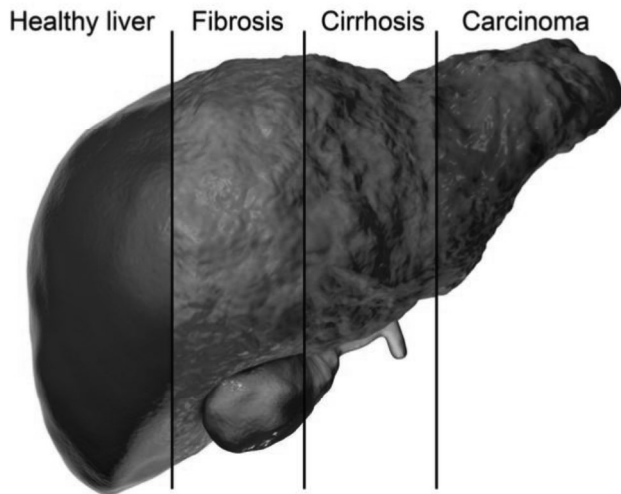


Liver Cirrhosis

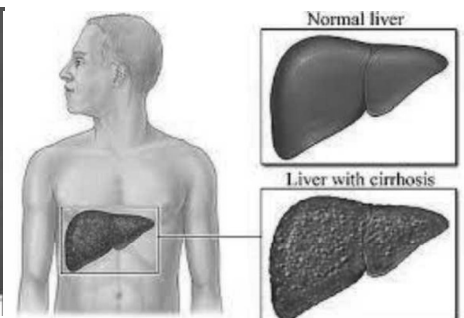
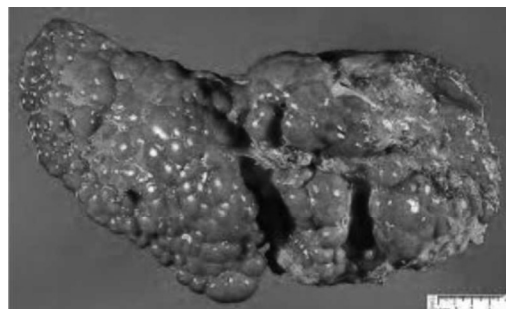


By
Dr. Mohamed Elnagar

Background

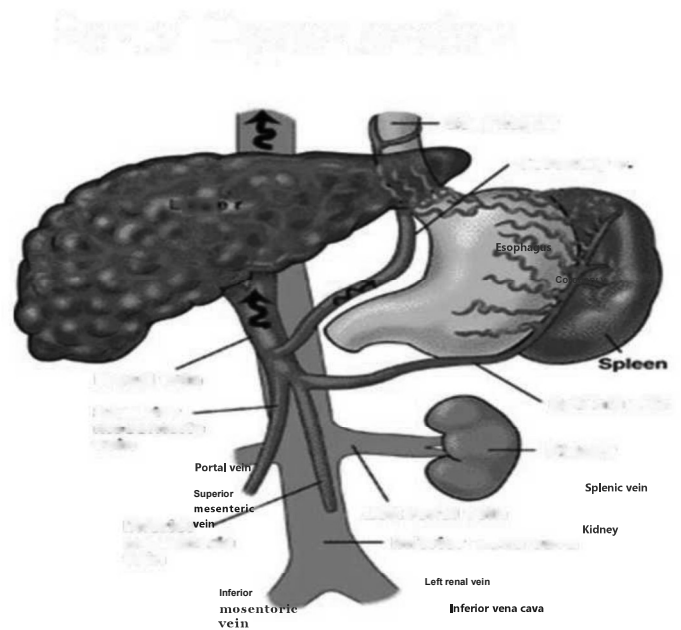
- » **Cirrhosis** is the **conversion process of normal hepatocyte** into structurally **abnormal nodules**. Consequently, leading to hepatocytes destruction and replacement by fibrous scar tissue.
- » The number of normally **functioning liver cells** **reduces** further, because of continued **hepatocyte death**, the **clinical condition deteriorates progressively** with the development of **liver failure**.

Hepatic necrosis and degeneration combined hepatic regeneration and fibrosis leading Nodular formation



Background

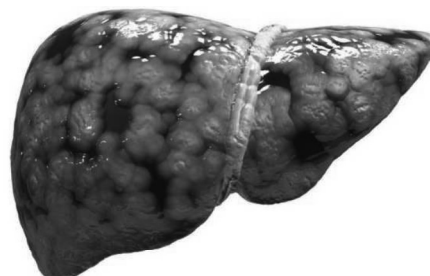
» The anatomical changes within the liver increase resistance to blood flow from the portal system,
→ causing an increase in pressure within this system resulting in portal hypertension, one of the major complications of cirrhosis.



Portal Hypertension

Etiology of Cirrhosis

- **Alcohol** is the single most significant cause of **liver disease** throughout the Western world accounting for between **40%** and **60%** of cases of cirrhosis in different countries.
- **Liver disease** related to **recent alcohol consumption** presents a broad spectrum, ranging from the **benign fatty liver disease** to **alcoholic hepatitis**, a condition with an immediate mortality of between **30%** and **60%**.



Alcohol

- An estimated **20% of alcohol abusers** develop progressive liver fibrosis, which can eventually lead to **alcoholic cirrhosis**, typically after a period of **10-20 years of heavy indulgence**.

الانغماس



Etiology of Cirrhosis

Viral hepatitis B, C, D.

Drugs including Isoniazid, methyldopa, methotrexate, phenothiazine, estrogen, anabolic steroids, amiodarone.

Nonalcoholic fatty liver: is very similar to alcohol-induced disease is now well recognized in a number of settings including

- obesity
- diabetes mellitus •metabolic syndrome

Etiology of Cirrhosis

» **Autoimmune hepatitis:** is an un-resolving inflammation of the liver characterized by the presence of **auto-antibodies**. It is usually a chronic, progressive disease which can occasionally present acutely with a **severe hepatitis**.

Autoimmune hepatitis typically occurs in young women, between 20 and 40 years, and often with a family history of autoimmune disorders.



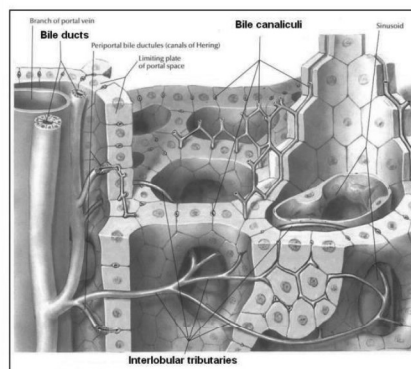
Primary biliary cirrhosis: is an **autoimmune disease** of the liver which mainly affects middle aged women (95% of cases are female).

It is characterized by the presence of **anti-mitochondrial antibodies** that **destruct** the **interlobular bile ducts** leading to progressive **ductopenia**, fibrosis and **cirrhosis**.

The Bile Ducts

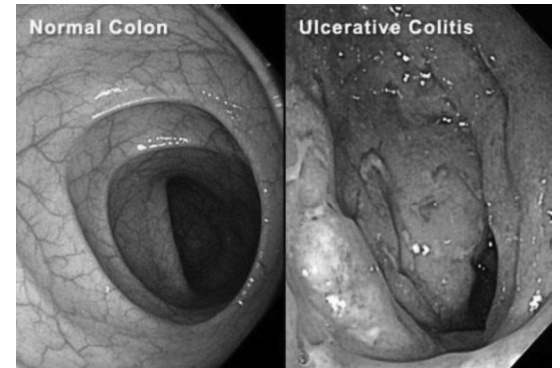
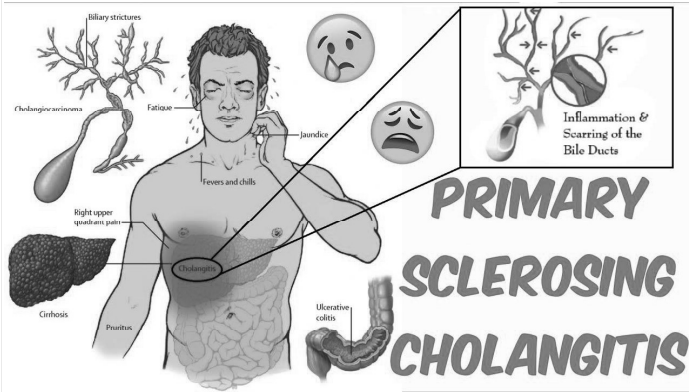
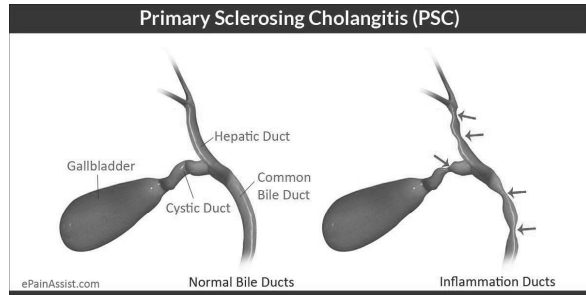
Ductopenia: absence of an appropriately sized bile duct in the portal tract. When severe inflammation is present, the duct may be obscured by numerous inflammatory cells

- **The liver cells secrete bile**
- **The bile canaliculi carry this bile to the interlobular ducts.**
- **The interlobular ducts join one another to form progressively larger ducts and, eventually, at the porta hepatis form the right and left hepatic ducts.**



» **Primary sclerosing cholangitis (PSC):** is an **idiopathic chronic inflammatory** disease resulting in biliary strictures, cholestasis and eventually **cirrhosis**. There is a strong association with inflammatory bowel disease, particularly **ulcerative colitis**.

Cholestasis: A condition which impairs the flow of bile from the liver to the small intestine by either slowing or stopping the flow



Metabolic and genetic disorders: There are various inherited metabolic disorders that can **affect the functioning of the liver**

- Hemochromatosis
- Wilson's disease
- α 1-Antitrypsin deficiency
- Glycogen storage disease
- Gilbert's syndrome

Sign versus Symptom

Symptom is a phenomenon that is **experienced by the individual affected** by the disease.

Sign is a phenomenon that can be **detected by someone other than the individual affected** by the disease.

Clinical symptoms of liver disease

- ❖ Weakness, fatigue, and general malaise are common but nonspecific symptoms.
- ❖ Weight loss and anorexia are more commonly seen in chronic liver disease.
- ❖ Loss of muscle mass is a characteristic of very advanced disease.
- ❖ Abdominal discomfort with liver enlargement and ascites is usually in more advanced disease.
- ❖ Abdominal pain is common in hepatobiliary disease, frequently localized to the right upper quadrant.
- ❖ Tenderness (i.e., sensitivity to pain) over the liver is a symptom of acute hepatitis, hepatic abscess or hepatic malignancy.
- ❖ Jaundice is the most striking symptom of liver disease and can present with or without pain, depending on the underlying etiology of disease.
- ❖ Pruritus can be a distressing symptom in cholestatic liver disease and patients usually complain that it is worse at night.
- ❖ Patients with acute and chronic liver disease can develop bleeding complications because of defective hepatic synthesis of coagulation factors and low platelet counts.

Sign of liver disease

Cutaneous signs

Hyper pigmentation result from increased deposition of melanin.



Scratch marks on the skin suggest pruritus which is common feature of liver disease.



Abdominal signs

Abdominal distension, notably of the flanks, is suggestive of ascites which can develop in both acute (less commonly) and chronic liver disease.

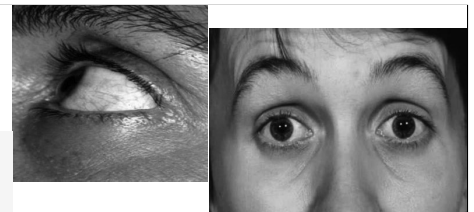
Hepatomegaly is a common finding in acute liver disease.

In cirrhotic patients the liver may be large, but alternatively it may be small and shrunken reflecting end-stage chronic disease.

Splenomegaly in the presence of chronic liver disease is the most important sign of portal hypertension.

Jaundice

- Jaundice is the physical sign regarded as synonymous with liver disease and is most easily detected in the sclerae.

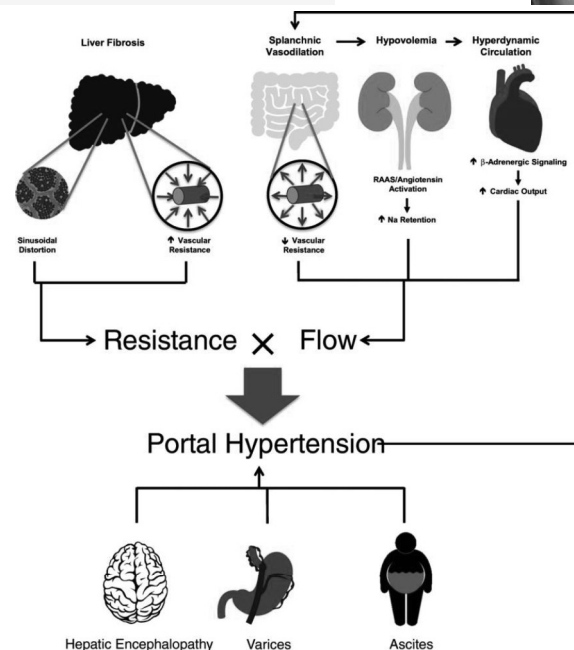


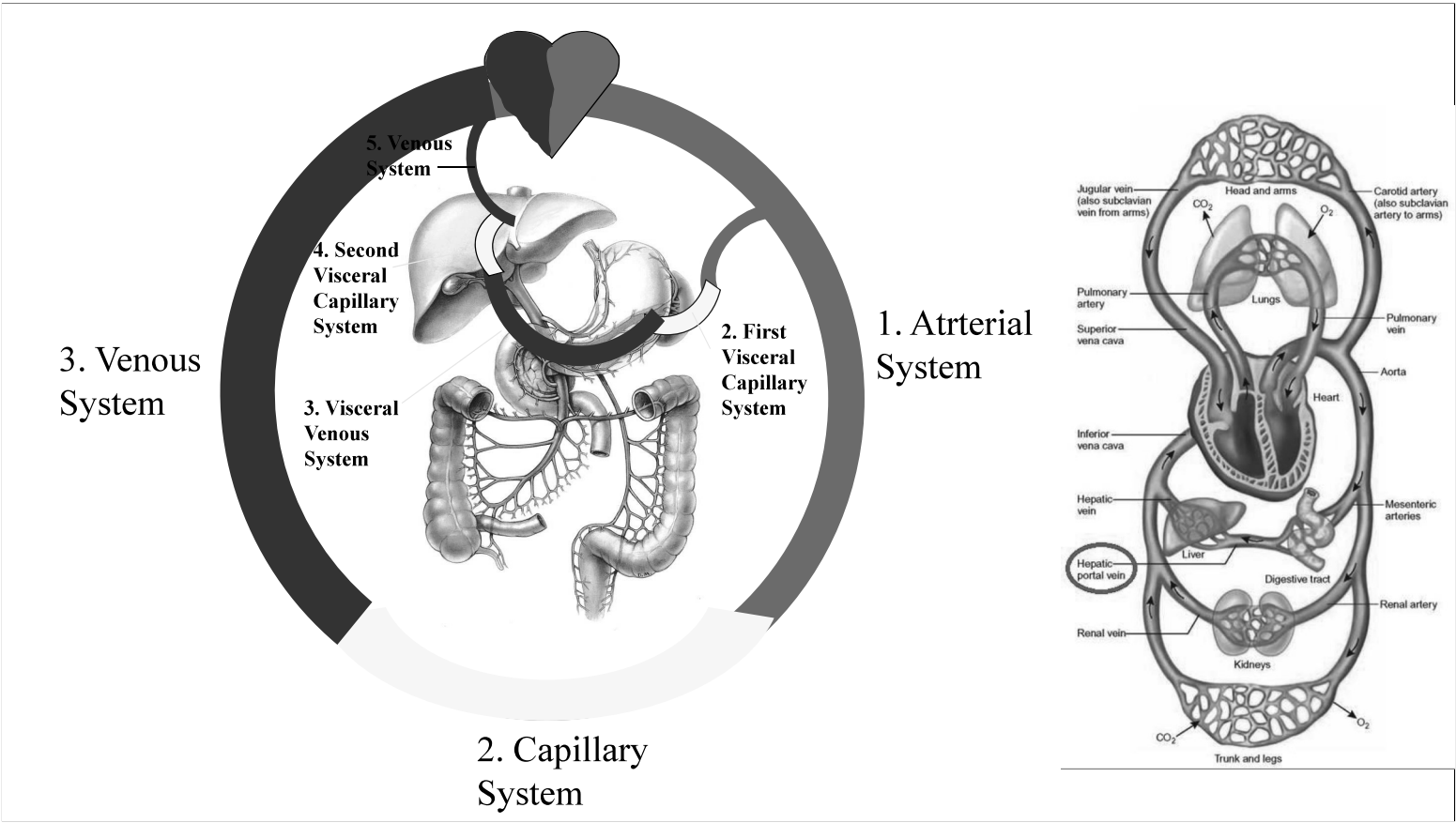
Portal hypertension

- o Increased hepatic resistance to portal flow due to cirrhosis causes portal hypertension.

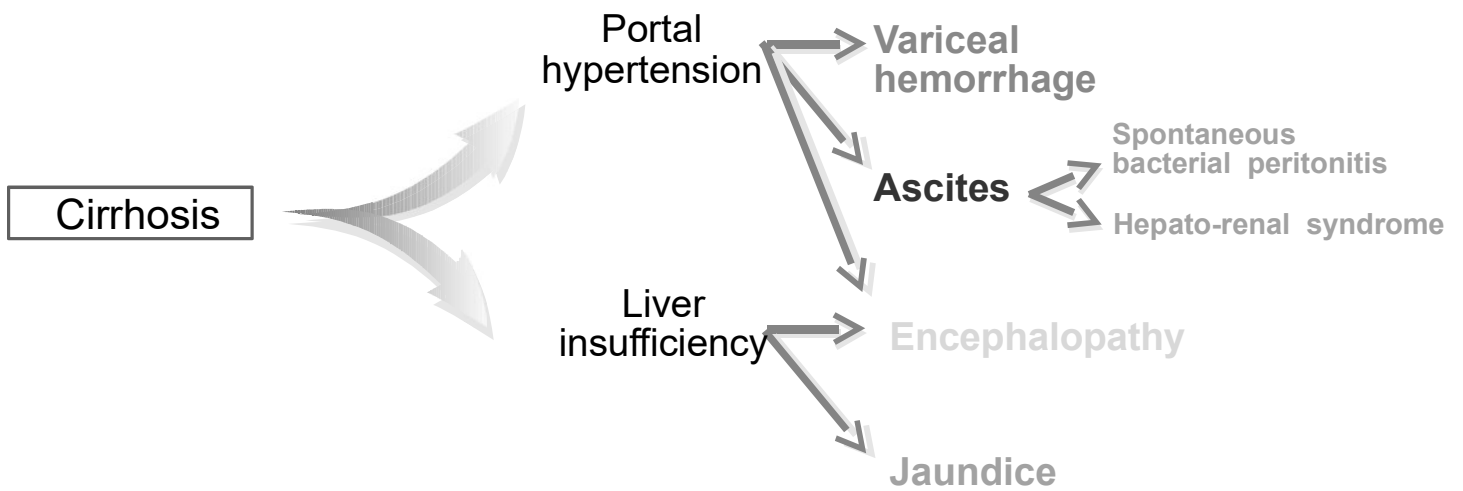
The increased pressure in the portal venous system leads to shunting of blood to the systemic circulation. (Porto-systemic Shunt)

تحويل





Complications of Cirrhosis Result from Portal Hypertension or Liver Insufficiency

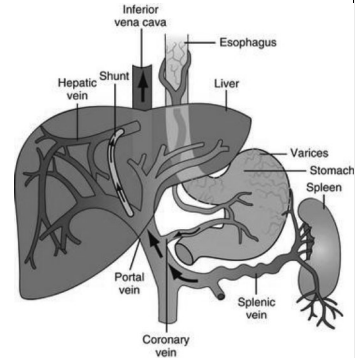
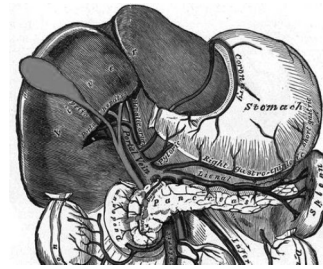
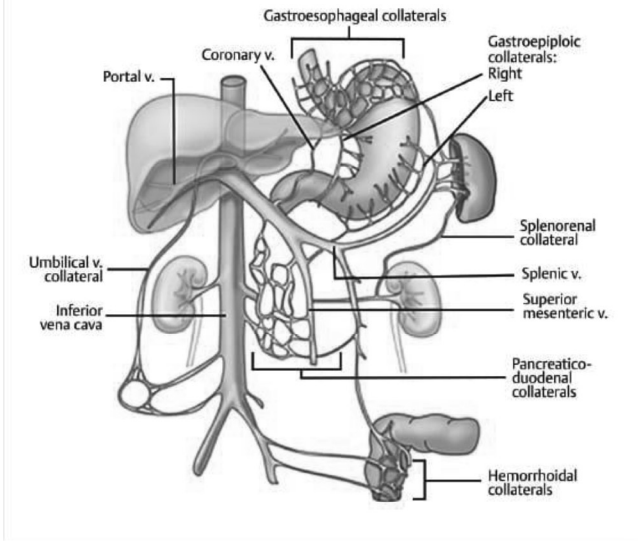


Portal hypertension, cont.....

Bypassing of blood from the liver to the systemic circulation lead to:

» ascites

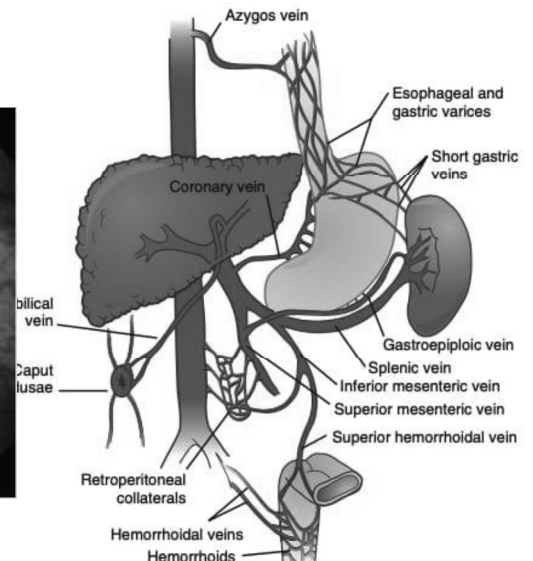
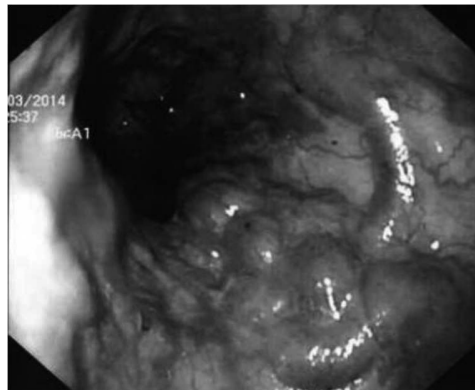
» encephalopathy



Anterolateral left gastric (coronary) vein

When blood pressure increases in the portal vein system, veins in the esophagus, stomach, and rectum enlarge to accommodate blocked blood flow through the liver.

As the blood pressure in the portal vein system continues to increase, the walls of these expanded veins become thinner, causing the veins to rupture and bleed. This is called **variceal bleeding.**

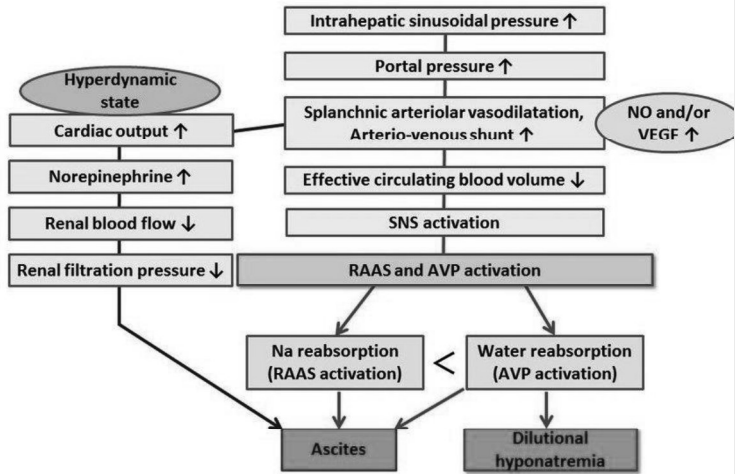
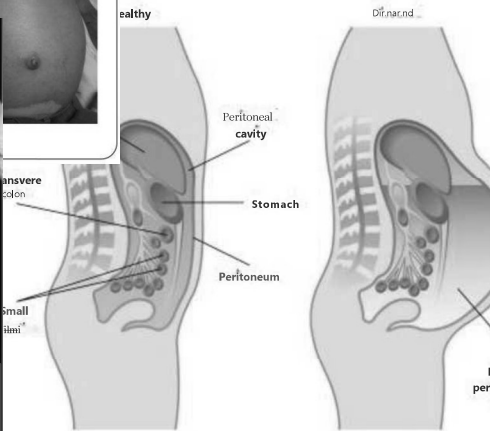


Ascites

- Ascites is a pathologic **accumulation of lymph fluid within the peritoneal cavity**.
- It is one of the **earliest and most common** presentations of cirrhosis.

WHAT IS ASCITES?

- Greek origin (*askos*) and means bag or sac
- It is the collection of fluid in the peritoneal cavity



Hepatic encephalopathy

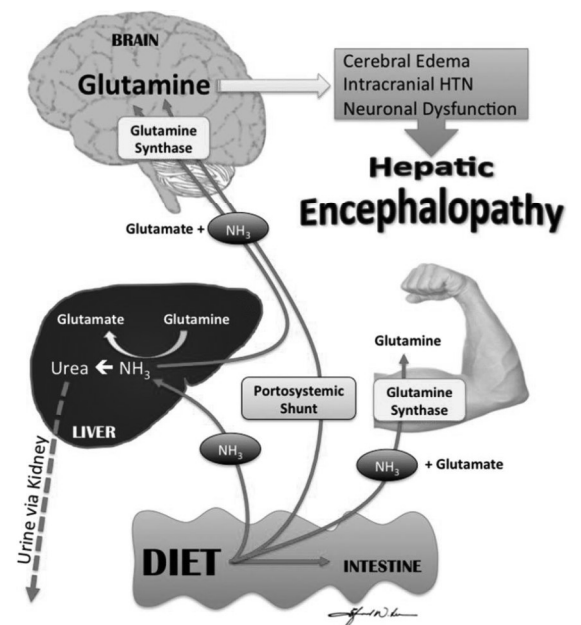
- **Hepatic encephalopathy** is defined as a spectrum of **neuropsychiatric abnormalities** in patients with liver dysfunction.

It is characterized by

- personality changes
- intellectual impairment
- depressed level of consciousness



The development of hepatic encephalopathy is explained, to some extent, by the **effect of neurotoxic substances, which occurs in the setting of cirrhosis and portal hypertension**.



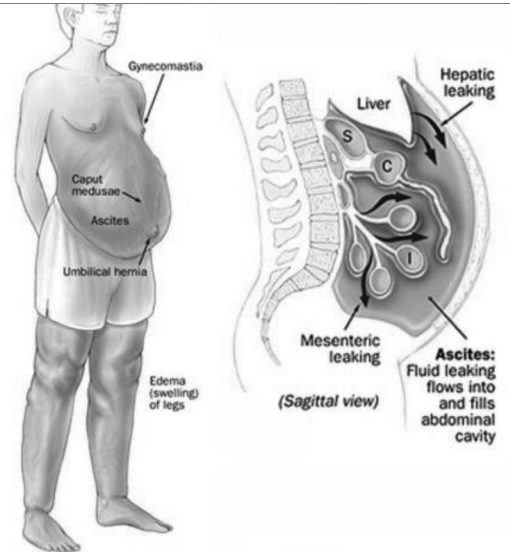
Gynaecomastia

» It tends to be more common in **alcoholic liver disease**.



» **Hypogonadism** is common in patients with cirrhosis, males may experience **testicular atrophy**.

» It occurs **because** the **cirrhotic liver cannot metabolize estrogen** leading to **feminization** in males.



Women menstruation issues

Women with chronic liver disease may suffer from

- menstrual irregularity
- Amenorrhea
- reduced fertility

**PERID
PROBLEMS**



Coagulation defects

Decreases in the **vitamin K-dependent factors** (prothrombin; factors VII, IX, and X)

Decreased synthesis of clotting factors

Reduction of platelet count (thrombocytopenia)

**Bleed
tendency**

Investigations



- » All patients with liver disease must undergo a comprehensive assessment to **identify the underlying etiology**.
- » Although **causes of acute and chronic liver disease** may differ, a similar approach is used to investigate both patient groups.

Biochemical tests

Liver function tests (LFTs) are

- » ***Simple inexpensive***
- » ***easy*** to perform **but usually cannot be used in isolation to make a diagnosis**.

Liver function tests

The liver enzymes usually measured are the

- transaminase (ALT & AST)
- bilirubin
- alkaline phosphatase
- γ -glutamyl transpeptidase

Aspartate transaminase (AST) and alanine transaminase (ALT) are two intracellular enzymes present in hepatocytes which are released into the blood of patients as a consequence of hepatocyte damage.

Extremely high values, where transaminases are recorded in the thousands, occur in acute liver disease, for example, viral hepatitis or paracetamol overdose.

In chronic hepatitis, serum transaminases are rarely more than five to eight times the normal upper limit.

Simultaneous elevation of the enzyme γ -glutamyl transpeptidase confirms the hepatic origin of an elevated alkaline phosphatase.

Bilirubin is commonly elevated in hepatocellular pathology and especially in acute hepatitis and end-stage chronic disease.

Serum bilirubin can also increase in Haemolysis.