toxic effect

Accumulation of fat in liver cells

If the person stops drinking alcohol the fatty changes are reversible

If person continues alcohol abuse,widespread scar formation throughout liver.

Classification of cirrhosis

Morphologic classification

1. Micronodular

   Nodules less than 3mm diameter

2. Macronodular

   Nodules more than 3mm diameter

3. Mixed

   Some part of liver show micronodular appearance while other part macronodular appearance

- **Etiological classification**

1. Alcoholic cirrhosis (60-70%)
2. Post necrotic cirrhosis
3. Biliary Cirrhosis
4. Pigment cirrhosis in haemochromatosis
5. Cirrhosis in Wilsons disease
6. Cirrhosis in alpha 1 antitrypsin deficiency
7. cardiac cirrhosis

8. Indian childhood cirrhosis

9.Cirrhosis in autoimmune hepatitis

10. Cirrhosis in non alcoholic steatohepatics

11. Miscellaneous form of cirrhosis

12. Cryptogenic cirrhosis

- **Alcoholic liver disease and cirrhosis**

  Alcoholic liver disease is the term used to describe the spectrum of liver injury associated with acute and chronic alcoholism.

There are **3 sequential changes** in alcoholic liver cirrhosis

1. Alcoholic Steatosis
2. Alcoholic Hepatitis
3. Alcoholic Cirrhosis

- Risk factor for alcoholic liver disease

1.Drinking pattern

2. Gender- women have more susceptibility to develop liver disease with much lesser alcohol intake

3.Malnutrition

4. Genetic factor

- Morphological features

1. Alcoholic steatosis (fatty liver)

Grossly the liver enlarged,yellow,greasy and firm with smooth and glistening capsule.

Microscopically

- Microvesicular droplets of fat in the hepatocyte cytoplasm followed by more common macrovesicular large droplets of fat displacing the nucleus to periphery

2. Alcoholic Hepatitis

It develop usually following heavy drinking

Histologically

- Hepatocellular necrosis
- Mallory bodies or alcoholic hyaline

  (these are intracytoplasmic inclusions seen in within swollen and ballooned hepatocytes)
- Inflammatory response
- Fibrosis

3.Alcoholic Cirrhosis

- **Morphologically**
- It begins as micronodular cirrhosis
- Liver becomes large ,fatty, and weighing above 2kg
- After some year it shrink less than 1kg weight and contain macronodular cirrhosis (more than 3mm)

- Microscopically
- Nodular pattern
- Fibrous septa that divide hepatic parenchyma into nodules.
- Hepatic parenchyma undergo slow proliferation
- Necrosis,inflammation and bile duct proliferation

- Clinical features
- Fever with chills
- Right upper quadrant pain radiate to back and right shoulder
- Anorexia
- Weight loss
- Malaise

- Laboratory Diagnosis
- Elevated transaminase – SGOT more than SGPT
- Rise in serum alkaline phosphatase
- Hyperbilirubinemia
- Hypoproteinemia
- Anemia
- Leukocytosis

2.POST NECROTIC CIRRHOSIS

it is characterized by large, irregular ,nodules occuring commonly after viral hepatitis

Causes

1.Viral hepatitis- HBV,HCV,HAV

2.Drugs,chemical hepatotoxin- chemicals,carbon tetrachloride,alpha methyl dopa

3.Other

Certain infections (brucellosis),parasitic infestation, metabolic disease

4.idiopathic

- Morphology
- Liver usually small weighing less than 1kg having distorted shape
- Nodules 3mm diameter to few centimeter
- Microscopically
- Nodular pattern
- Fibrous septa dividing variable sized nodules
- Necrosis,inflammation and bile duct proliferation

3.BILIARY CIRRHOSIS

Due to long continued cholestasis of intrahepatic or extrahepatic origin

4. PIGMENT CIRRHOSIS IN HAEMOCHROMATOSIS

Haemochromatosis is an iron storage disorder in which there is excessive accumulation of iron in parenchymal cells and eventual tissue damage and functional insufficiency of organ such as liver,pancreas,heart and pituitary gland.

5. CIRRHOSIS IN WILSONS DISEASE

Wilsons disease is also termed as hepatolenticular degeneration is an autosomal recessive inherited disease of copper metabolism characterized by toxic accumulation of copper in many tissues chiefly the liver, brain and eye.

6. CIRRHOSIS IN ALPHA 1 ANTITRYPSIN DEFICIENCY

Alpha 1 antitrypsin is glycoprotein normally synthesised in the rough endoplasmic reticulum of hepatocyte and most potent protease inhibitor

7.CARDIAC CIRRHOSIS

- The pressure in right ventricle is elevated which is transmitted to liver via inferior venacava and hepatic vein.
- Patient generally have enlarged tender liver,mild liver dysfuction,splenomegaly

8. INDIAN CHILDHOOD CIRRHOSIS

It is seen in children 1-3yr age children and have a genetic predisposition.

9. CIRRHOSIS IN AUTOIMMUNE HEPATITIS

Autoimmune hepatitis is form of chronic hepatitis characterized by continued hepatocellular injury,inflammation and fibrosis which may progress to cirrhosis.

THANK YOU