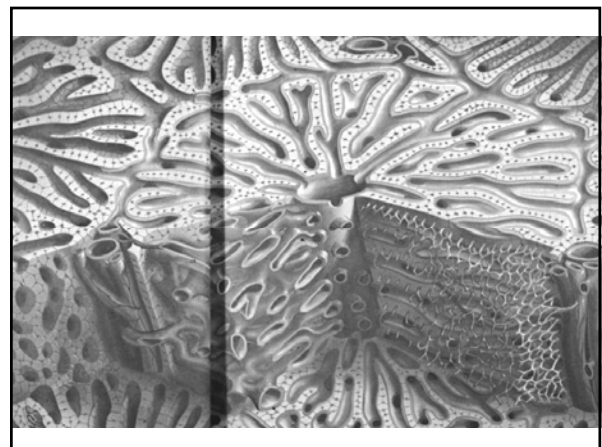
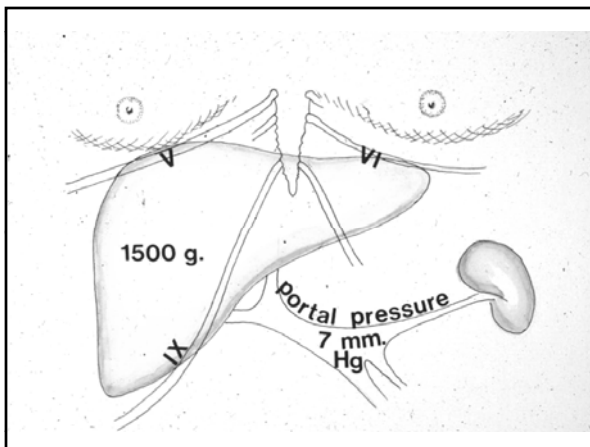
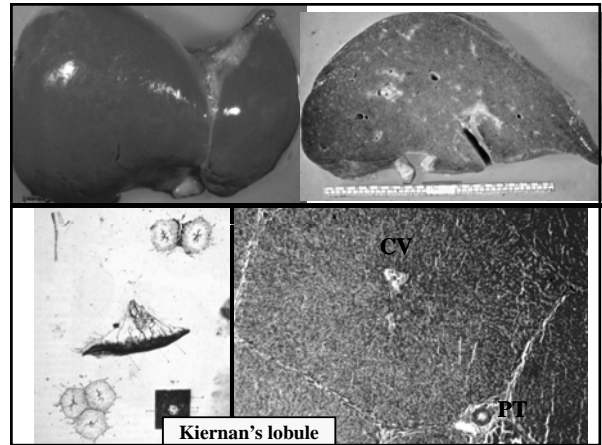
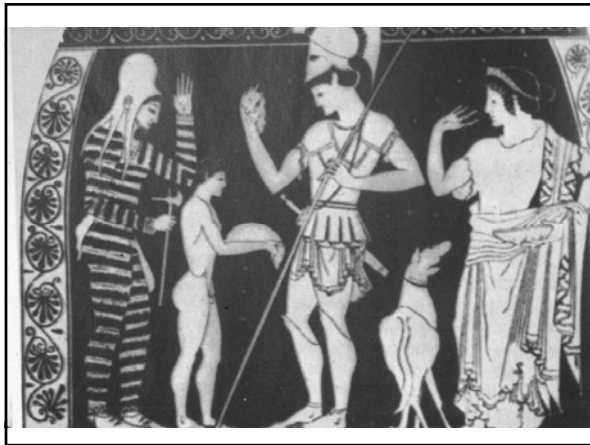
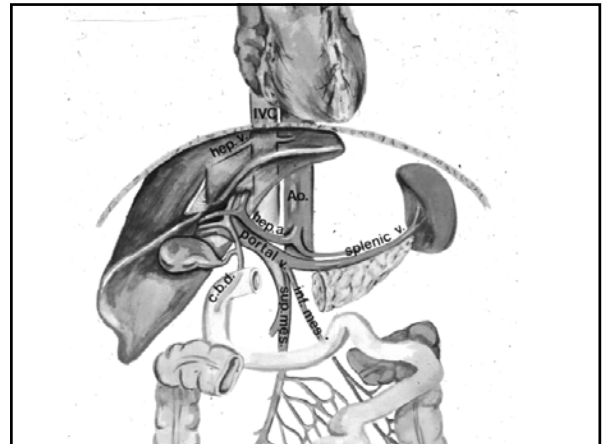


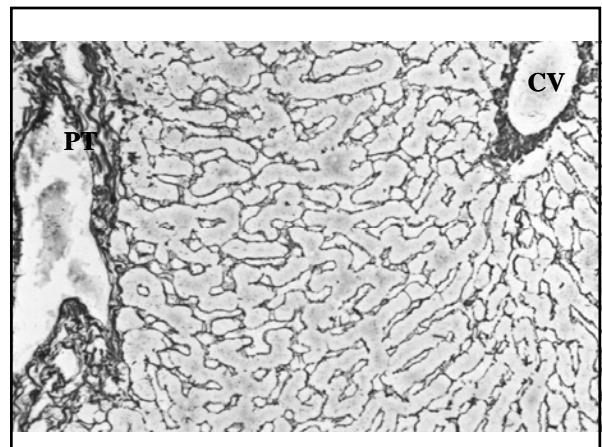
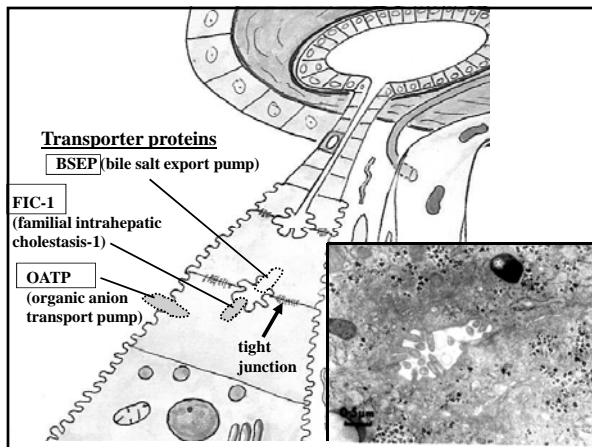
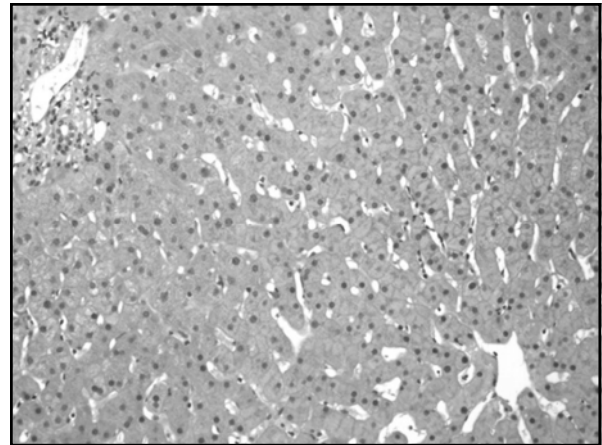
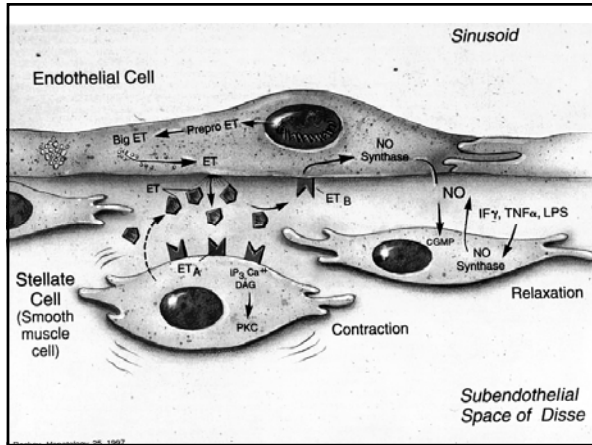
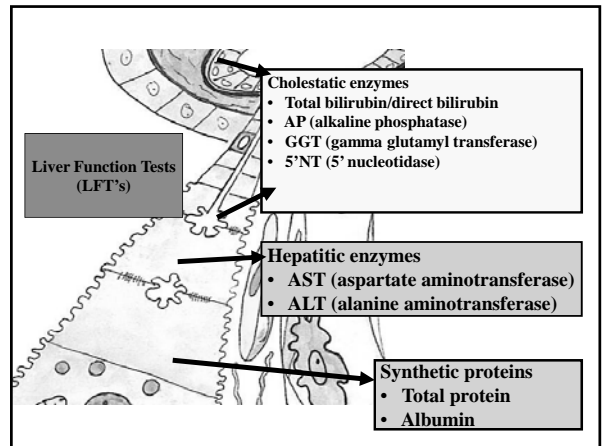
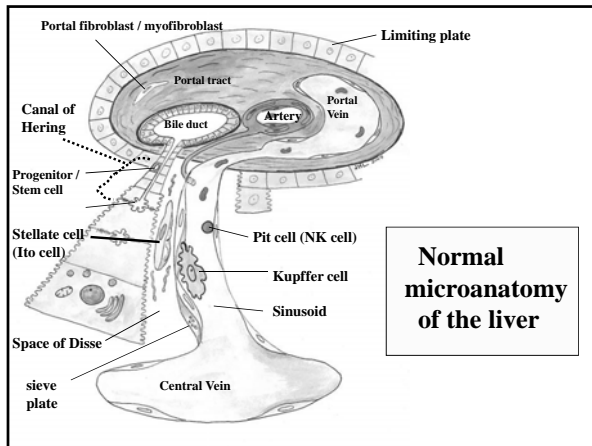
Principles of Liver Pathology

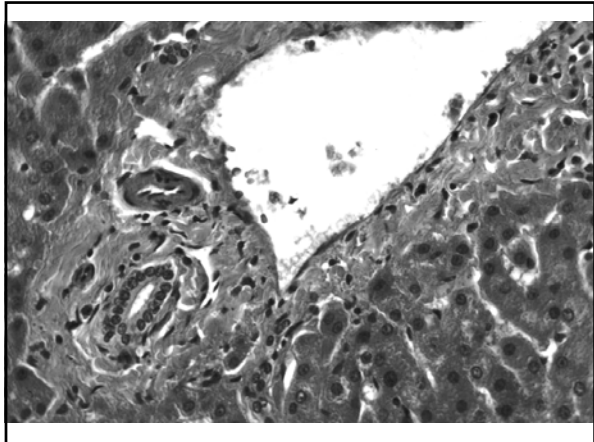
1. Review of normal gross and microscopic anatomy

2. Major pathologic pathways in liver disease

- Acute hepatitis
- Chronic hepatitis
- Fatty liver
- Cholestasis
- Cirrhosis



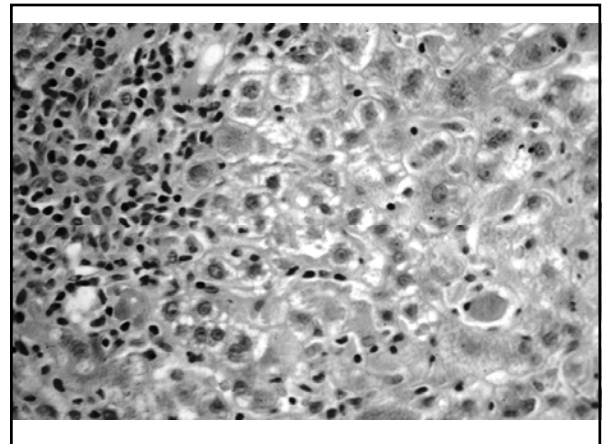
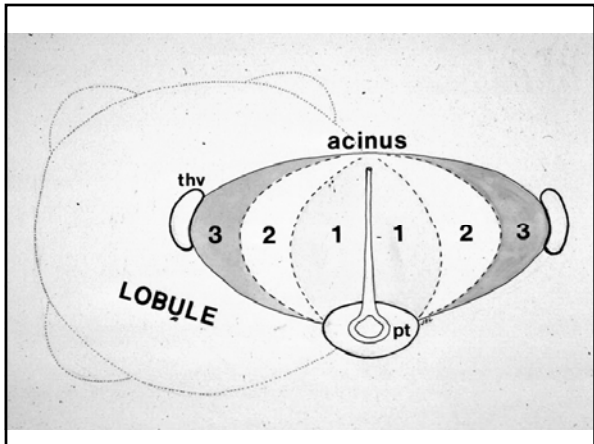
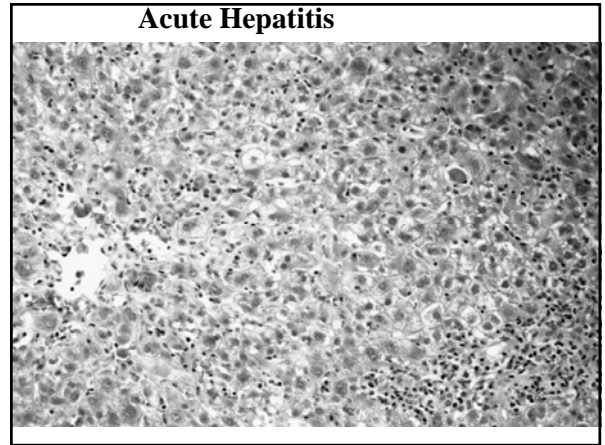
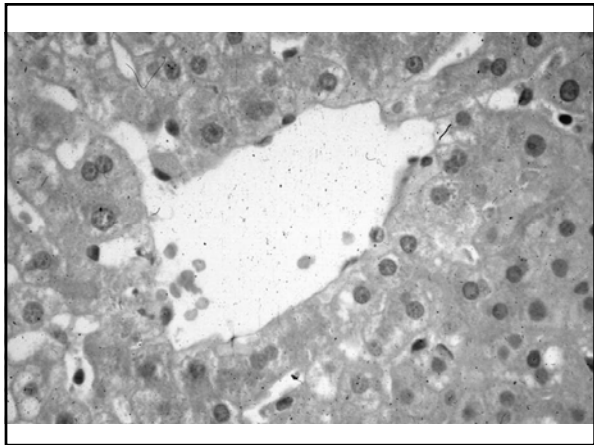


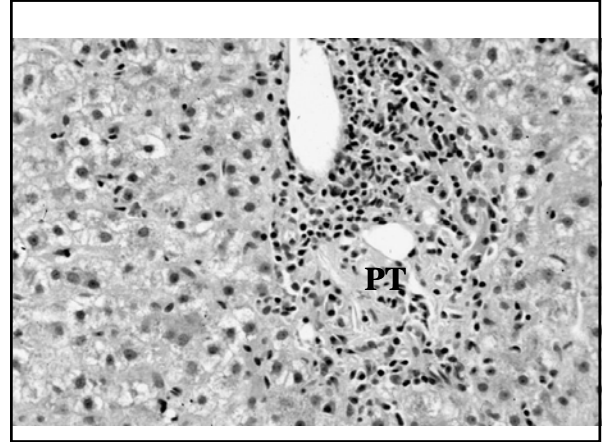
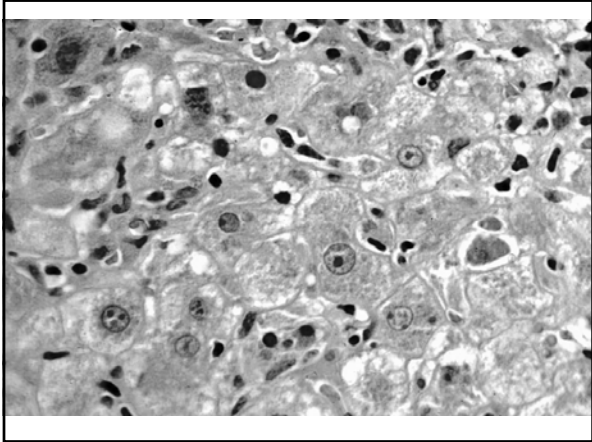


Hepatitis

Inflammation
+
Hepatocyte Apoptosis/Necrosis

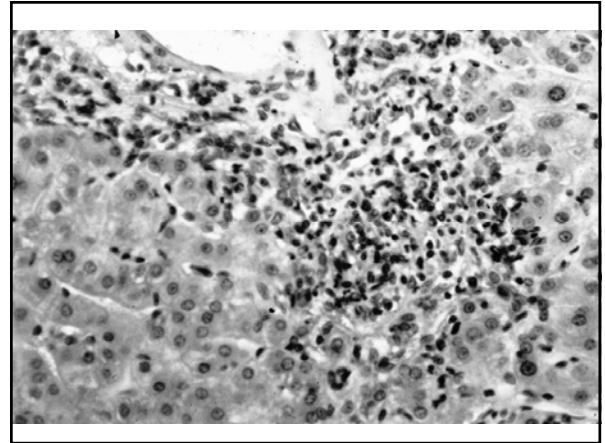
Time Course: Acute / Chronic
Causes: Virus / Drugs





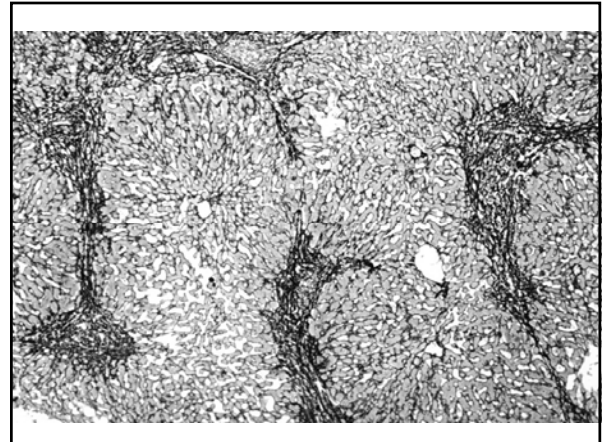
Chronic Hepatitis

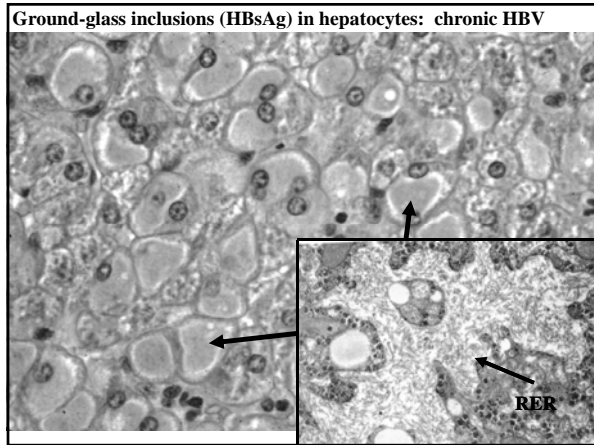
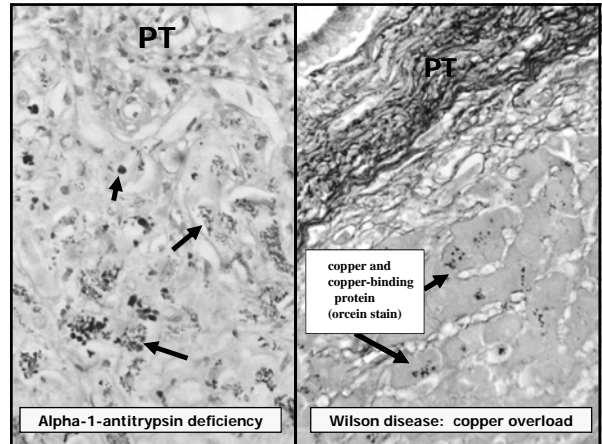
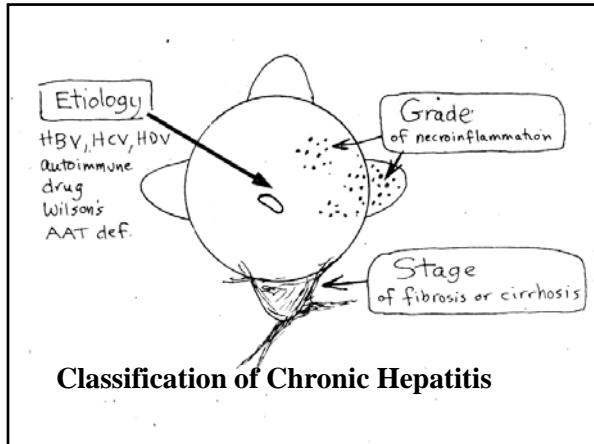
Def.: *Inflammation of the liver continuing without improvement for 6 mos. or longer*



Causes of Chronic Hepatitis

1. Hepatitis viruses: HBV, HCV
2. Autoimmune hepatitis
3. Drugs
4. Metabolic diseases:
 - AAT deficiency
 - Wilson's disease
5. Cryptogenic



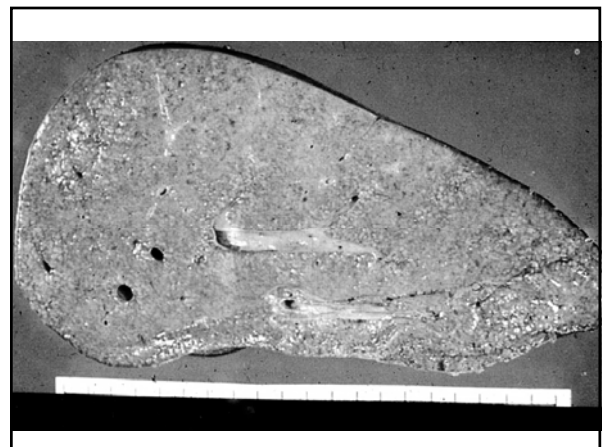
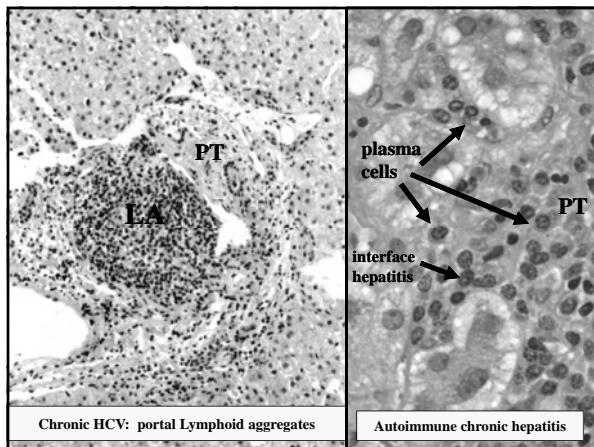


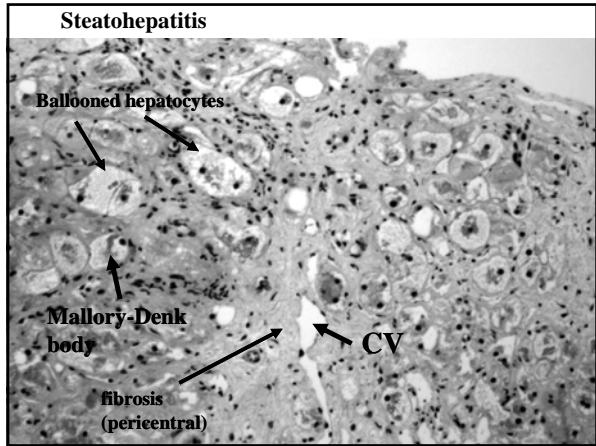
Fatty Liver

- Triglyceride vacuoles in hepatocytes
- Fatty liver is the most common cause of increased serum AST & ALT in the U.S.
- MAJOR CAUSES:
 - alcohol—obesity—diabetes—steroids

Types

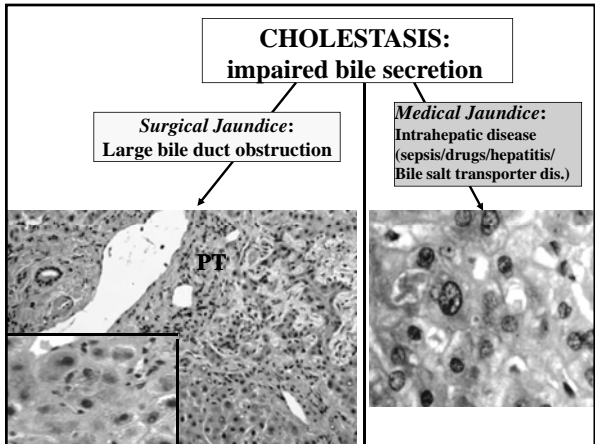
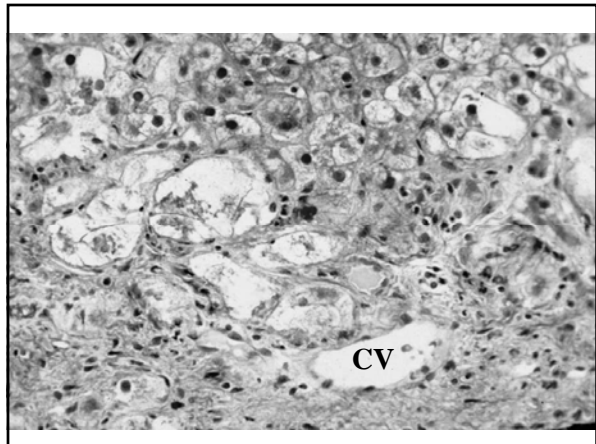
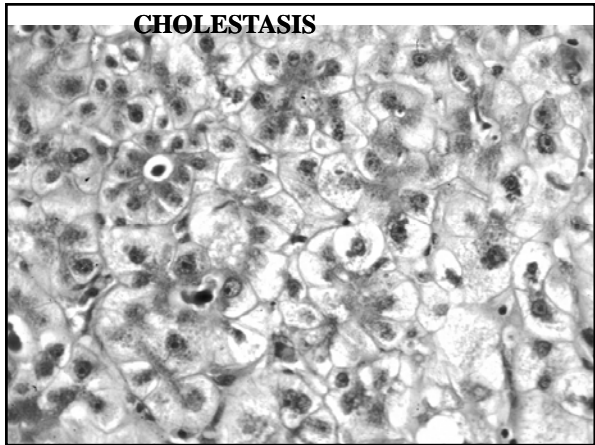
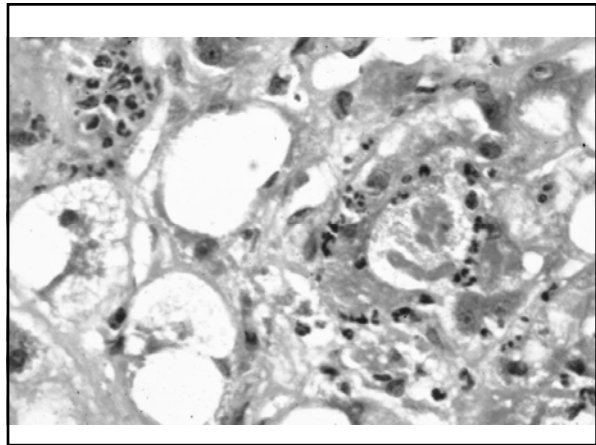
Large droplet (common) (macrovesicular)	Small droplet (uncommon) (microvesicular)





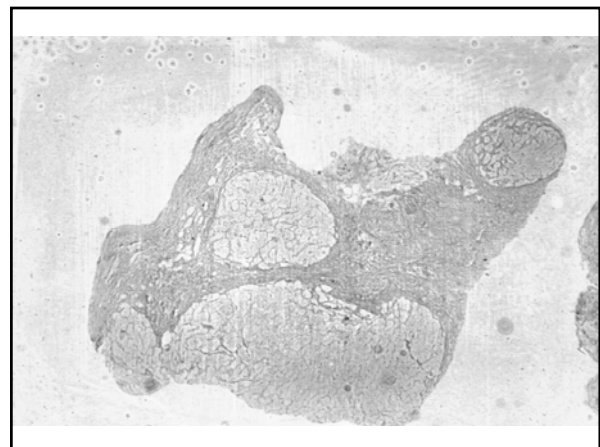
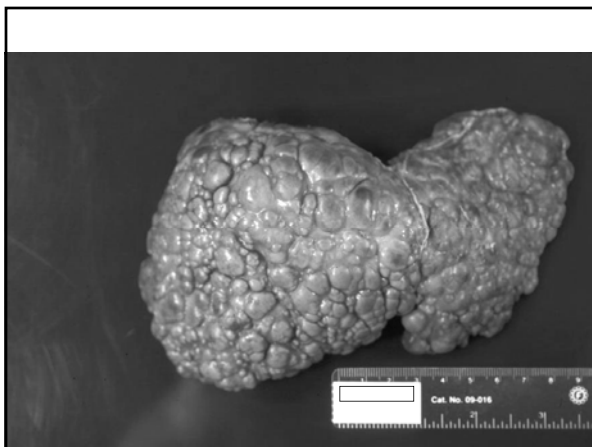
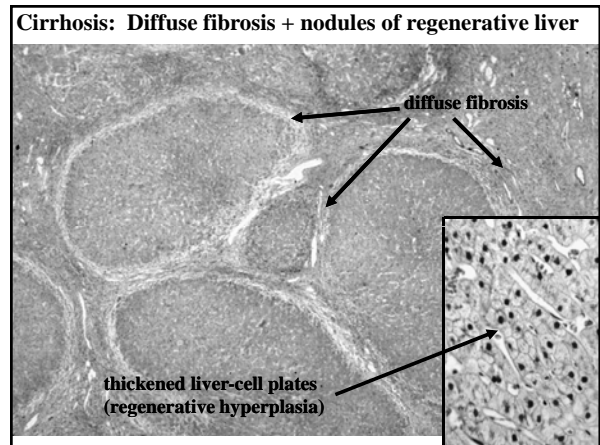
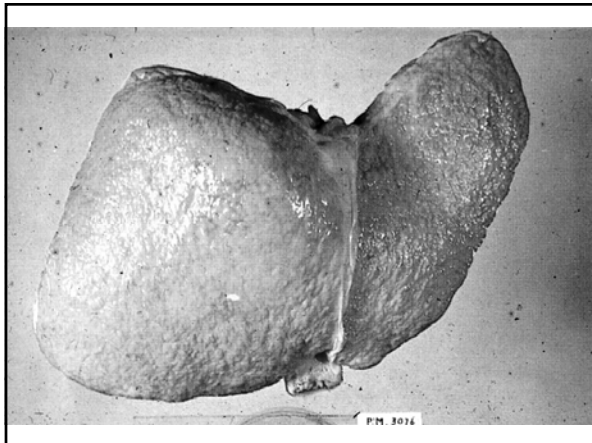
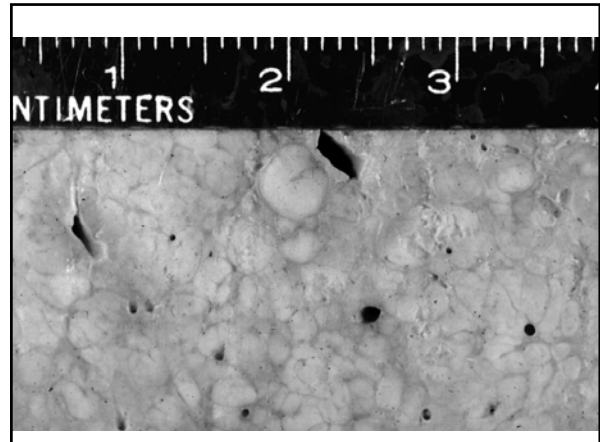
Cholestasis

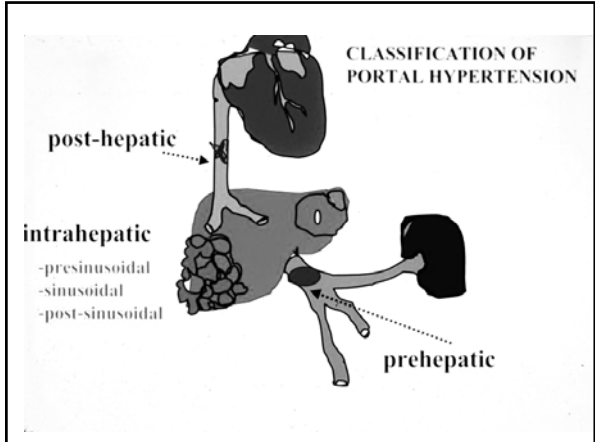
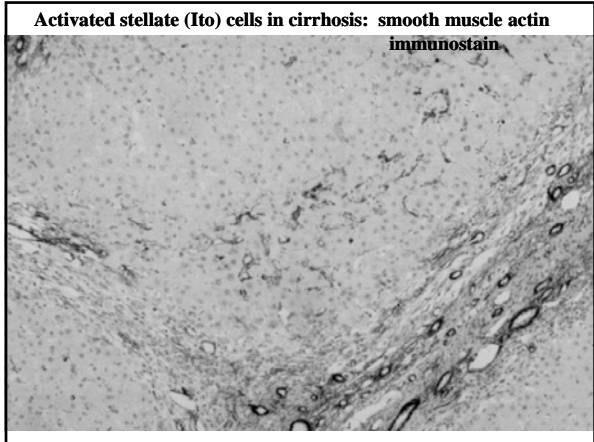
***Impaired bile secretion**
(stagnation of bile flow in the liver)



Cirrhosis

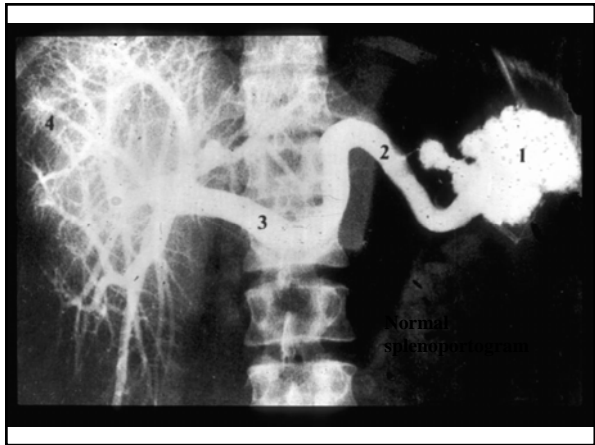
- Def.: 2 components:
 - diffuse fibrosis +
 - regenerative nodules
- Multifactorial etiology
- Gross types: Micronodular ($\leq 3\text{mm}$)
Macronodular ($\geq 3\text{mm}$)
- Complications:
 - portal HTN
 - liver cell failure
 - HCC





Causes of Cirrhosis

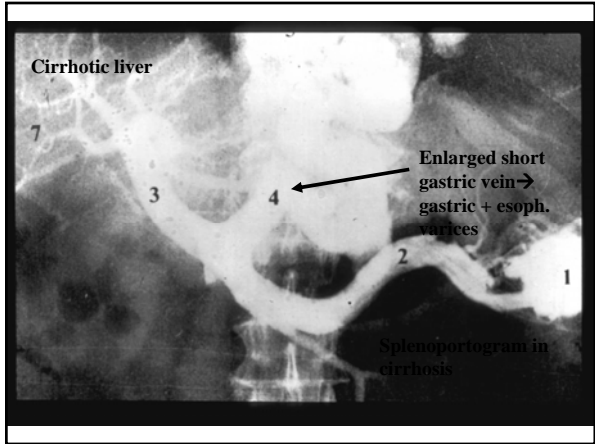
- Alcoholic liver disease, 60-70%
- Viral hepatitis, 10%
- Biliary diseases, 5-10%
- Hereditary hemochromatosis, 5%
- Wilson's disease, rare
- Alpha-1-antitrypsin def., rare
- Cryptogenic cirrhosis, 10-15%

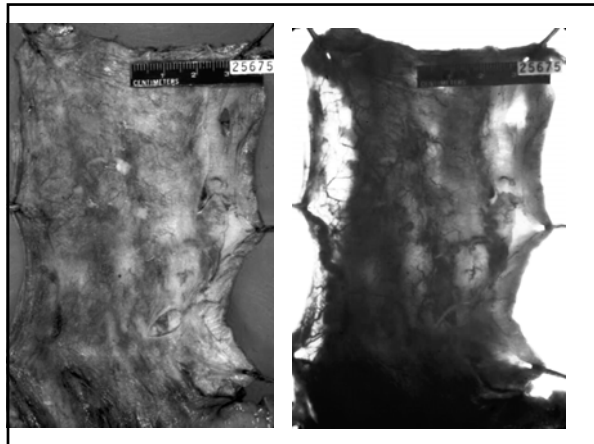


Portal Hypertension

Develops when there is obstruction to the portal blood flow anywhere along its course, with

- increase in portal pressure >7 mm Hg
- development of collateral circulation (varices)





RECAP

1. Liver gross + lobule /acinus
2. Micro: space of Disse / Stellate cells / periportal limiting plate /progenitor cells in canal of Hering
3. Acute hepatitis: Hepatitis virus A-E, drugs
4. Chronic hepatitis: def. /causes / grading + staging
5. Fatty liver (large/small droplet), steatohepatitis
6. Cholestasis: bile duct obstruct. / intrahepatic— including transporter proteins
7. Cirrhosis: gross types, causes, complications
8. Portal hypertension: pre-hepatic / INTRAHEPATIC / post-hepatic

