

Liver Problems

MEDICAL-SURGICAL NURSING
UNIT V - CHAPTER 48

Disorders of the Liver

Hepatitis

Hepatitis

Inflammation of the liver

Causes

- Viral
- Medications/Drugs
- Alcohol
- Autoimmune diseases



Types of viral hepatitis:

- Hepatitis **A**
- Hepatitis **B**
- Hepatitis **C**
- ~~Hepatitis **D**~~
- ~~Hepatitis **E**~~

Hepatitis A Virus (HAV)

Typically self-limiting

Flu-like illness and jaundice

Incidence decreased with vaccination

Virus transmitted through:

- Fecal-Oral route

Health Promotion

- Preventative measures
- Personal and environmental hygiene
- Vaccination
- Post exposure prophylaxis

Hepatitis B Virus (HBV)

Blood-borne pathogen

Incidence also decreased with vaccination

Virus transmitted:

- Perinatal
- Percutaneously
- Mucosal exposure to infectious blood or other body fluids (sexually transmitted)

Health Promotion

- Vaccination
- Hygiene measures
- Post exposure prophylaxis
- Standard precautions, needle safety

Hepatitis C Virus (HCV)

Acute: mainly asymptomatic

Chronic: liver damage

Virus transmitted via:

- IV drug use
- High-risk sexual behaviors
- **Occupational exposure**
- Perinatal exposure
- Blood transfusions before 1992

Health Promotion

- **No vaccine**
- Modify high-risk behaviors
- Infection control
- Screening of blood, organ, and tissue donors

Pathophysiology

Acute infection

- Hepatocytes destroyed
- Liver dysfunction
- Liver cells can regenerate in normal form after resolution of infection

Chronic infection

- Causes fibrosis and progression to cirrhosis

Clinical Manifestations

Acute Hepatitis

- Malaise
- Anorexia
- Fatigue
- Headache
- Low-grade fever
- Nausea/vomiting
- Dark urine
- ↓ sense of smell
- Rashes
- Arthralgia, Myalgia
- RUQ discomfort
- Hepatomegaly
- Jaundice
- Clay-colored stools
- Weight loss

Clinical Manifestations

Acute hepatitis

Jaundice -

- Dark urine
- Light or clay-colored stools
- Pruritus



Complications

Acute liver failure

Chronic hepatitis

- Some HBV and majority of HCV infections

Cirrhosis

Liver cancer

Clinical Manifestations: Chronic hepatitis

- Anemia, bleeding abnormalities
- **Asterixis** (flapping tremor)
- Ascites and LE edema
- Fatigue
- Malaise
- Palmar erythema
- Spider angiomas
- **Hepatic encephalopathy**
- Hepatomegaly
- Jaundice
- Hyperbilirubinemia

Diagnostic Studies for Hepatitis

Test blood for specific antigen and or antibody

Liver Function Tests (LFTs)

- Alkaline phosphatase
- AST
- ALT
- Albumin level
- Bilirubin
- Prothrombin time (PT)

Diagnostics

Physical assessment findings

Liver biopsy

- Bleeding risk

Liver Ultrasound

- Noninvasive
- Measures fibrosis and steatosis changes

Collaborative Care

INTERPROFESSIONAL CARE

- Well-balanced diet
- Vitamin supplements
- Adequate rest
- Avoid alcohol intake and drugs detoxified by the liver

NURSING MANAGEMENT

- Assess for jaundice
- Comfort measures
- Adequate nutrition
- Adequate rest
 - critical factor in promoting hepatocyte regeneration

A community health nurse is planning an education program about hepatitis A. When preparing the materials, the nurse should identify that which of the following groups is most at risk for developing hepatitis A?

- a.) Children
- b.) Older Adults
- c.) Women who are pregnant
- d.) Middle-aged men

Which information given by a patient during a health history exam indicates to the nurse that the patient should be screened for hepatitis C?

- a.) The patient had a blood transfusion in 2005
- b.) The patient used IV drugs in the past
- c.) The patient frequently eats fast food
- d.) The patient traveled to an underdeveloped country

Disorders of the Liver
Non-alcoholic Fatty
Liver Disease
(NAFLD)

Non-Alcoholic Steatohepatitis (NASH)

Fatty infiltration of hepatocytes

Can cause inflammation and fibrosis

If left untreated, can lead to cirrhosis, cancer, or liver failure

Linked to obesity

Non-Alcoholic Steatohepatitis (NASH)

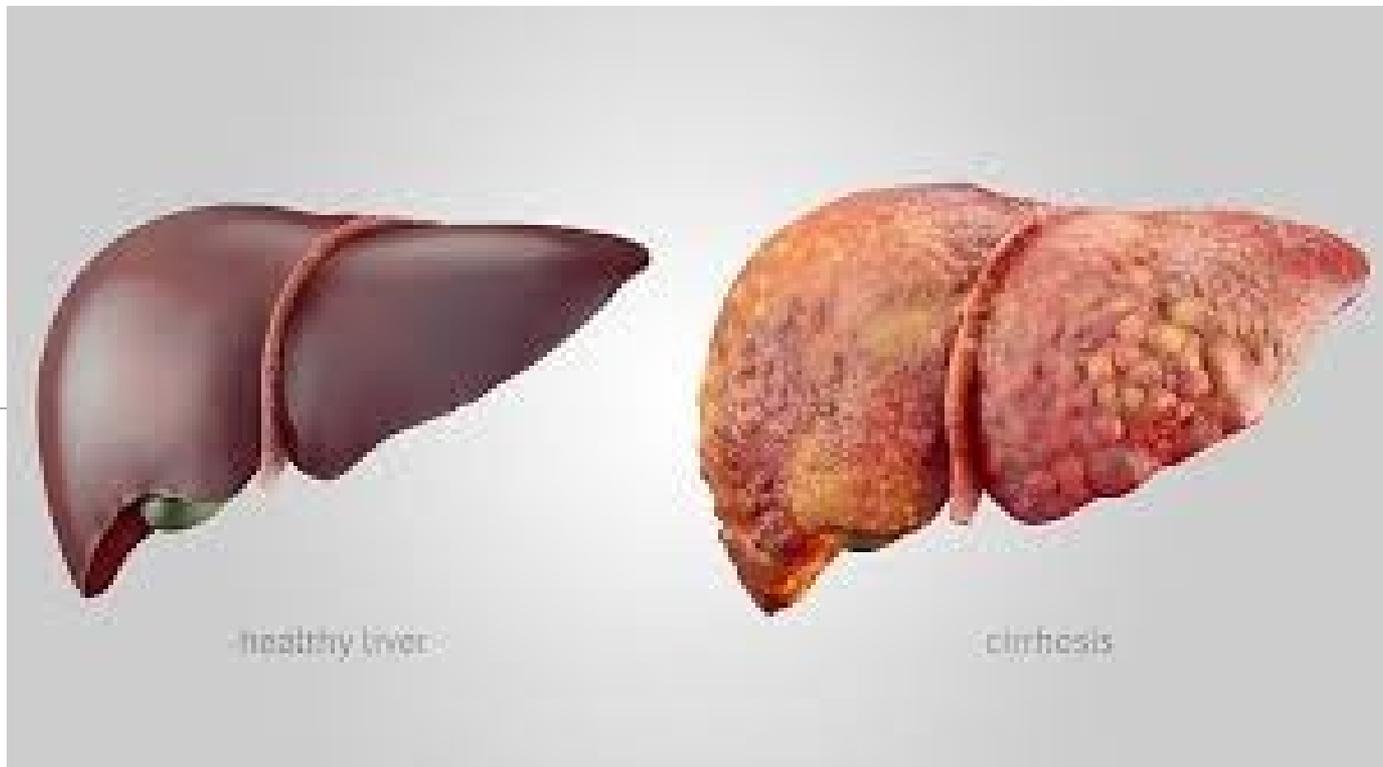
Diagnostic tests:

- Liver function tests (AST, ALT)
- Ultrasound and CT scan
- Liver biopsy – **definitive diagnosis**

Therapy and Treatment

- Treatment is aimed at reducing risk factors
 - Reducing body weight
 - Lowering cholesterol and triglyceride levels
 - Managing HTN and DM

Cirrhosis



Cirrhosis

DESCRIPTION

End stage of liver disease

Chronic progressive disease

Destruction of liver cells

Cells attempt to regenerate

- Results in overgrowth of fibrosis/scar tissue
- Impeded blood flow

ETIOLOGY/PATHOPHYSIOLOGY

Chronic HCV and HBV

Alcohol-induced liver disease

Chronic inflammation and cell necrosis

Extreme Malnutrition



DR. DREW'S
LIFE CHANGERS

Clinical Manifestations: Cirrhosis

Jaundice

- Compression of bile ducts by overgrowth of connective tissue
- Decreased ability of liver cells to conjugate and excrete bilirubin into the small intestine
- **Bilirubin increased in the vascular system**

Clinical Manifestations: Cirrhosis

Hematologic disorders

- Thrombocytopenia
- Leukopenia
- Anemia
- Coagulation disorders

Clinical Manifestations: Cirrhosis

Endocrine disorders

- Gynecomastia, testicular atrophy in men
- Amenorrhea or vaginal bleeding in women
- High levels of aldosterone
- Spider angiomas
- Palmar erythema



Clinical Manifestations: Cirrhosis

Peripheral neuropathy

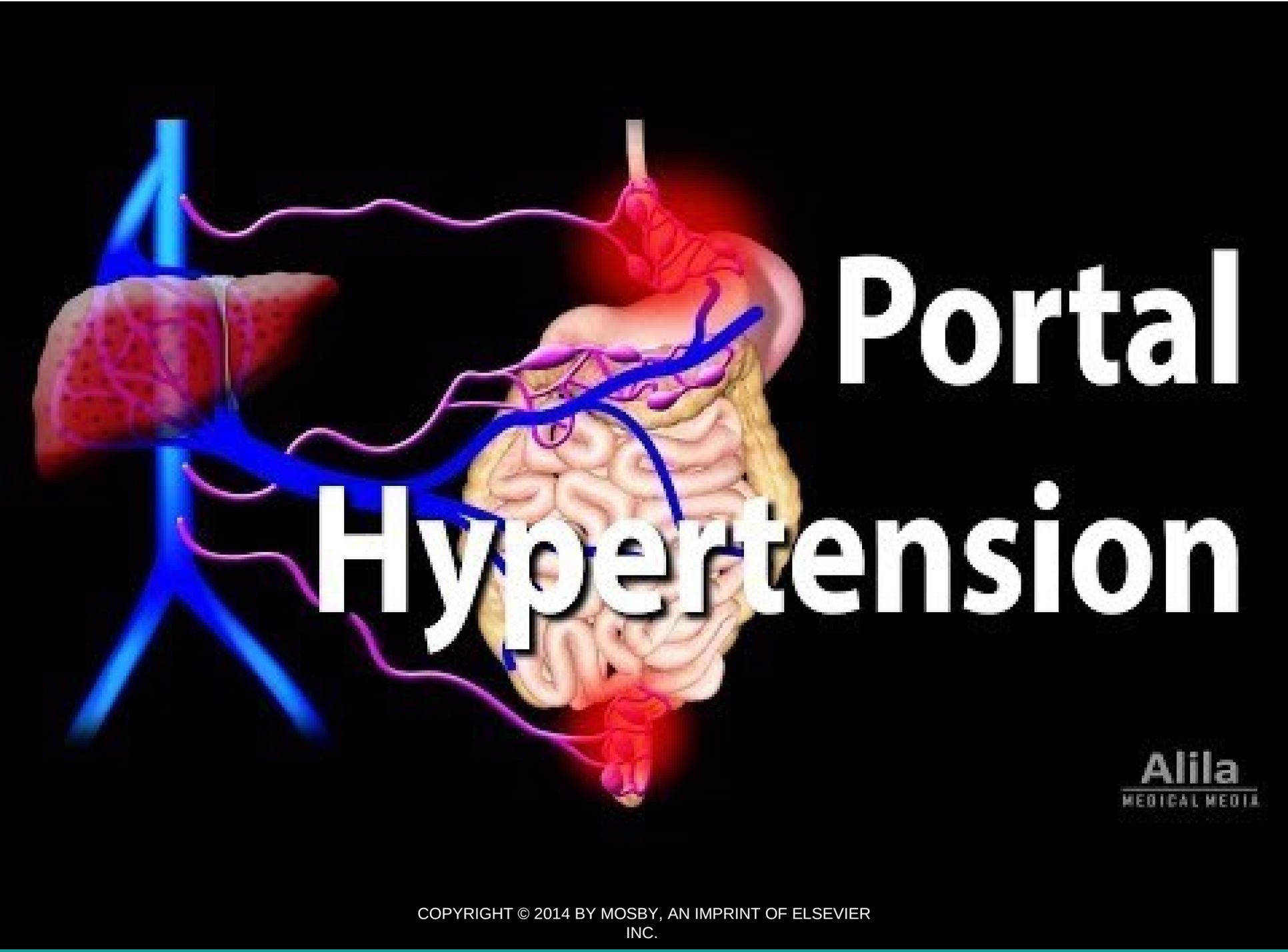
- Common in alcoholic cirrhosis
- Dietary deficiencies of thiamine, folic acid, and cobalamin (vitamin B₁₂)
- Sensory symptoms predominate

Complications: Portal Hypertension

Increased pressure within liver's circulatory system

Obstruction of blood flow in/out of liver

- Splenomegaly
- Large collateral veins
- Ascites
- Gastric and esophageal varices

An anatomical illustration of the human digestive system and liver. The liver is shown on the left, and the stomach and intestines are in the center. The portal system is highlighted in blue, showing the inferior vena cava, the portal vein, and its branches. The text "Portal Hypertension" is overlaid in large white letters.

Portal Hypertension

Alila
MEDICAL MEDIA

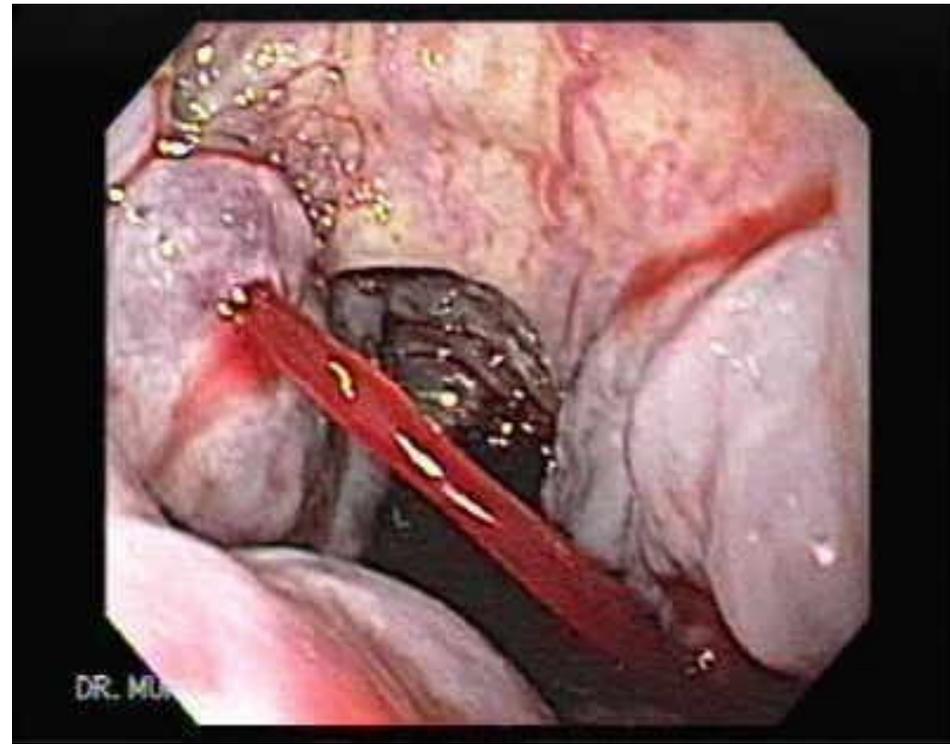
Complications: Varices

Esophageal varices

- Abnormal, dilated veins at lower end of esophagus
- Bleed easily

Gastric varices

- Upper portion of stomach



Complications:

Peripheral Edema

Impaired liver synthesis of albumin

Decreased albumin causes ↓ oncotic pressure

Fluids filtrate into body tissue

Complications: Ascites

Accumulation of fluid in peritoneal or abdominal cavity

- Abdominal distention & weight gain
- Etiology:
 - Portal hypertension
 - Hyperaldosteronism
 - Impaired albumin synthesis

Ascites



From Butcher GP. *Gastroenterology: an illustrated colour text*, London, 2004, Churchill Livingstone.

Complications: Hepatic Encephalopathy

Neurotoxic effects of ammonia

Liver unable to convert increased levels of ammonia

Additional precipitating factors

- GI bleed
- Constipation

Complications.

Hepatic Encephalopathy

Clinical Manifestations

- Impaired consciousness
- Inappropriate behavior
- Sleep disturbances
- Lethargy
- Coma
- Asterixis (flapping tremors)
- Fetor hepaticus

Diagnostic Studies for Cirrhosis

↑ Liver Function Tests (LFTs)

↑ Serum bilirubin

↑ Ammonia

↑ Prothrombin time, INR

↓ Total protein, albumin levels

Liver Ultrasound

Liver Biopsy

- **Gold standard** for definitive diagnosis

Interprofessional Care

Rest

Administration of B-complex vitamins

Avoidance of alcohol, aspirin, acetaminophen, and NSAIDs

Supportive measures

- Proper diet
- Community support programs

Caring attitude always

Interprofessional Care

Ascites

- Sodium restriction
- Albumin infusion
- Diuretics
- Paracentesis

Interprofessional Care

Esophageal and gastric varices

- Prevent bleeding and rupture
- Reduce portal pressure
- Avoid alcohol, aspirin, and NSAIDs
- Screen for with endoscopy
- Nonselective beta blocker

Interprofessional Care

Esophageal and gastric varices

If bleeding occurs

- Manage airway, IV therapy, and transfuse blood

Drug therapy

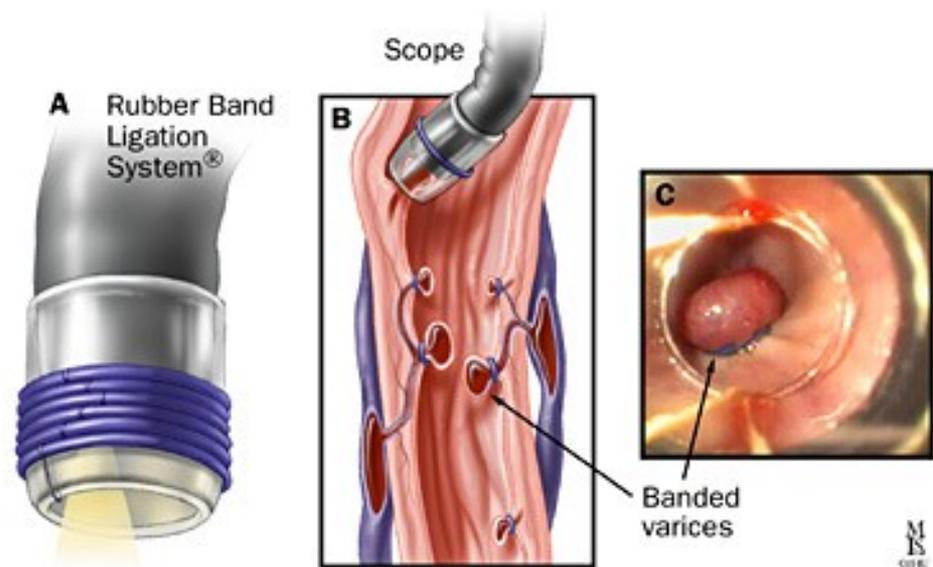
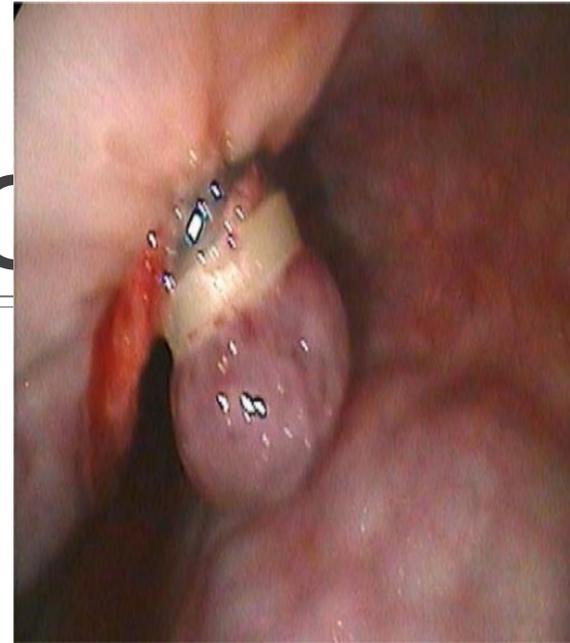
- Octreotide (Sandostatin)

Interprofessional C

Esophageal and Gastric Varices

Endoscopic therapy

- Band ligation
- Sclerotherapy



Which of the following is not an expected finding of an increased ammonia level from liver disease?

- a.) Impaired consciousness
- b.) sleep disturbances
- c.) Tetany
- d.) Lethargy

A serum potassium level of 3.0mEq/L is reported for a patient with ascites who has scheduled doses of spironolactone and furosemide due. Which action should the nurse take?

- a.) Administer both medications
- b.) Administer the spironolactone
- c.) Administer the furosemide
- d.) Hold both medications

Nursing Management

Supportive measures for acute bleed

- Fresh frozen plasma
- Packed RBCs
- Vitamin K
- Lactulose (Cephulac) and rifaximin (Xifaxan)
 - Treatment and prevention of hepatic encephalopathy

Nursing Management

Assess for jaundice

Measures to relieve pruritus

Monitor color of urine and stools

Relief of dyspnea

Skin care

Prevent complications

Monitor nutrition status

Nursing Management

Hepatic Encephalopathy

- Perform neurologic assessment at least every 2 hours
- Prevent constipation
- Encourage fluids
- Control factors known to precipitate encephalopathy

Nursing Management

Paracentesis

- Patient voids immediately before
- High Fowler's position or sitting on side of bed
- Monitor BP and HR
- Monitor for fluid and electrolyte imbalances
- Monitor dressing for bleeding/leakage

Nutritional Therapy

High in calories

↑ Carbohydrate

Moderate to low fat

Protein restriction rarely justified

Protein supplements

Low-sodium diet for patient with ascites and edema

Which action should the nurse take to evaluate the effectiveness of lactulose to treat hepatic encephalopathy?

- a.) Have the patient stand on one foot
- b.) Ask the patient to extend both arms forward
- c.) Have the patient walk with their eyes closed
- d.) Ask the patient to perform the Valsalva maneuver

The nurse is assisting the health care provider with a paracentesis for a patient with ascites. Which of the following actions should the nurse take?

- a.) Have the patient empty their bladder
- b.) Have the patient lean forward over the bedside table
- c.) inform the patient he will be sedated
- d.) Keep the patient NPO 6 hours prior to the procedure

A patient with cirrhosis is receiving lactulose. Which finding by the nurse indicates that the medication is effective?

Your patient had a Paracentesis 4 hours ago, with 9 liters fluid removed. He puts on his call light and tells you “I feel very dizzy.”

Liver Cancer

Common cause of primary tumor:

- Cirrhosis secondary to HCV
- Alcoholic cirrhosis

Metastatic carcinoma

- Liver common site for mets
- High rate of blood flow

Liver Cancer

Difficult to differentiate from cirrhosis

- Tissue biopsy

Surgical resection

Prognosis poor

Ablation or radioembolization

Liver transplant

Liver Transplantation

Indications

- End stage liver disease
- Localized liver cancer

Intense pre-surgical screening

- Contraindications

Split liver transplant

Complications

- Rejection, **Infection**, Bleeding

Your patient is scheduled for a liver biopsy to diagnose liver cancer in 2 hours. His morning lab results show a PT of 38 seconds and an INR of 5.8

Which assessment finding is most important for the nurse to communicate to the health care provider about a patient who received a liver transplant 1 week ago?

- a.) Dry oral mucosa
- b.) Blood pressure of 105/62
- c.) Temperature of 100.8
- d.) the patient has not had a BM for 3 days