RAMA UNIVERSITY

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FACULTY OF NURSING

LIVER CIRRHOSIS

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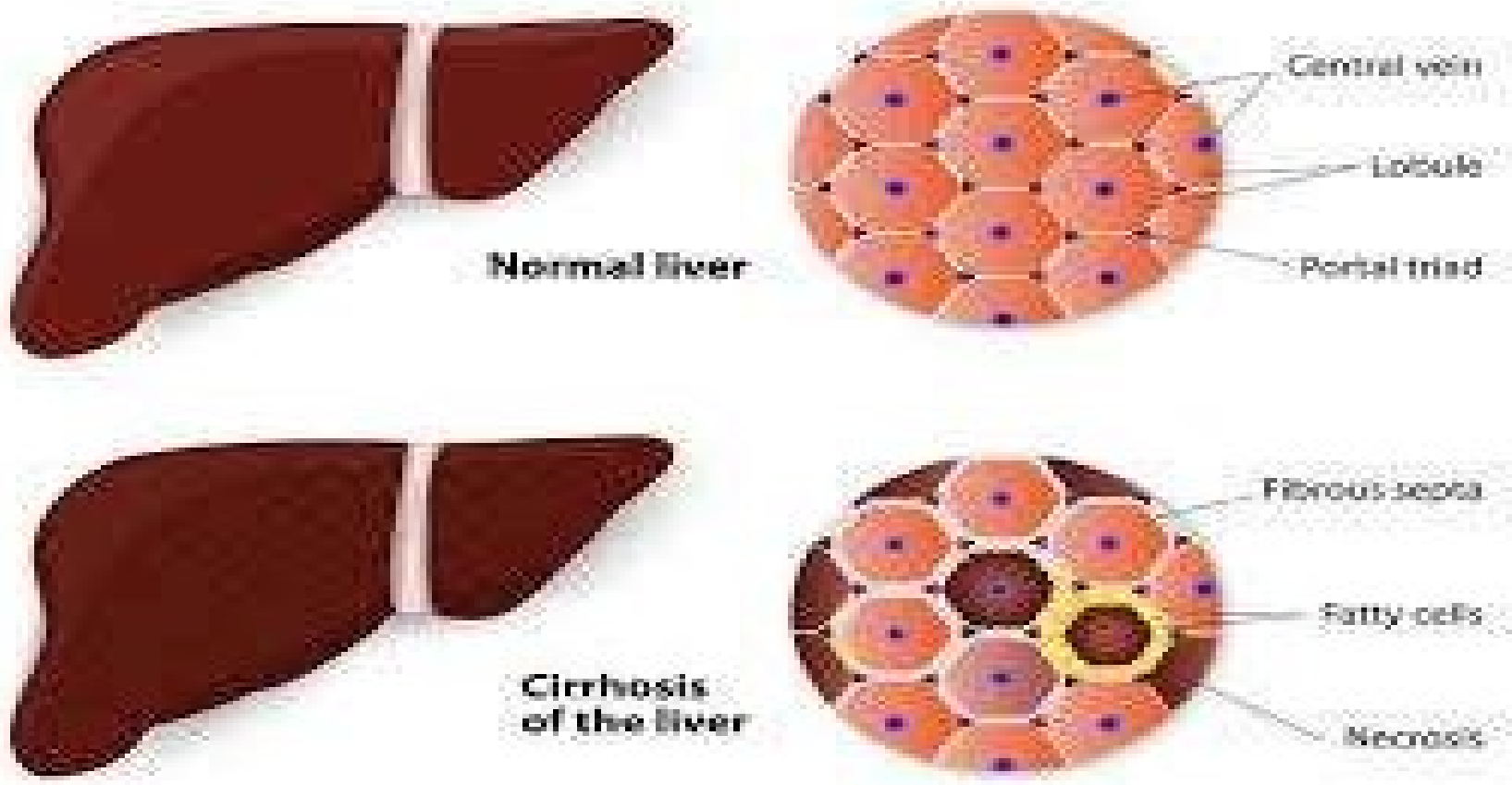
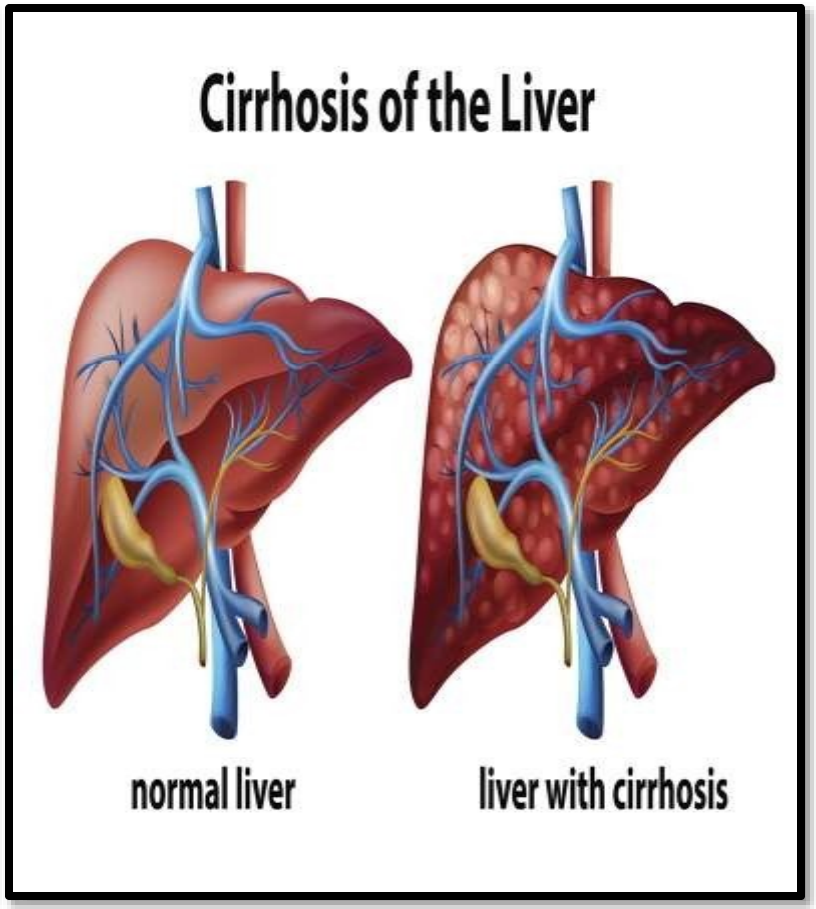
DEFINITION

Cirrhosis of liver is a chronic, progressive disease characterized by widespread fibrosis(scarring) and nodule formation.

The development of cirrhosis is an insidious, prolonged course, usually after decades of chronic liver disease.

- Cirrhosis is a consequence of chronic liver disease, characterised by replacement of liver tissue by fibrosis, scar tissue and regenerative nodules leading to loss of liver function.


Normal liver
Central vein
Lobule
Portal triad
Cirrhosis of the liver
Fibrous septa
Fatty cells
Necrosis

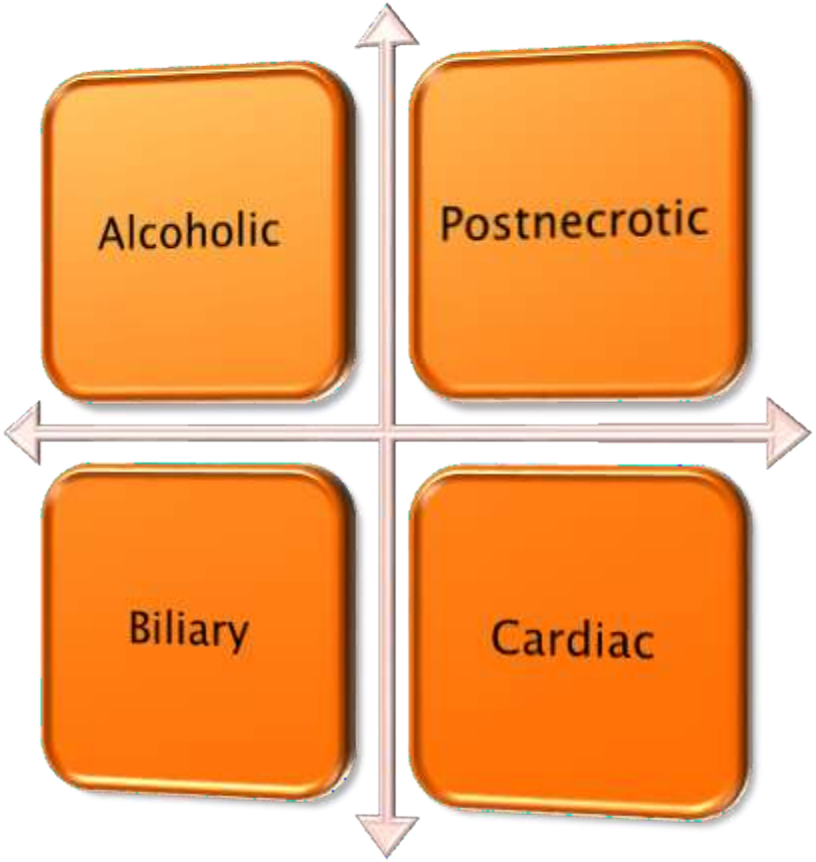

Cirrhosis of the Liver
normal liver
liver with cirrhosis

INCIDENCE

Cirrhosis is the 8th leading cause of death in United states.

- Around 20% of patients with Chronic HCV and 10%-20% of patients with chronic HBV develop cirrhosis.

CLASSIFICATION



ALCHOLIC CIRRHOSIS

- Laennec's cirrhosis, micronodular, portal cirrhosis.
- Men are more likely to have alcoholic cirrhosis.
- Fibrosis occurs mainly around central veins and portal areas.
- It is associated with chronic alcoholic abuse.
- Small nodules form as result of some offending agent.

PANCREATIC CIRRHOSIS

- Macronodular cirrhosis, toxin-induced cirrhosis.
- Most common worldwide form.
- Broad bands of scar tissue.
- Caused by postacute viral B, C hepatitis, Post intoxication with industrial chemicals.
- More common in women.

BILIARY CIRRHOSIS

Scaring around bile ducts and lobes of the liver.

It results from chronic biliary injury and obstruction of the intrahepatic or extrahepatic biliary system.

Primary biliary cirrhosis and Primary Sclerosing Cholangitis are biliary causes of cirrhosis.

CARDIAC CIRRHOSIS

It is rare.

It is chronic liver disease associated with long term severe right sided heart failure.

It is caused by AV valve disease, constrictive pericarditis.

CAUSES

Chronic alcohol abuse

Chronic Viral hepatitis (Hep B, Hep C)

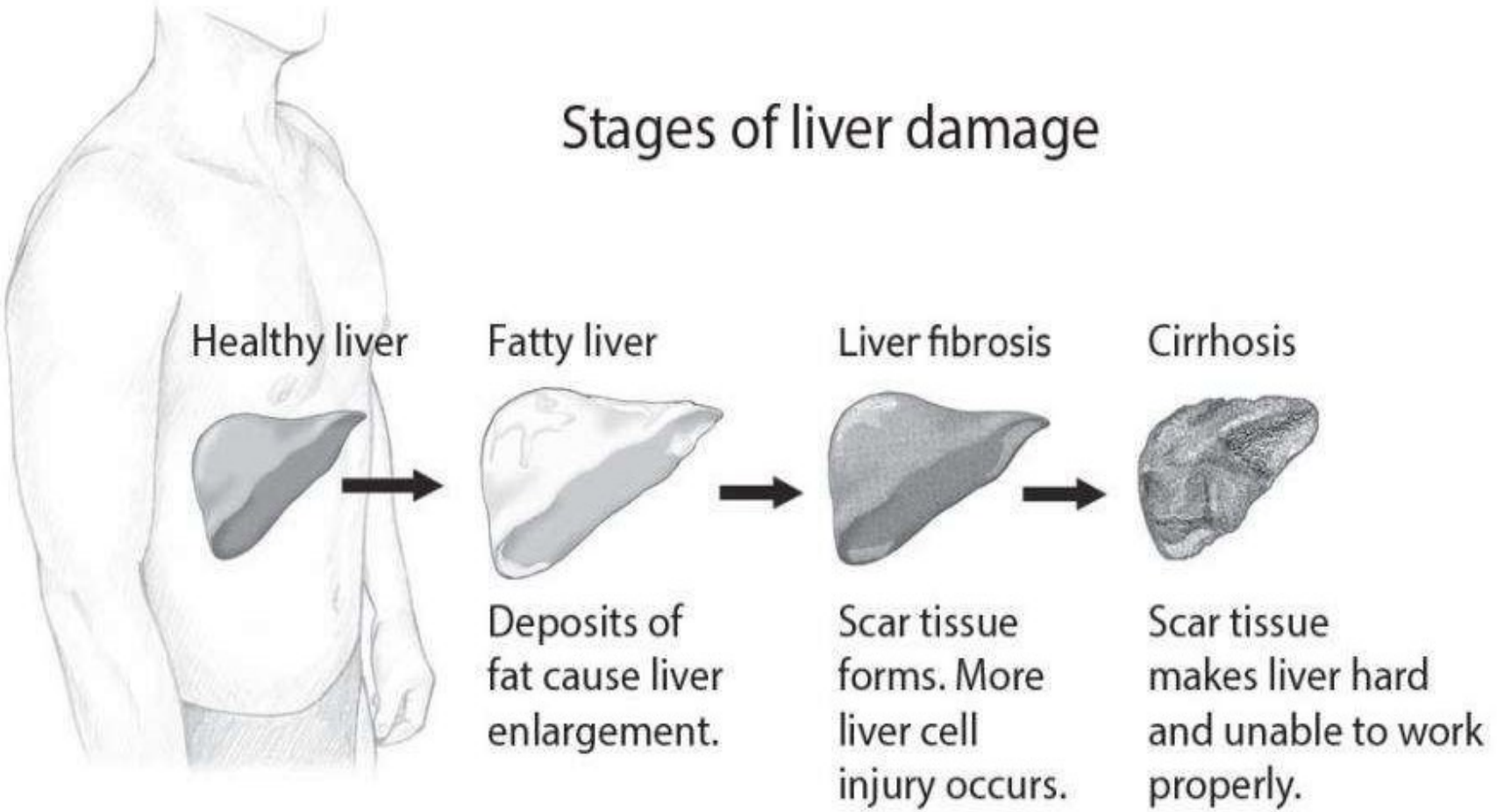
Non alcoholic fatty liver disease.

CAUSES

- Primary biliary cirrhosis
- Primary Sclerosing Cholangitis
- Biliary atresia
- Cystic fibrosis
- Hemochromatosis
- Wilson’s disease
- Budd cherry syndrome.

- Galactosemia or glycogen storage disease
- Autoimmune hepatitis
- Medication such as methotrexate, acetaminophen.
- Alagille syndrome.
- Infection such as syphilis
- Amyloidosis

STAGES OF LIVER DAMAGE

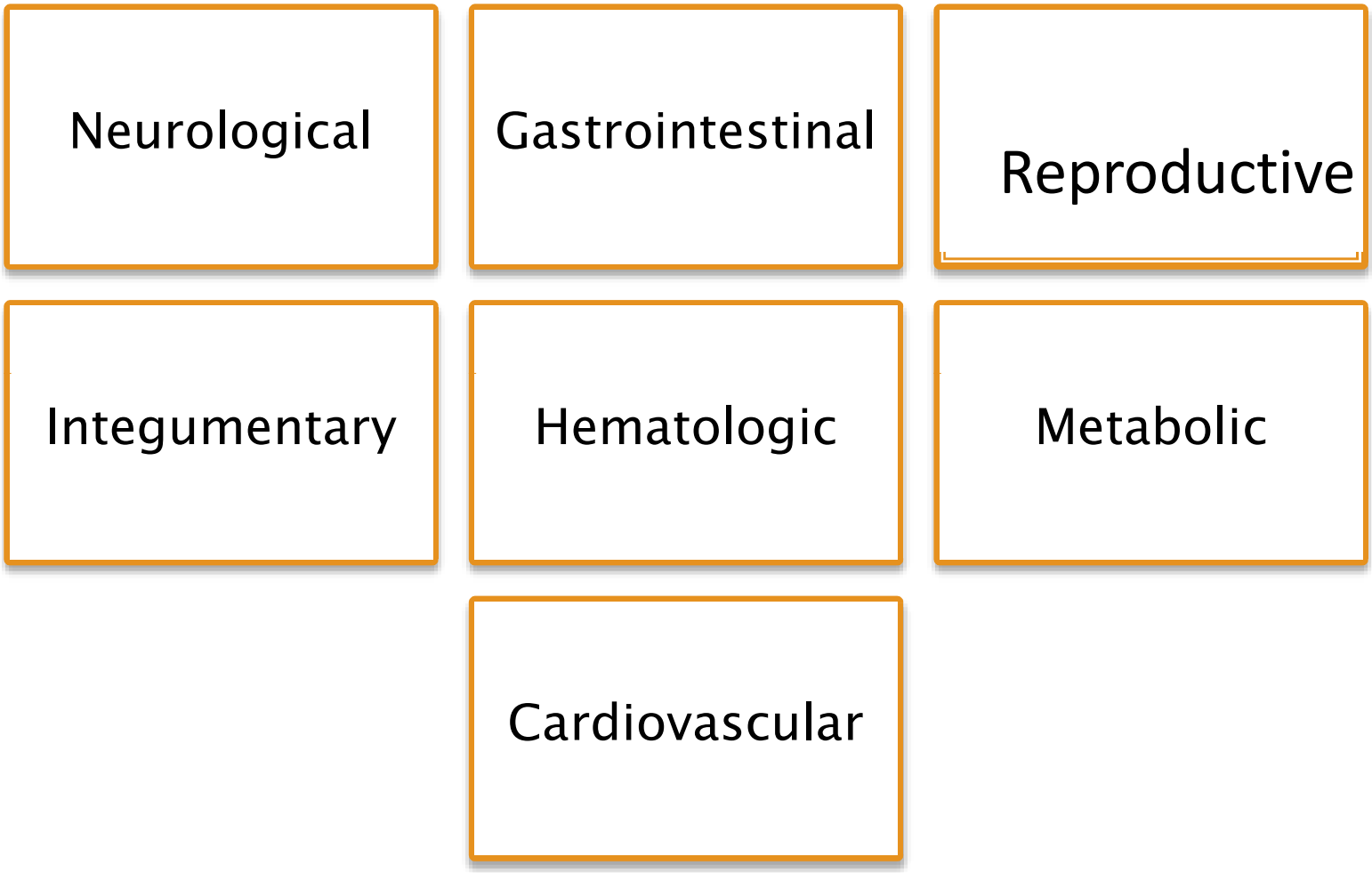


CLINICAL MANIFESTATIONS

EARLY MENIFESTATIONS: The onset of cirrhosis is insidious. Early symptom is fatigue.

LATER MENIFESTATIONS: Later symptom may be severe and result from liver failure and portal hypertension.

Jaundice, ascites, peripheral edema develop gradually. Other late symptoms include skin lesions, hematological disorders, endocrine disturbances, peripheral neuropathies etc.


Neurological
Gastrointestinal
Reproductive
Integumentary
Hematologic
Metabolic
Cardiovascular

NEUROLOGIC

Hepatic encephalopathy

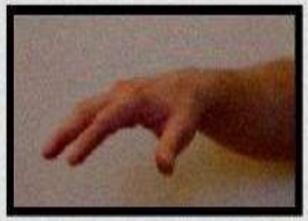
Peripheral encephalopathy

Asterixis

ASTERIXIS

Asterixis

- Synonyms: Liver flap, Flepping tremor
- Causes:
  - Hepatic: Liver failure→ Hepatic Encephalopathy
  - Renal: Renal failure → Uremic syndrome
  - Pulmonary: Severe respiratory insufficiency



Flapping tremor (asterixis)

- A nonrhythmic, asymmetric lapse in voluntary sustained posture of extremities, head and trunk.
- Due to impaired inflow of joint and other afferent information to the brainstem reticular formation resulting in lapses in posture.
- Demonstrated with the patient's arms outstretched and fingers separated or by hyperextending the wrists with the forearm fixed.
- The rapid flexion-extension movements at the metacarpophalangeal and wrist joints are often accompanied by lateral movements of the digits.
- Absent at rest, less marked on movement and maximum on sustained posture,
- Usually bilateral, although not bilaterally synchronous, and one side may be affected more than the other.
- In coma the tremor disappears.
- Not specific for hepatic precoma.

GASTROINTESTINAL

- Anorexia
- Dyspepsia
- Nausea, vomiting
- Change in bowel habits
- Dull abdominal pain

Contd.

- Gastritis
- Hematemesis
- Fetor hepaticus
- Esophageal and gastric verices.
- Hemorrhoidal verices

REPRODUCTIVE

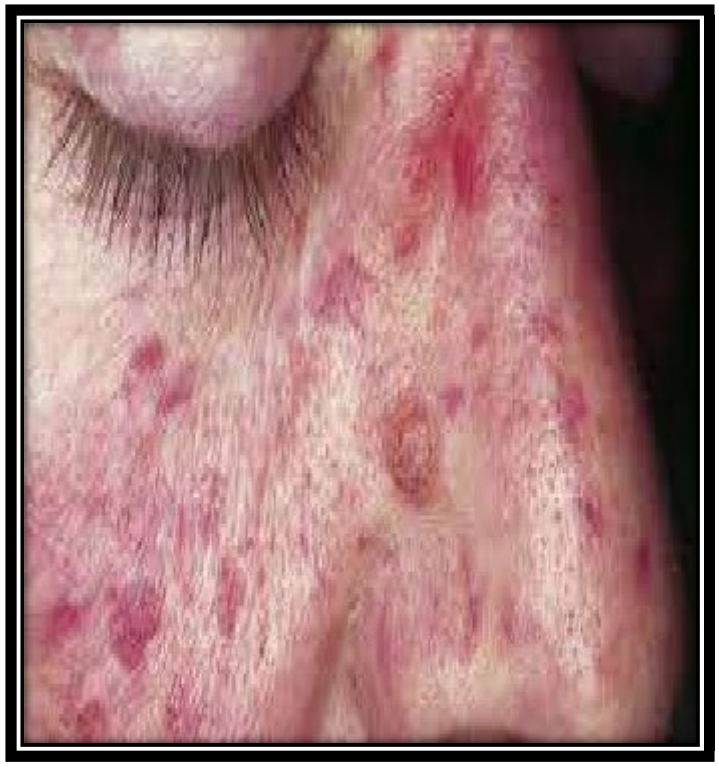
- Amenorrhea(Younger women)
- Testicular atrophy
- Gynecomastia
- Impotence with loss of libido
- Loss of axillary and pubic hair
- Vaginal bleeding(Older women)

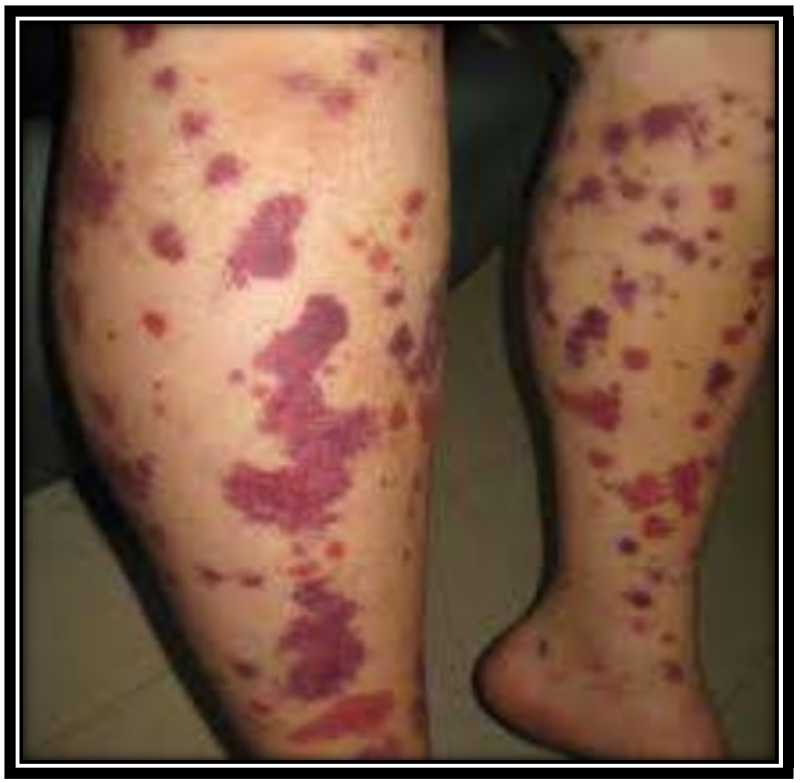
INTEGUMENTARY

- Jaundice
- Spider angioma
- Palmar erythema
- Purpura
- Petechiae
- Caput medusae

PURPURA

- Blood spots/ skin hemorrhage
- Purple spots due to low platelets.



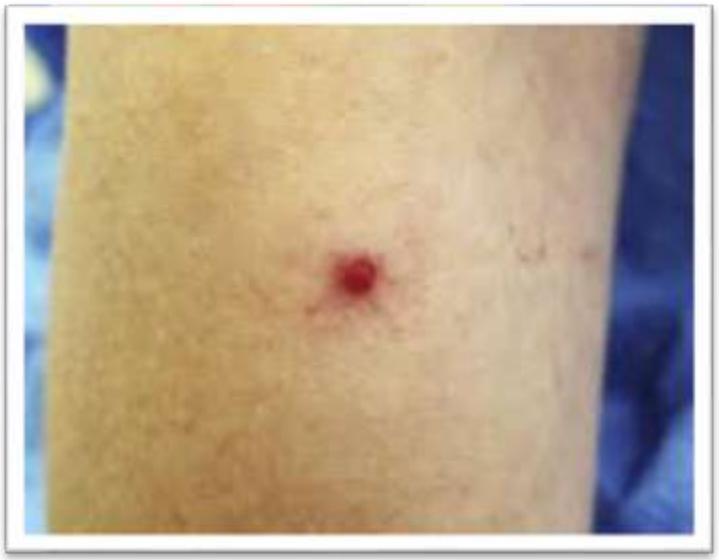


JAUNDICE


Jaundice
Normal
Causes of Jaundice
Conditions like yellow fever, tuberculosis, malaria
Glucose deficiency
Various drugs
Liver problems
Malformations of bile duct
Pregnancy.
ePainAssist.com

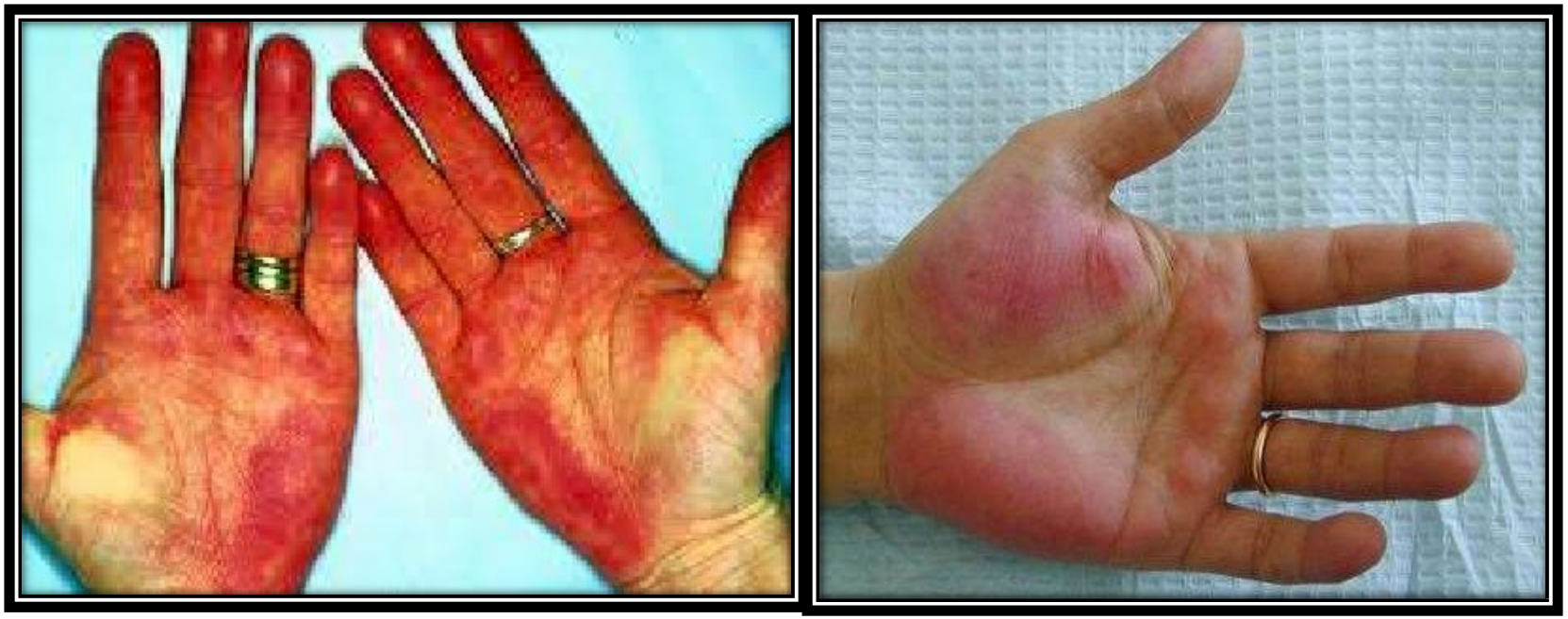
SPIDER ANGIOMA

- Also known as spider nevus. Common in people with alcoholic cirrhosis. It is the enlarged blood vessel in skin due to high estrogen level.



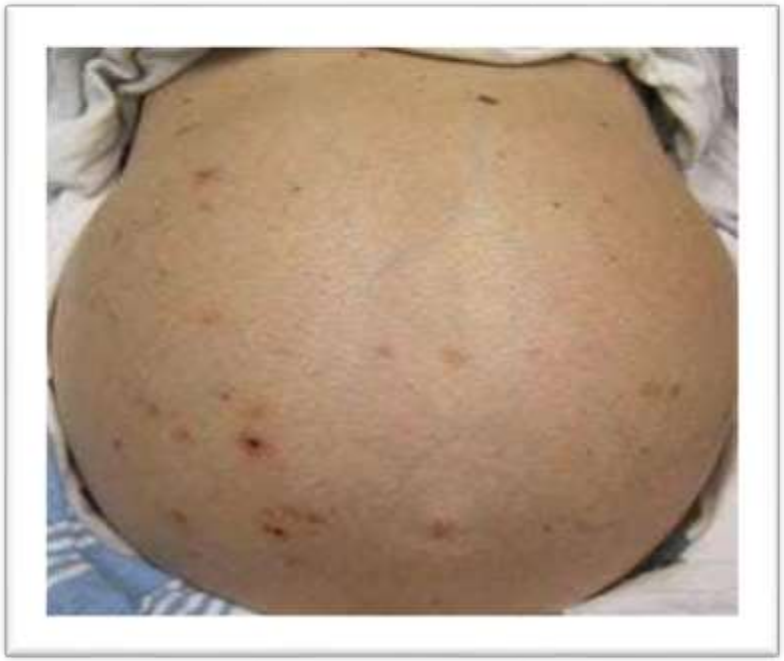
PALMAR ERTHEMA

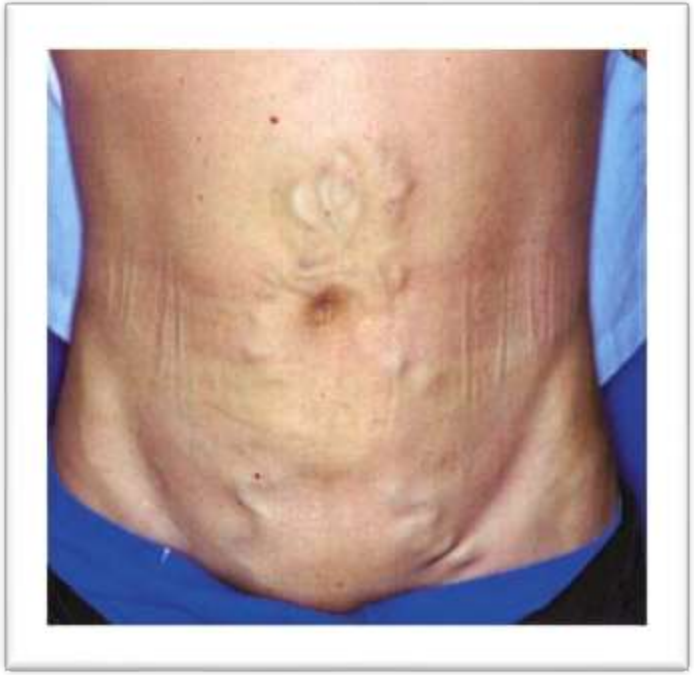
- Also called liver palms . Reddening of both of the palms due to excess estrogen.



CAPUT MADUSAE

- These are large visible distended, engorged paraumbilacal veins due to severe portal hypertension.





METABOLIC

- Hypokalemia
- Hyponatremia
- Hypoalbuminemia

HEMATOLOGIC

- Anemia
- Thrombocytopenia
- Leukopenia
- Coagulation disorders
- Splenomegaly

CARDIOVASCULAR

- Fluid retention
- Peripheral edema
- Ascites

DIAGNOSTIC EVALUATION

- History collection
- Physical examination
- Elevated liver enzymes such as AST, ALT, GGT, ALP.
- Increased serum bilirubin.
- Liver ultrasound to assess the severity of cirrhosis.
- Liver biopsy to identify liver cell changes & alterations in the lobular structure.
- Prolonged prothrombin time

- Complete blood count.
- Serum electrolytes.
- Esophagogastroduodenoscopy also known as upper endoscopy.
- CT scan
- Decreased cholesterol level due to abnormal fat metabolism.
- Decreased albumin. Increased globulin.
- Paracentesis to examine ascitic fluid for cell, protein, bacterial counts.
- PTC

COMPLICATIONS

COMPENSATED CIRRHOSIS

- Patients with no complications

DECOMPENSATED CIRRHOSIS

- Patients have one or more complications

Esophageal and gastric varices

Portal hypertension

Ascites & Peripheral edema

Hepatic encephalopathy.

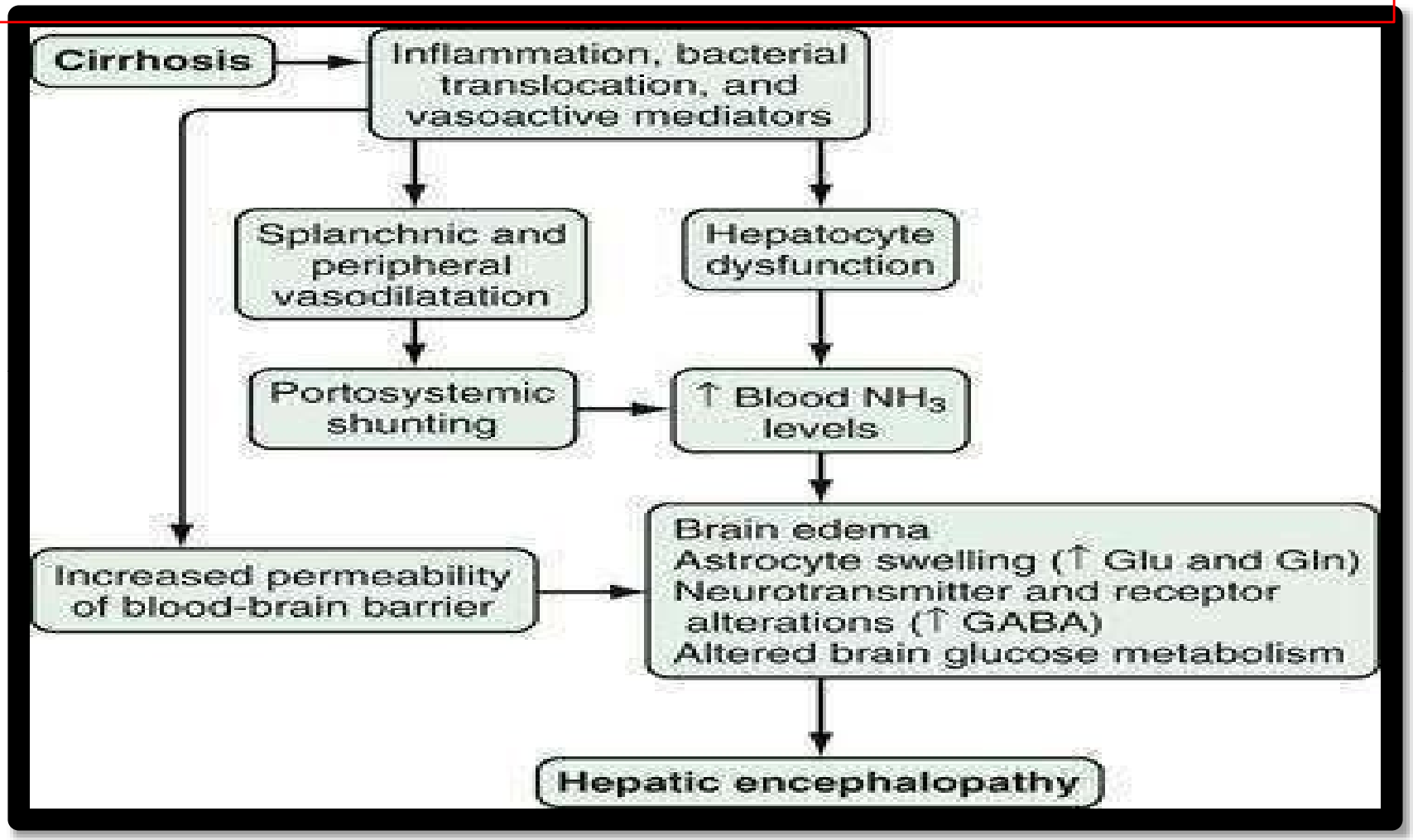
Spontaneous Bacterial peritonitis

Coagulopathies

Hepatorenal syndrome

Hepatocellular carcinoma

PATHOPHYSIOLOGY



CLINICAL MANIFESTATIONS

Changes in neurologic and mental responsiveness, inappropriate behavior, ranging from sleep disturbance to lethargy to deep coma.

Disorientation to time, place and person.

Asterixis(flapping tremors), Apraxia.

Fetor hepaticus.

Other signs include hyperventilation, hypothermia, grimacing reflexes.

MANAGEMENT

The goal of treatment is to slow the progress of cirrhosis and prevent and treat any complications.

Proper rest is advised to the patient.

Minimize further deterioration of liver through the withdrawal of toxic substance, alcohol and drugs.

Correction of nutritional deficiencies with vitamin and nutritional supplements , high calorie and moderate to high protein diet.

Low sodium diet is recommended.

Sodium restriction is based on degree of ascites. Patient may be encouraged to limit sodium intake to 2 gram/day.

Albumin infusion may be used to help maintain adequate urine output.

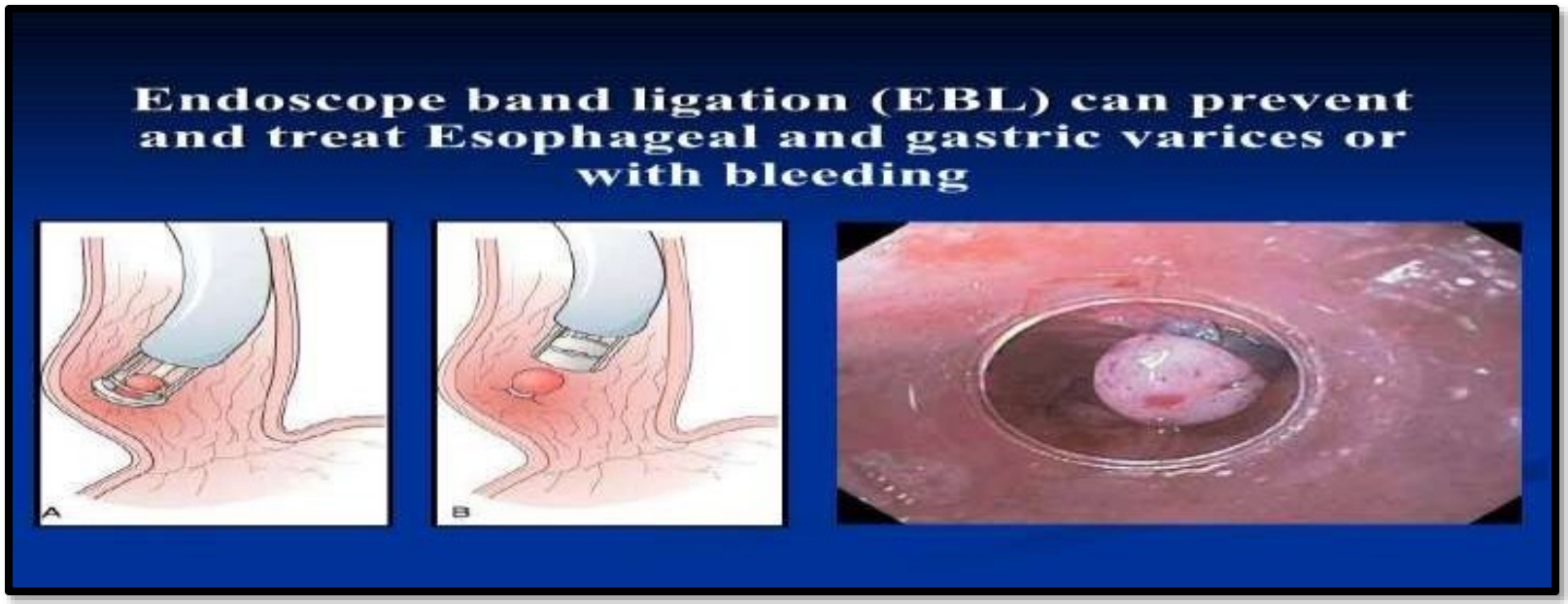
In diuretic therapy Spironolactone (Aldostreone antagonist) is used along with loop diuretic furosemide.

- Paracentesis: It may be performed to remove ascitic fluid or to test the fluid for infection (spontaneous bacterial peritonitis) .
- It is done for the patient with impaired respiration or abdominal pain caused by severe ascites. It is a temporary measure.

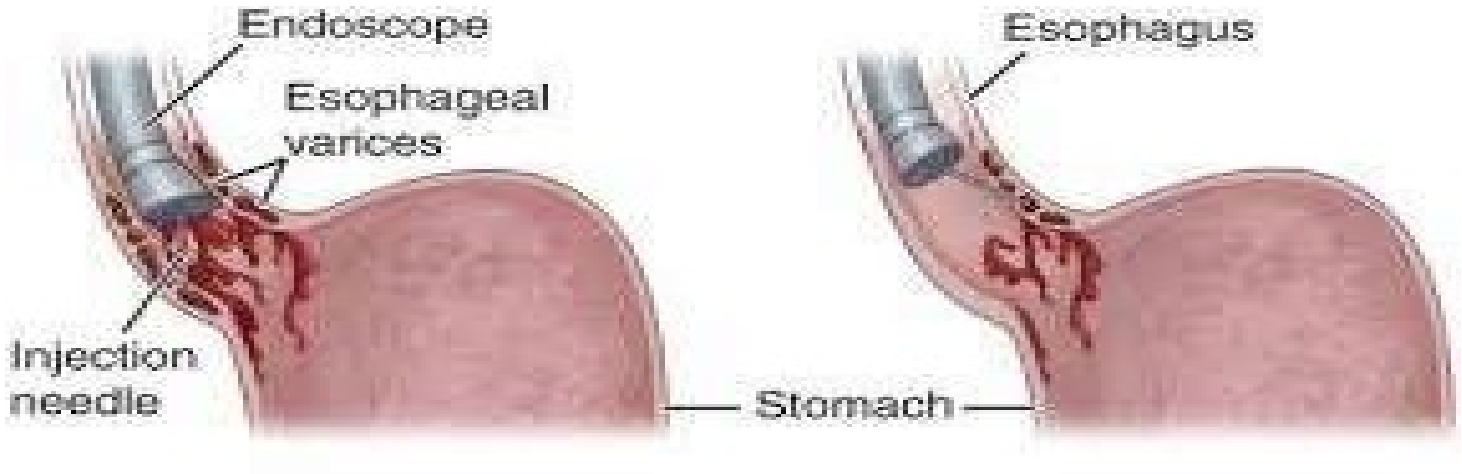
- Peritoneovenous shunt is a surgical procedure that reinfuse ascitic fluid into the venous system .
- Because of high complications it is not used now.

- ENDOSCOPIC BAND LIGATION:

Endoscopic variceal ligation or banding is performed by placing a small rubber band around the base of the varix(enlarged vein).



- SCLEROTHERAPY: It involves injection of a sclerosant solution into the varices through an injection needle that is placed through the endoscope.

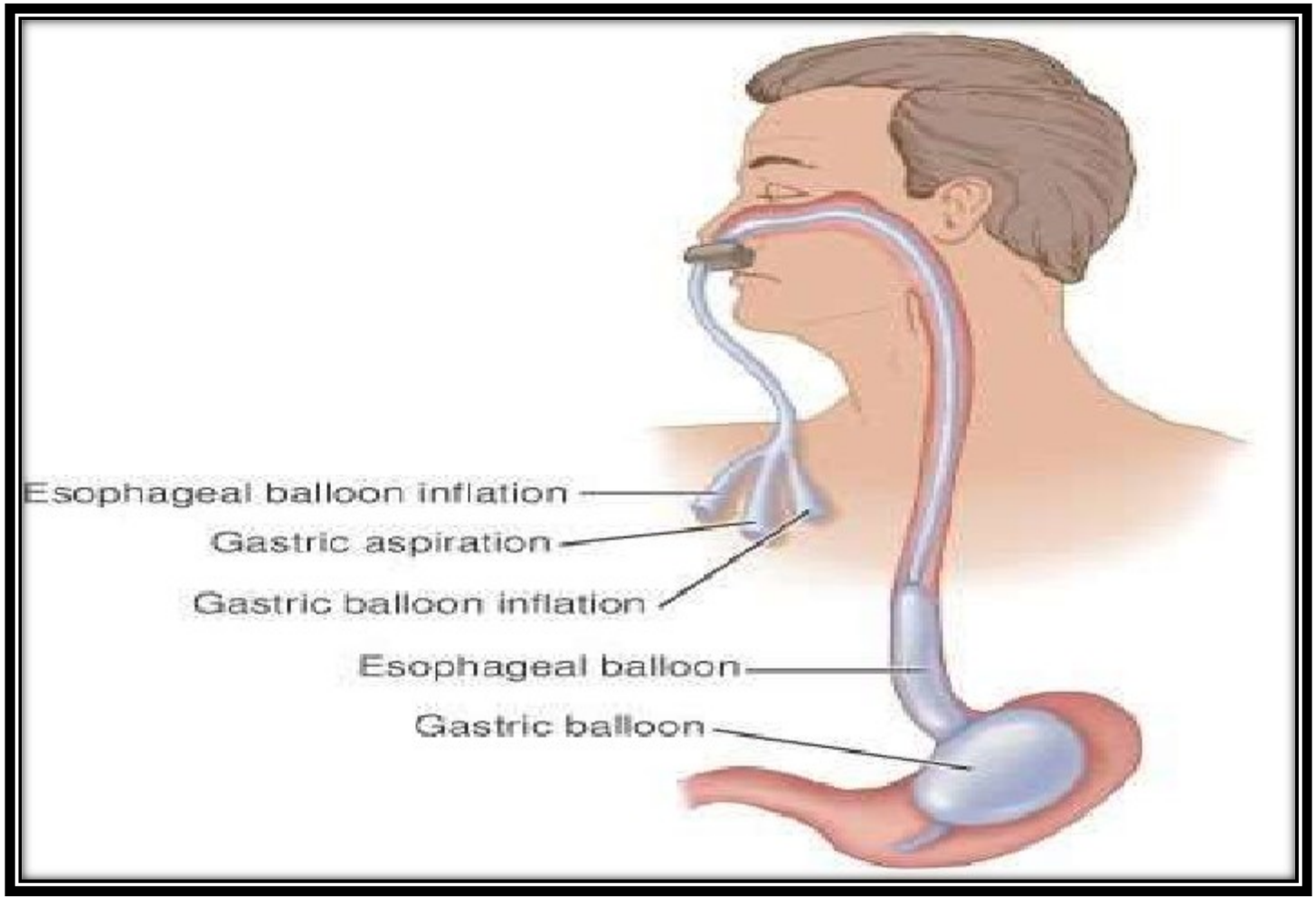


BALLOON TAMPONADE

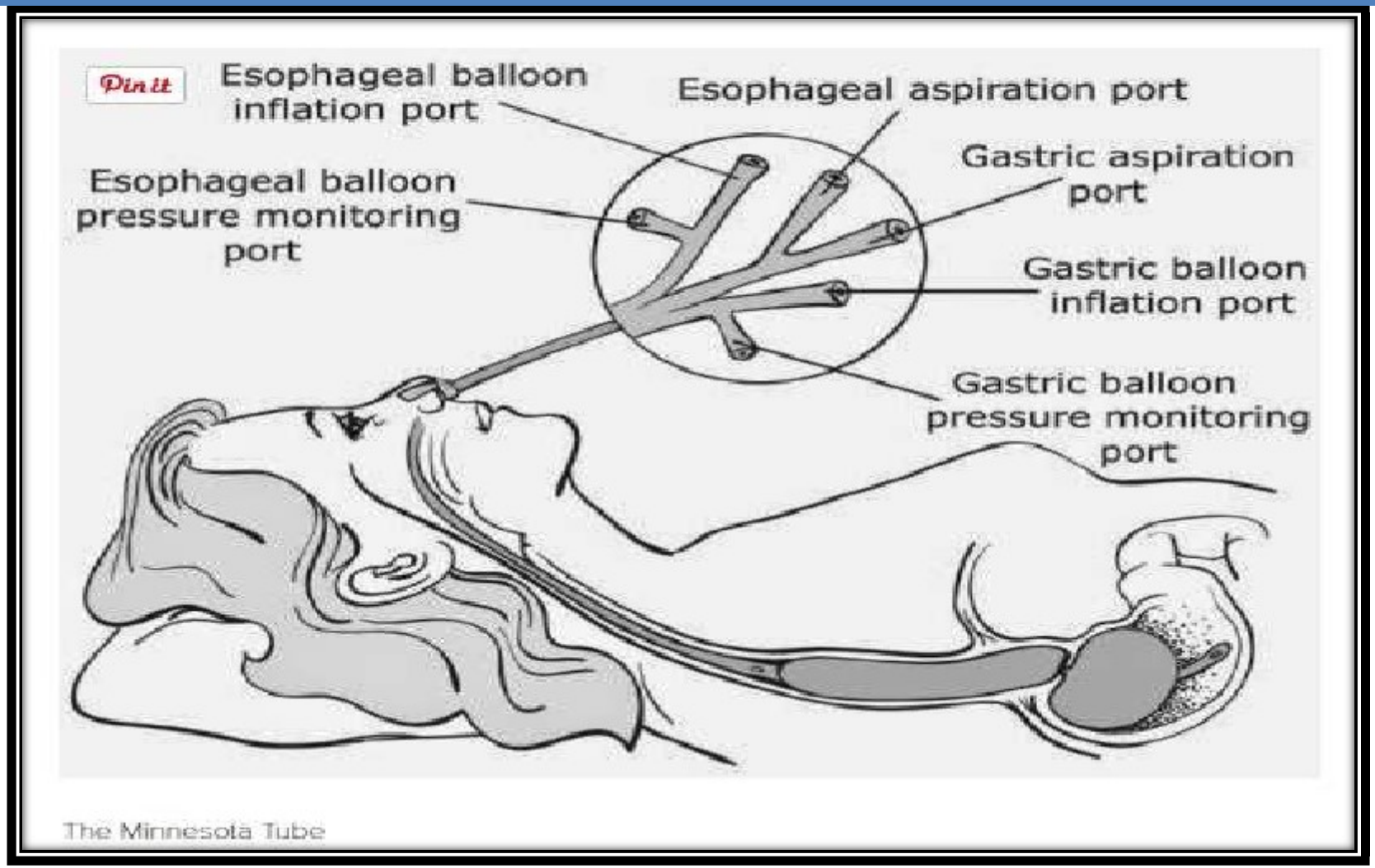
BALLOON TAMPONADE: Balloon tamponade controls the hemorrhage by mechanical compression of the varices.

It may be used in patients with acute esophageal or gastric variceal hemorrhage that can not be controlled on initial endoscopy.

BLACKMORE-TUBE



MINNESOTA TUBE



SUPPORATIVE MEASURES

Supportive measures during an acute variceal bleed include administration of fresh frozen plasma, packed RBCs, PPIs(pantoprazole).

Lactulose , rifaximin may be administered to prevent hepatic encephalopathy.

Antibiotics are given to prevent bacterial infection.

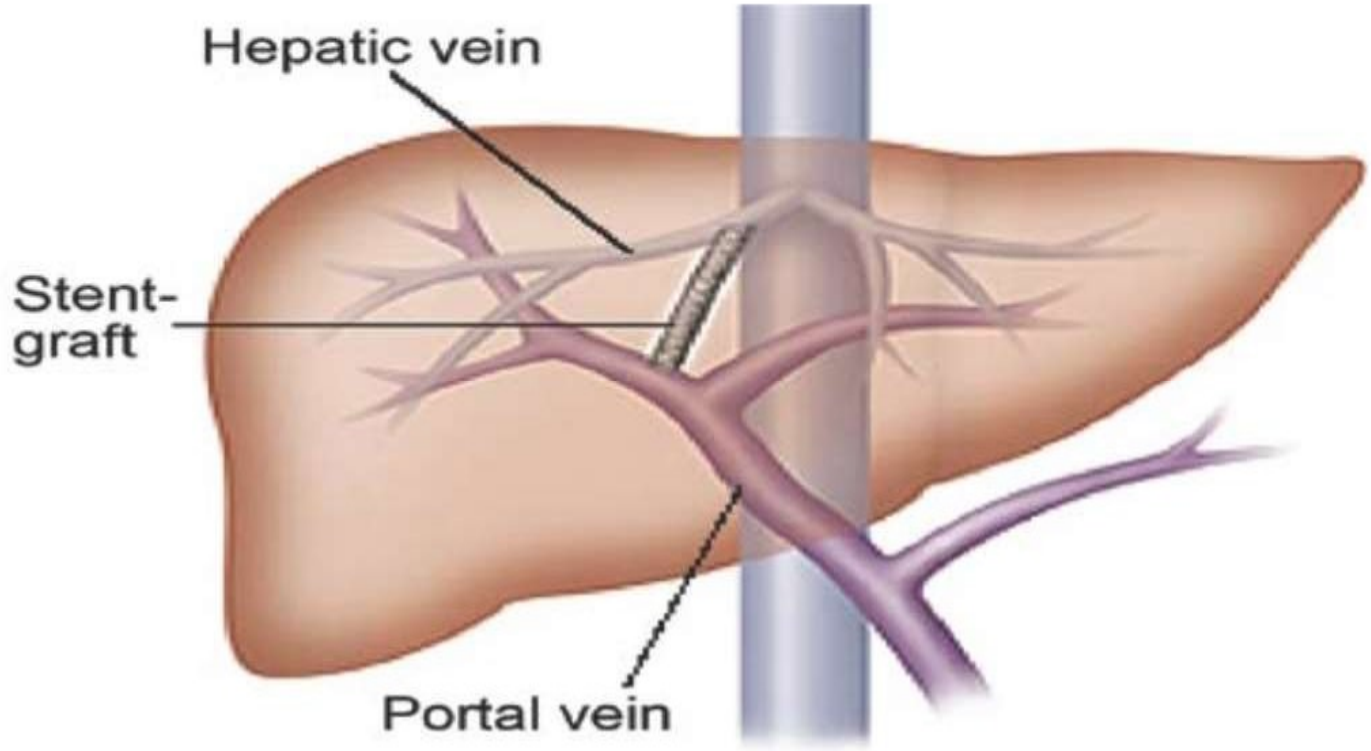
TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT(TIPS)

It is a non surgical procedure in which a tract (shunt) between the systemic and portal venous system is created to redirect portal blood flow.

It reduces portal venous pressure and decompress the varices, thus control bleeding.

It is contraindicated in patient with severe hepatic encephalopathy, hepatocellular carcinoma, severe Hepatorenal syndrome, portal vein thrombosis.

TIPS



A stent-graft will be placed to connect your portal vein with your hepatic vein.

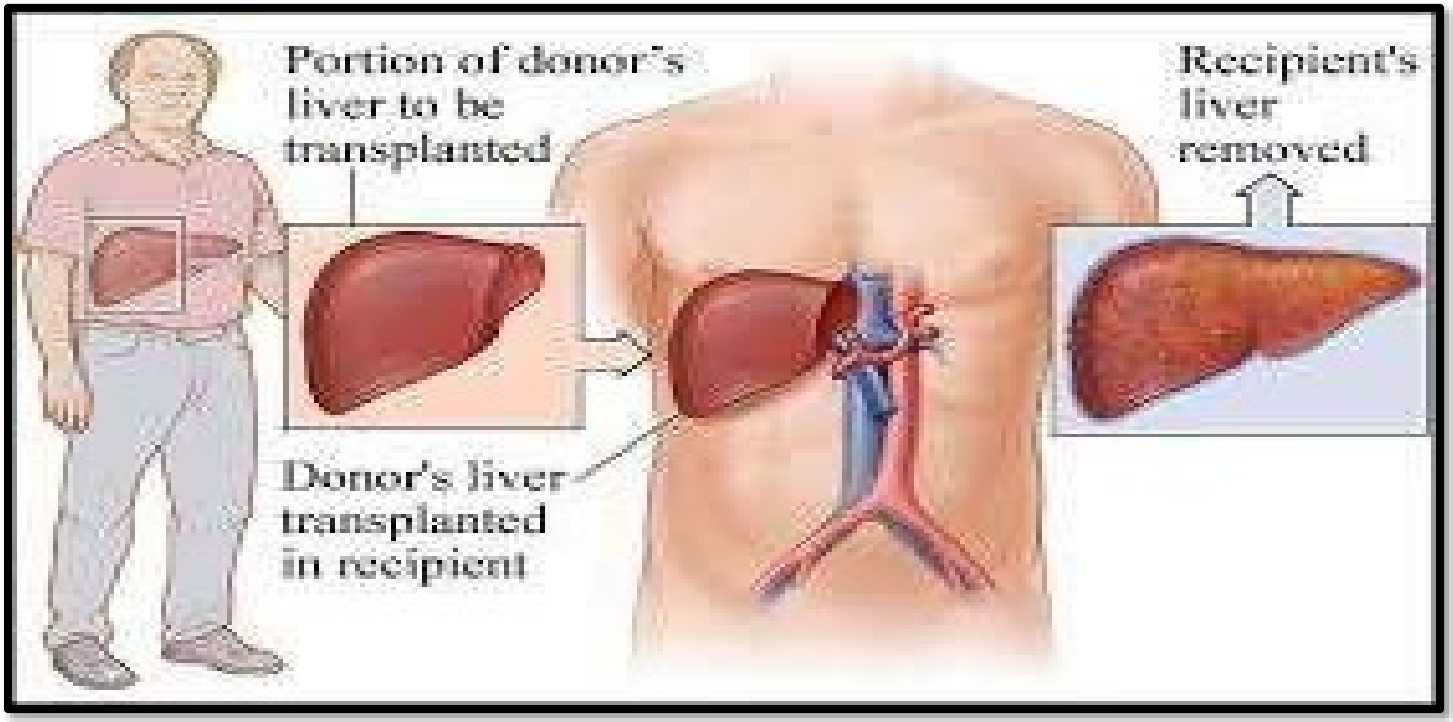
SURGICAL SHUNTING

Various surgical shunting procedures may be used to decrease portal hypertension by diverting some of the portal blood flow.

Currently the surgical shunts most commonly used are the portacaval shunt and distal splenorenal shunt.

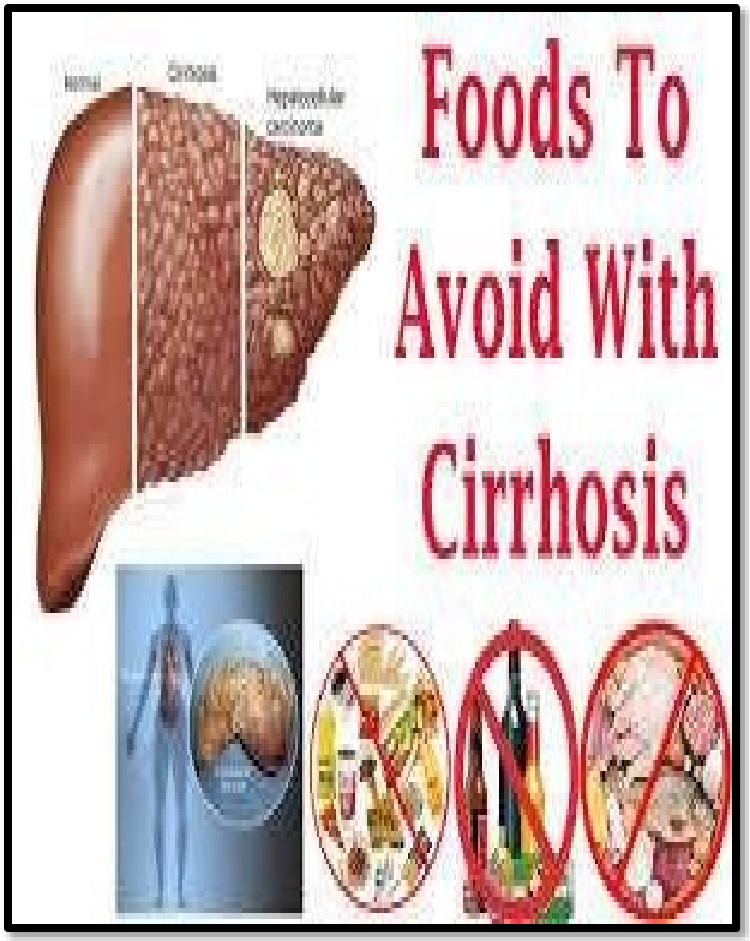
LIVER TRANSPLANTATION

- It is final resort for the treatment of Liver cirrhosis.



NUTRITIONAL THERAPY

- High calorie(3000 cal/day) with high carbohydrate , moderate to low levels of fat.
- Protein restriction is done in patients with severe hepatic encephalopathy only.
- BCAA is recommended to treat protein calorie malnutrition.
- The patients with ascites and edema is on a low sodium diet. Foods that are high in sodium should be avoided.



Eat a healthy diet for Cirrhosis Liver Failure

- People with cirrhosis can experience malnutrition. Combat this with a healthy plant-based diet that includes a variety of fruits and vegetables. Choose lean protein, such as legumes, poultry or fish. Avoid raw seafood.

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NURSING ASSESSMENT

- **Subjective data** includes past health history , medications.
- Assess the client closely for the presence of early menifestations such as Hepatomegaly.
- Carefully check the laboratory data for any indication of cirrhosis.
- As the disease progresses, complications such as ascites, portal hypertension or hepatic encephalopathy should be observed.
- Assess the client and family members for their knowledge of important aspects of self care.

INTERVENTIONS

- Monitor the client for bleeding gums, Purpura melena, hematuria, Hematemesis.
- Check vital signs for signs of shock. Monitor urine output.
- Protect the client from physical injury from falls or abrasions.
- Instruct the client to avoid vigorous nose blowing and straining with bowel movements.
- Stool softeners are given to prevent straining with rupture of varices.

- The diet should provide ample protein to rebuild tissue but not enough protein to precipitate hepatic encephalopathy.
- The diet should supply sufficient carbohydrates to maintain weight.
- If client has ascites, edema sodium should be restricted.
- Small, frequent meal is easier to anorexia.

- Long term planning should include counseling the client to rest frequently and to avoid unnecessary fatigue.

- All known hepatotoxins including alcohol are removed from the therapeutic regimens.
- Avoid the administration of sedatives and opoids.

- Monitor for menifestations of infection and administer antibiotics as needed.
- Antibiotics may be required to control instestinal flora that aggravate encephalopathy.

THANK YOU