

Cirrhosis of the Liver

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Cirrhosis

- Fibrosis
- Regenerative nodules
- Hepatocellular mass↓ and function↓
- Decompensated cirrhosis
- Portal hypertension
- Ascites
- Bleeding from esophagogastric varices
- Jaundice
- Hepatic encephalopathy

Causes of Cirrhosis

- Alcoholism
- Chronic viral hepatitis→ B and C
- Autoimmune hepatitis
- Nonalcoholic steatohepatitis
- Biliary cirrhosis→ PBC, PSC (primary sclerosing cholangitis)
- Cardiac cirrhosis
- Inherited metabolic liver disease→ Hemochromatosis, Wilson's disease, α 1 Antitrypsin deficiency, Cystic fibrosis
- Cryptogenic cirrhosis

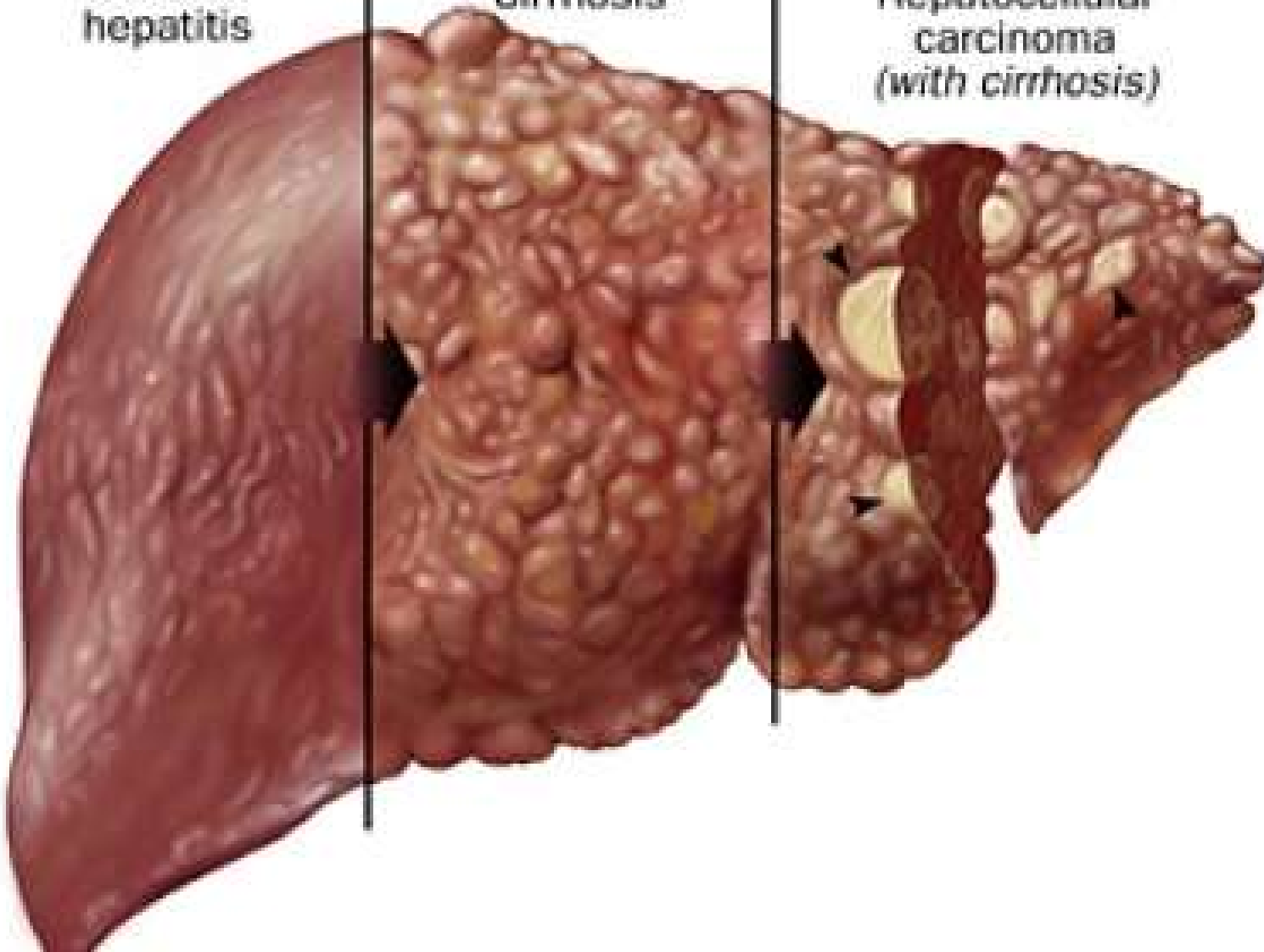
Alcoholic Cirrhosis

- Chronic alcohol use
- Alcoholic fatty liver
- Alcoholic hepatitis
- Alcoholic cirrhosis
- Fibrosis and/or necrosis
- Nodules < 3 mm in diameter → micronodular
- Ethanol → Acetaldehyde → Hepatocyte damage

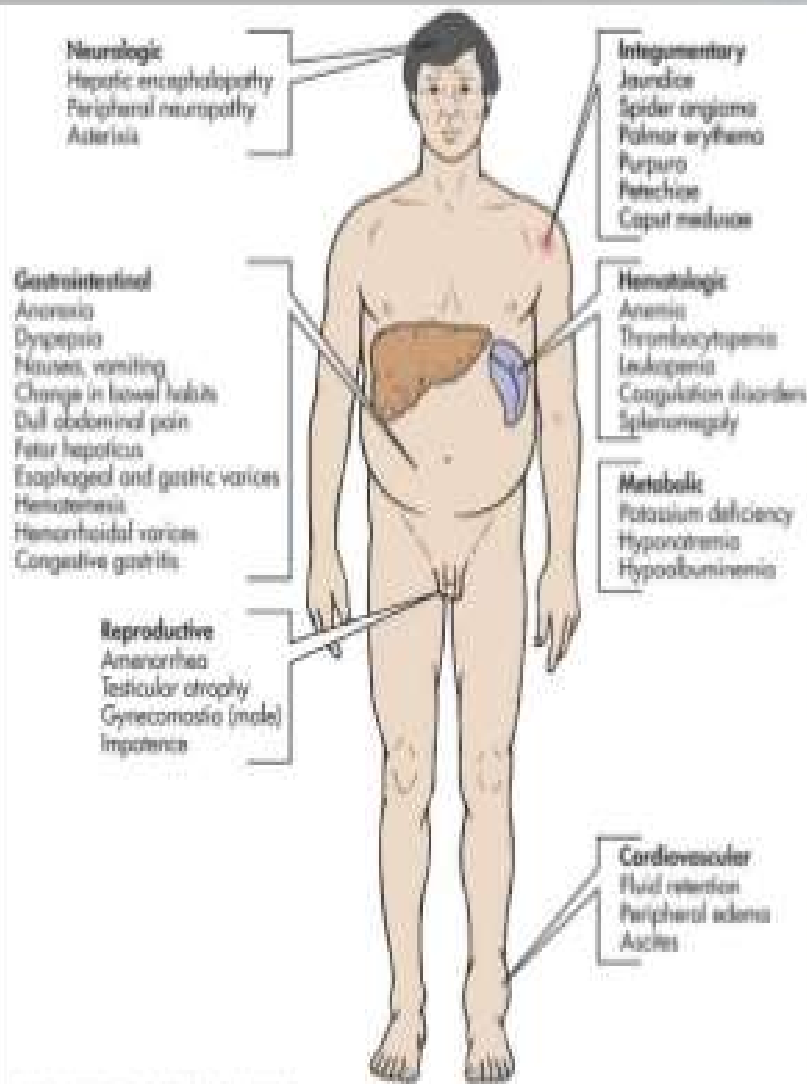
Chronic hepatitis

Cirrhosis

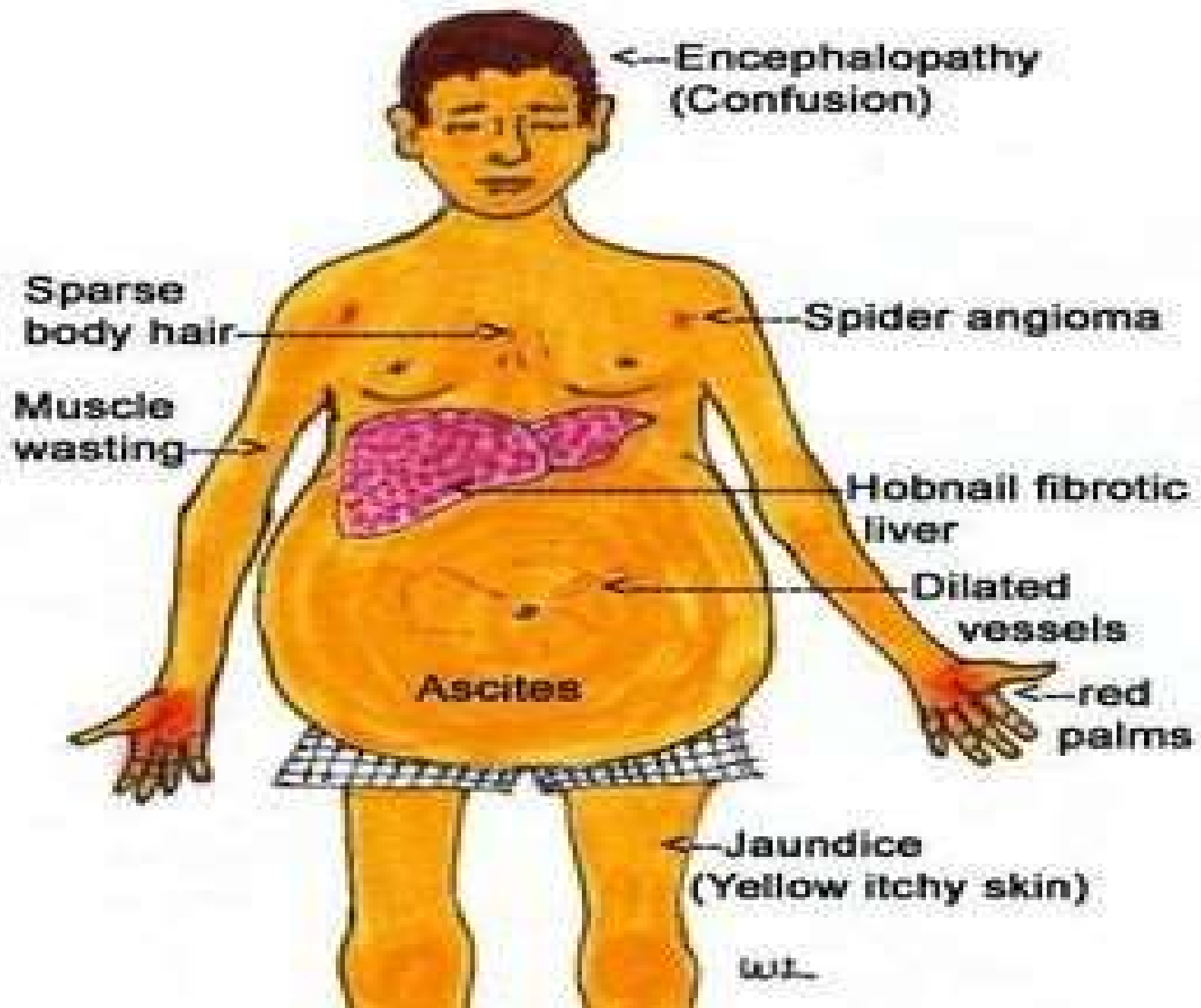
**Hepatocellular carcinoma
(with cirrhosis)**



Manifestations of Liver Cirrhosis



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Clinical Features

- Accurate history taking → amount and duration of alcohol consumption
- Ascites, edema
- GI bleeding
- Jaundice → scleral icterus
- Hepatic encephalopathy
- Enlarged liver and spleen
- Firm liver edge
- Spider angiomas
- Palmar erythema
- Gynecomastia
- Testicular atrophy

Laboratory Tests

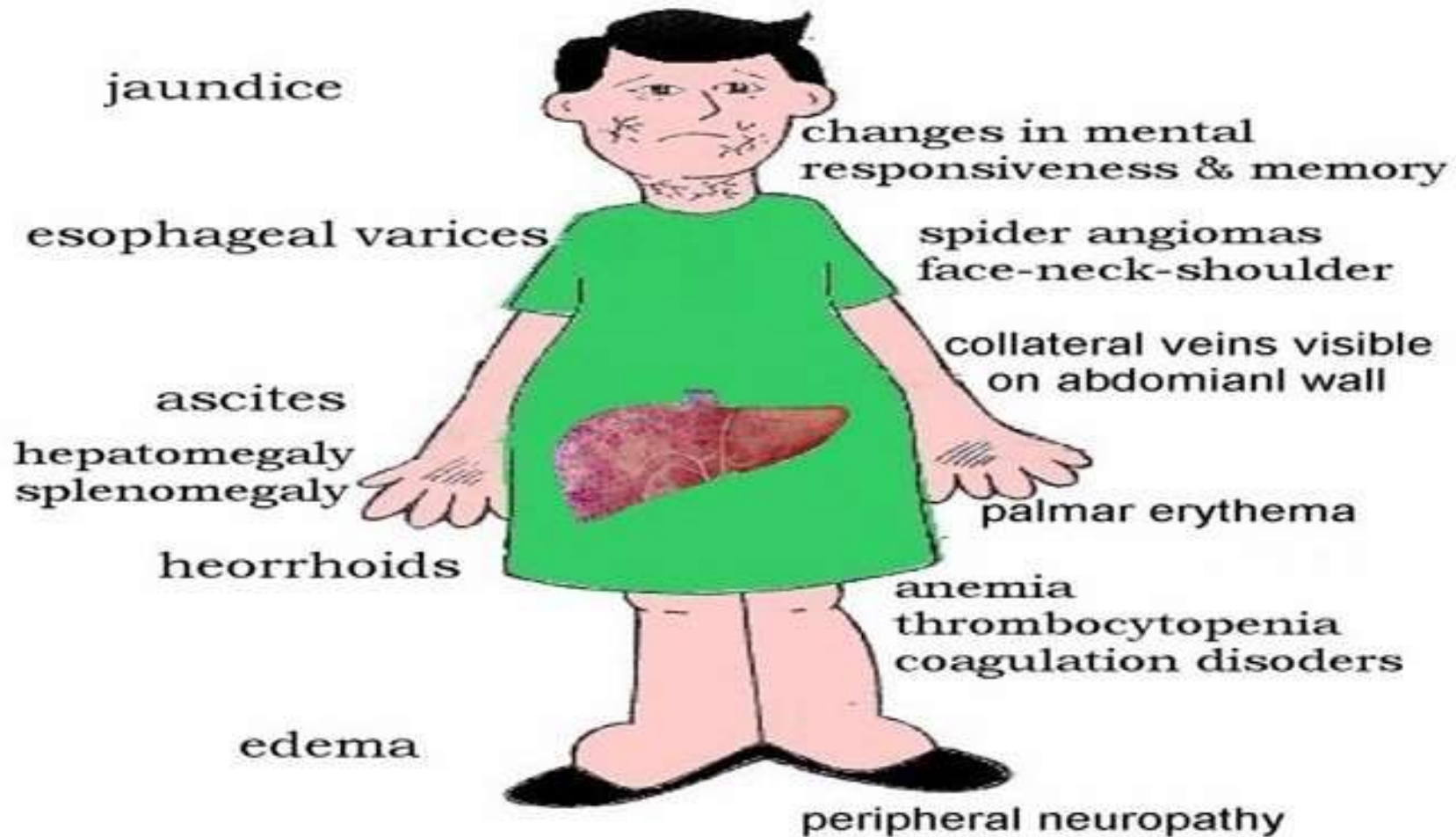
- Anemia
- Serum total bilirubin↑
- Prothrombin time prolonged
- ALT, AST↑

Diagnosis

- Clinical features
- Physical examination
- Laboratory tests

CIRRHOSIS

Later Clinical Manifestations



Treatment of Alcoholic Cirrhosis

- Abstinence
- Good nutrition
- Diuretics
- Albumin supplementation

Cirrhosis due to Chronic Viral Hepatitis B or C

- Quantitative HCV RNA testing
- Analysis for HCV genotype
- HBsAg, anti-HBs
- Quantitative HBV DNA level

Treatment

- Antiviral therapy
- Lamivudine
- Adefovir
- Entecavir
- Tenofovir
- Interferon α
- Ribavirin

Cirrhosis from Autoimmune Hepatitis

- ANA positivity
- Anti-smooth-muscle antibody positivity
- ALT, AST↑
- Liver biopsy
- Glucocorticoids
- Azathioprine

Biliary Cirrhosis

- Abnormal bile retention → cholestasis ← intrahepatic and extrahepatic

Primary Biliary Cirrhosis

- Portal inflammation
- Necrosis of cholangiocytes in bile ducts
- Pruritus
- Jaundice
- Hepatomegaly, splenomegaly, ascites
- Hyperpigmentation
- gGT↑ SAP↑
- AMA (antimitochondrial antibodies)
- Liver biopsy
- UDCA = Ursodeoxycholic acid
- Plasmapheresis
- Liver transplantation

Primary Sclerosing Cholangitis

- Diffuse inflammation
- Fibrosis involving the biliary tree → multifocal stricturing
- Cholestatic disease
- P-ANCA positivity
- ERCP (endoscopic retrograde cholangiopancreatography)
- Endoscopic dilatation of dominant strictures
- Liver transplantation

Cardiac cirrhosis

- Long-standing right-sided congestive heart failure
- Enlarged firm liver

Major Complications of Cirrhosis

- Portal hypertension
- Gastroesophageal variceal bleeding
- Splenomegaly
- Ascites
- Hepatic encephalopathy
- Spontaneous bacterial peritonitis
- Hepatorenal syndrome
- Hepatocellular carcinoma

Portal Hypertension

- Hepatic venous pressure gradient \uparrow
- Gastroesophageal varices with hemorrhage
- Ascites
- Hypersplenism

Treatment of Variceal Hemorrhage

- Nonselective beta blockade → Propranolol, Nadolol
- Endoscopic variceal band ligation
- Endoscopic variceal sclerotherapy
- Balloon tamponade by Sengstaken-Blakemore tube
- Transjugular intrahepatic portosystemic shunt

Splenomegaly and Hypersplenism

- Enlarged spleen
- Thrombocytopenia, leukopenia

Ascites

- Fluid accumulation → peritoneal cavity
- Intrahepatic resistance ↑
- Hypoalbuminemia
- Diagnosis → physical examination, abdominal imaging
- Shifting dullness ← fluid wave
- Diagnostic paracentesis
- Dietary sodium restriction
- Diuretics → Furosemide, Spironolactone

Hepatic encephalopathy

- Mental status↓, cognitive function↓
- Ammonia↑
- Brain edema
- Mannitol
- Intravenous fluids
- Lactulose
- Neomycin, Metronidazole