Alcoholic Fatty Liver Disease

- Excessive ethanol consumption causes more than 60% of chronic liver disease in western countries
- 40% to 50% deaths due to cirrhosis

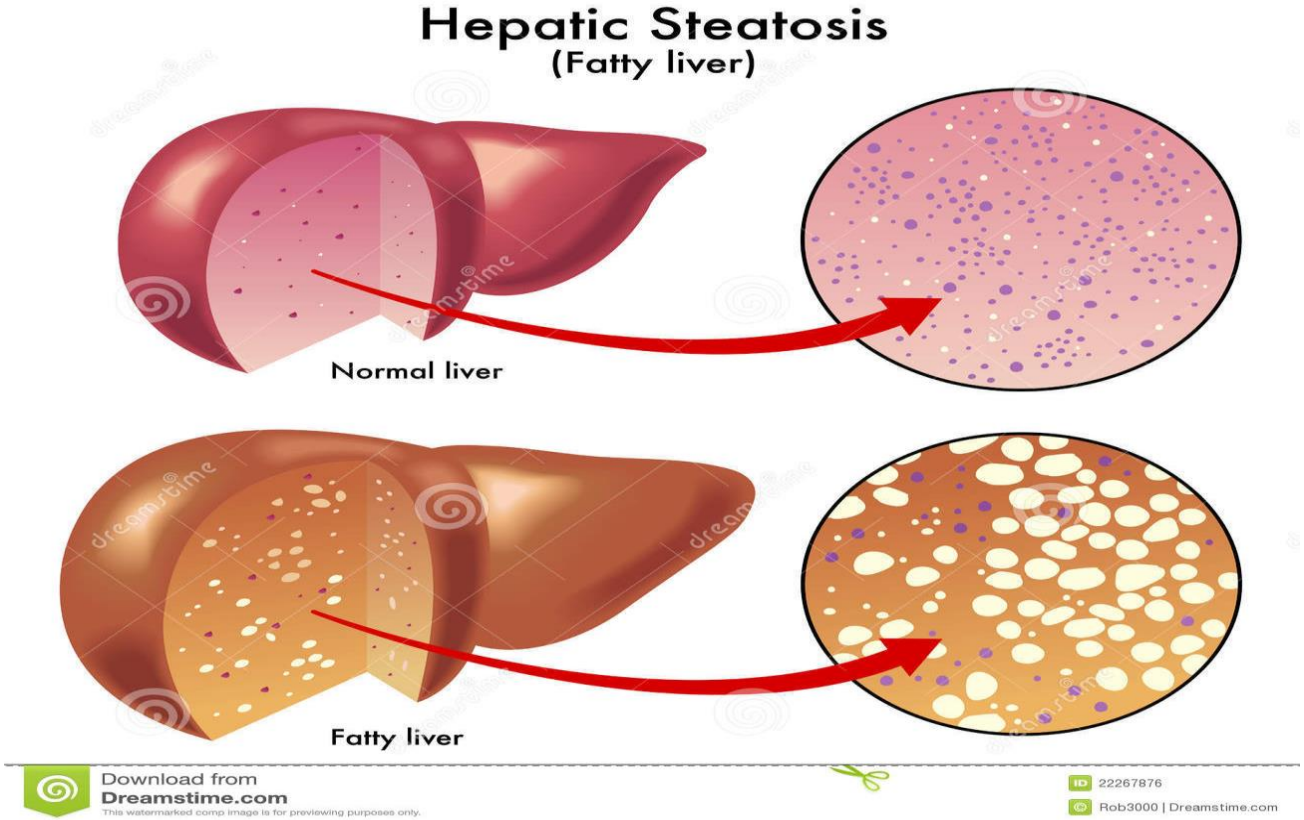
Forms of Alcoholic Liver Disease

There are three sequential stages in alcoholic liver disease

1) Hepatic steatosis (fatty liver)
2) Alcoholic hepatitis
3) Cirrhosis

Fatty Liver / Steatosis

It is the collection of excessive amounts of triglycerides and other fats inside liver cells.



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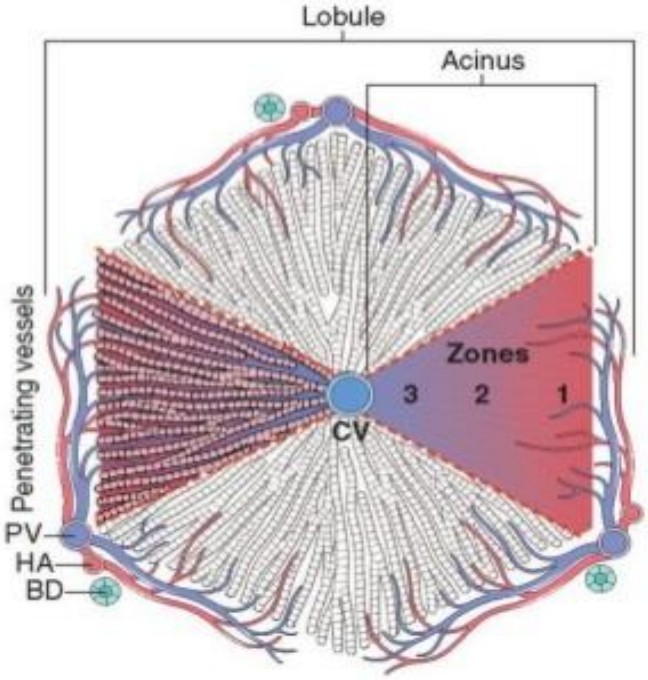
Hepatic Steatosis (Fatty Liver)

- After even moderate intake of alcohol, **microvesicular lipid droplets** accumulate in hepatocytes.

- In Alcoholic Cirrhosis ,Diffuse nodularity of the surface reflects the processes of nodular regeneration and scarring.

- A hepatocellular carcinoma is present as a budding mass at the lower edge of the right lobe.



Zone 1: close to the blood vessels
Zone 2: intermediat zone
Zone 3: adjacent to central vein

Histology of hepatic lobule

The hexagonal or pyramidal structure with central vein and peripheral 4 to 5 portal triads is termed as the classical lobule. The functional divisions of the lobule is shown in 3 zones.

- The normal adult liver weighs 1400-1600gm

- Macroscopically, the fatty liver of chronic alcoholism is a large (as heavy as 4 to 6 kg) soft organ that is yellow and greasy.

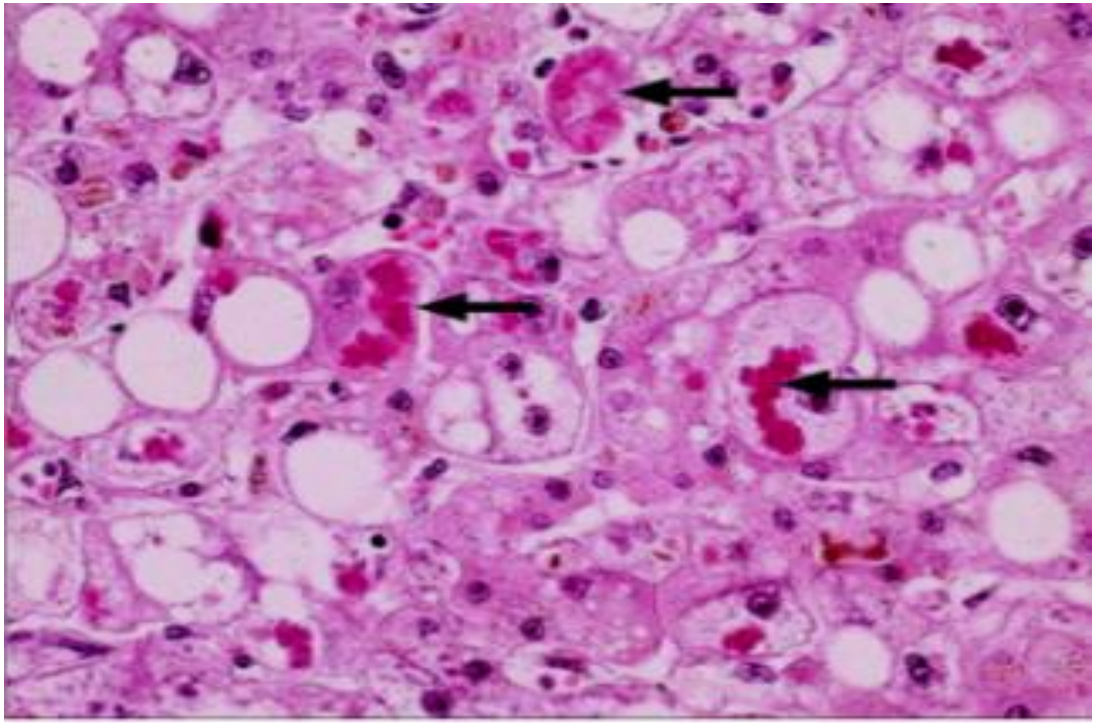
- The fatty change is completely reversible if there is abstention from further intake of alcohol.

Alcoholic Hepatitis

Alcoholic hepatitis is characterized by:

1. Hepatocyte swelling and necrosis
2. Mallory bodies (Mallory bodies are visible as eosinophilic cytoplasmic clumps in hepatocytes.
3. Neutrophilic Reaction
4. Fibrosis

Alcoholic hepatitis with clustered inflammatory cells marking the site of a necrotic hepatocyte. A Mallory-Denk body is present in another hepatocyte (arrows).



Alcoholic Cirrhosis

- May develop in 1 and 2 years as complication of viral hepatitis.
- Irregular brown shrunken liver with nodularity.
- Initially the developing fibrous septa are delicate and extend through sinusoids from central to portal regions as well as from portal tract to portal tract.
- Regenerative activity of entrapped parenchymal hepatocytes generates uniform micronodules.

Risk Factors for Alcoholic Liver Disease

Why all alcoholics do not develop cirrhosis but only 10-15% ?

1. Drinking pattern
2. Gender-Women
3. Malnutrition
4. Infections
5. Genetic factors
6. Hepatitis C infection

malon-di-aldehyde-acetaldehyde (MAA)

CMI- cell mediated immunity

Marked increase in the NADH:NAD redox ratio in the hepatocytes results in increased redox ratio of lactate-pyruvate, leading to lactic acidosis. This altered redox potential has been implicated in a number of metabolic consequences such as in fatty liver, collagen formation occurrence of gout, impaired gluconeogenesis and altered steroid metabolism.

- Immunological effects (Impaired CMI, Mallory's hyalin)
- Increased liver fat
- Increased redox ratio
- Retention of liver cell water and proteins
- Hypoxia

Microsomal P-450 Oxidases /Microsomal ethanol oxidising system, MEOS

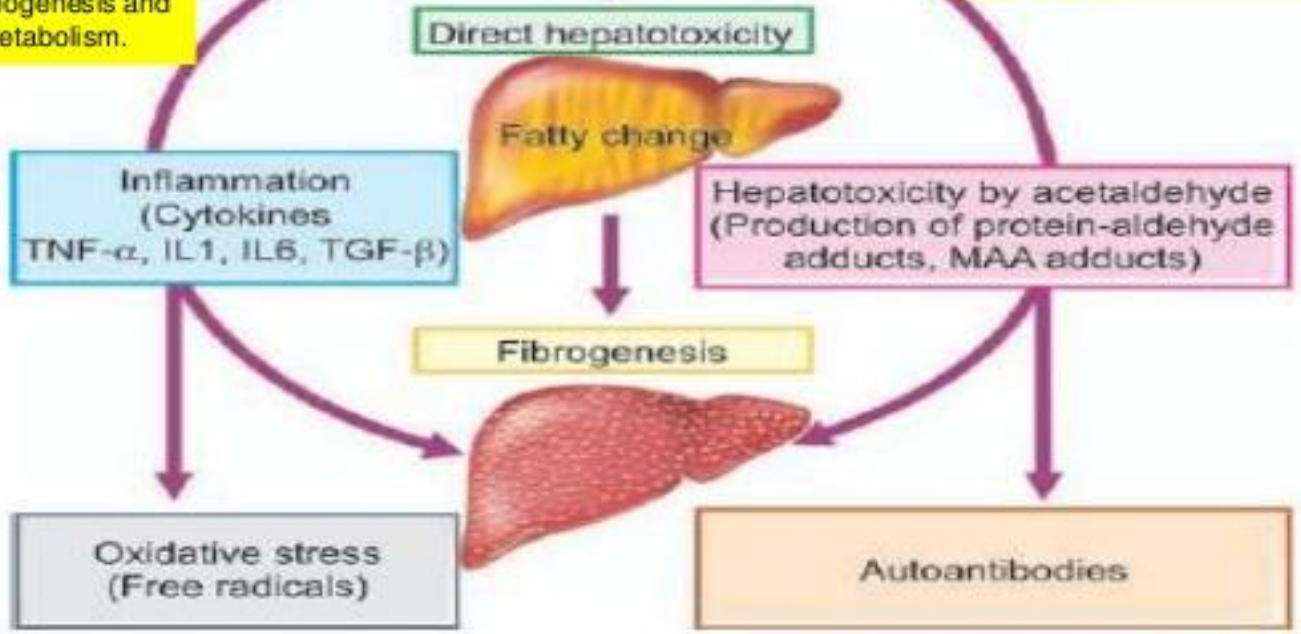


Figure 21.22 Pathogenesis of alcoholic liver disease.