



Pathology

3rd Stage

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Lecture 1

Hepato-biliary system and pancreas pathology

Diseases of the liver

Hepatitis

❖ Hepatitis is **inflammation of the liver parenchymal tissue**

Classification

1. According to the **cause** (infection (mainly viral), alcoholic and nonalcoholic fatty liver diseases, autoimmune, metabolic disorders or drug/toxin induced)
2. According to the **duration and pattern of cell injury** (acute and chronic)

* Acute hepatitis often shows **less** inflammation and **more** hepatocyte death than chronic hepatitis.

1.Acute hepatitis is active hepatocellular damage and necrosis, usually with a lobular inflammatory response, **less than 6** months duration.

***Hepatitis viruses are the most common cause.**

Gross (macroscopical features): Normal or enlarged liver. If massive hepatic necrosis occurs, it may produce shrunken liver

Microscopical features:

- ✓ Hepatocyte ballooning degeneration , apoptosis or necrosis
- ✓ In severe cases : confluent necrosis , bridging necrosis or massive necrosis
- ✓ Lobular inflammation with mononuclear cells infiltration (that are the predominate cells) - portal inflammation in acute hepatitis is minimal or absent.
- ✓ Regenerative changes
- ✓ Mild fatty change can be seen in **hepatitis C viral infection**

Acute hepatitis can resolve spontaneously, progress to acute liver failure or develop into chronic liver disease.

2.Chronic hepatitis is defined as the presence of symptomatic, biochemical or serologic evidence of continuing or relapsing hepatic disease for more than 6 months, with histologically documented inflammation and necrosis.

Causes: Hepatitis viruses (B, C and D), alcoholic and nonalcoholic fatty liver diseases, autoimmunity, drugs, toxins and metabolic diseases (e.g. Wilson disease and α 1-antitrypsin deficiency).

Gross (macroscopical features): Normal, or focal scarring. If cirrhosis develops, the liver shows wide spread nodularity surrounded by scarring.

Microscopical features: Features are similar to acute hepatitis, in addition :

- The **defining** histologic feature of chronic hepatitis is **Mononuclear portal infiltrates with fibrosis**
 - *The hall mark of severe chronic liver damage is scarring
 - Interface hepatitis (inflammation at interface between parenchyma and portal stroma).
 - In addition:
 - In **chronic HBV**, **ground glass cells** can be seen (infected hepatocytes with a large, cytoplasmic inclusion due to the accumulation of HBsAg in the cytoplasm). This feature is diagnostic hallmark of chronic HBV.
 - In **chronic HCV**: 3 additional features can be seen:
 - * Lymphoid infiltrates in portal tracts
 - * Bile duct injury
 - * Fatty change
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Note: The assessment of the severity of inflammation and liver cell necrosis in a liver biopsy is used to assess the **grade** of disease.

.The degree of fibrosis in liver biopsy is used to assess the **stage** of the disease

Viral hepatitis

- ❖ Hepatotropic viruses (**hepatitis viruses A, B, C, D + E**): most common cause of viral hepatitis
- ❖ Other causes: e.g. Epstein-Barr virus, Cytomegalovirus and Herpes simplex virus

Hepatotropic viruses A, B, C, D and E	Hepatitis A ssRNA	Hepatitis B dsDNA	Hepatitis C ssRNA	Hepatitis D ssRNA	Hepatitis E ssRNA
Route of transmission	Fecal-oral	Parenteral, sexual contact, perinatal	Parenteral	Parenteral	Fecal-oral
Frequency of chronic liver disease	Never	5-10%	>80%	Coinfection 10% or superinfection 90-100%	In immune compromised only
Carrier state	None	Risk	Risk	Risk	None

Outcome of viral hepatitis

✓ **Acute asymptomatic infection with recovery** (identified incidentally by elevated serum transaminases or the presence of anti-viral antibodies)

✓ **Acute symptomatic infection with recovery**

✓ **Acute hepatic failure**: Viral hepatitis accounts for approximately 10 % of cases of acute hepatic failure.

✓ **Chronic hepatitis with or without progression to liver cirrhosis**: (**HCV** is the **most** common cause of chronic viral hepatitis)

✓ **Carrier state**: asymptomatic individual who is chronically infected with a hepatotropic virus thus harbors and can transmit the organism.

* **Complications of chronic viral hepatitis** :Cirrhosis, liver failure and hepatocellular carcinoma .

****A characteristic feature of HEV** infection is the high mortality rate among pregnant women approaching 20%.

THANK YOU