

# ASCITES

**ASCITES**



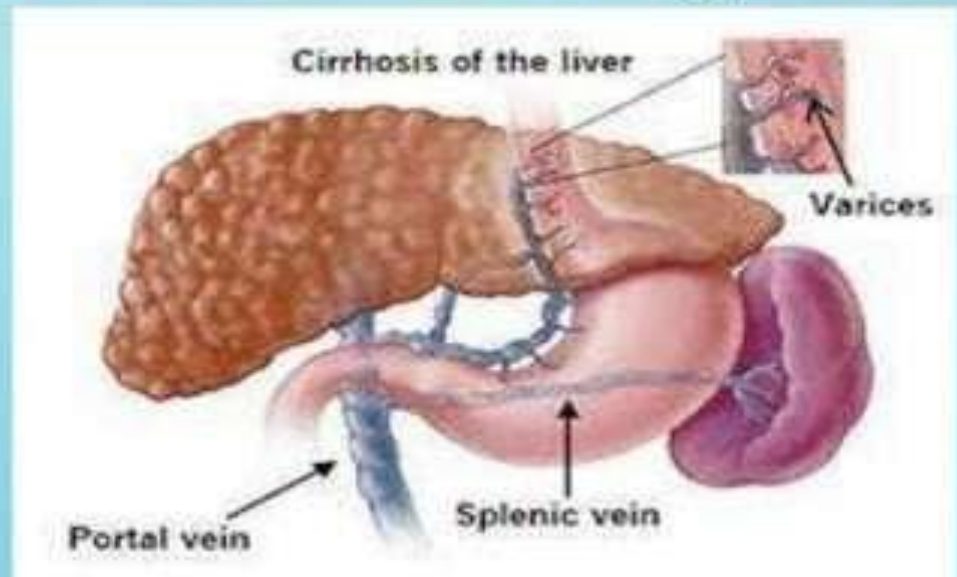
**PRESENTED BY  
SAKSHI-KANWER  
MSC(N)1<sup>ST</sup> YEAR  
MEDICAL SURGICAL  
NURSING**

## INTRODUCTION:

- The **peritoneal cavity** normally contains approximately **50–75 ml** of **fluid** that serves to lubricate the tissues that line the abdominal wall and viscera.
- The term ascites is reserved to denote an abnormal accumulation of this **fluid**.
- Derived from the Greek word “askos”, meaning bag or sac.

Cont...

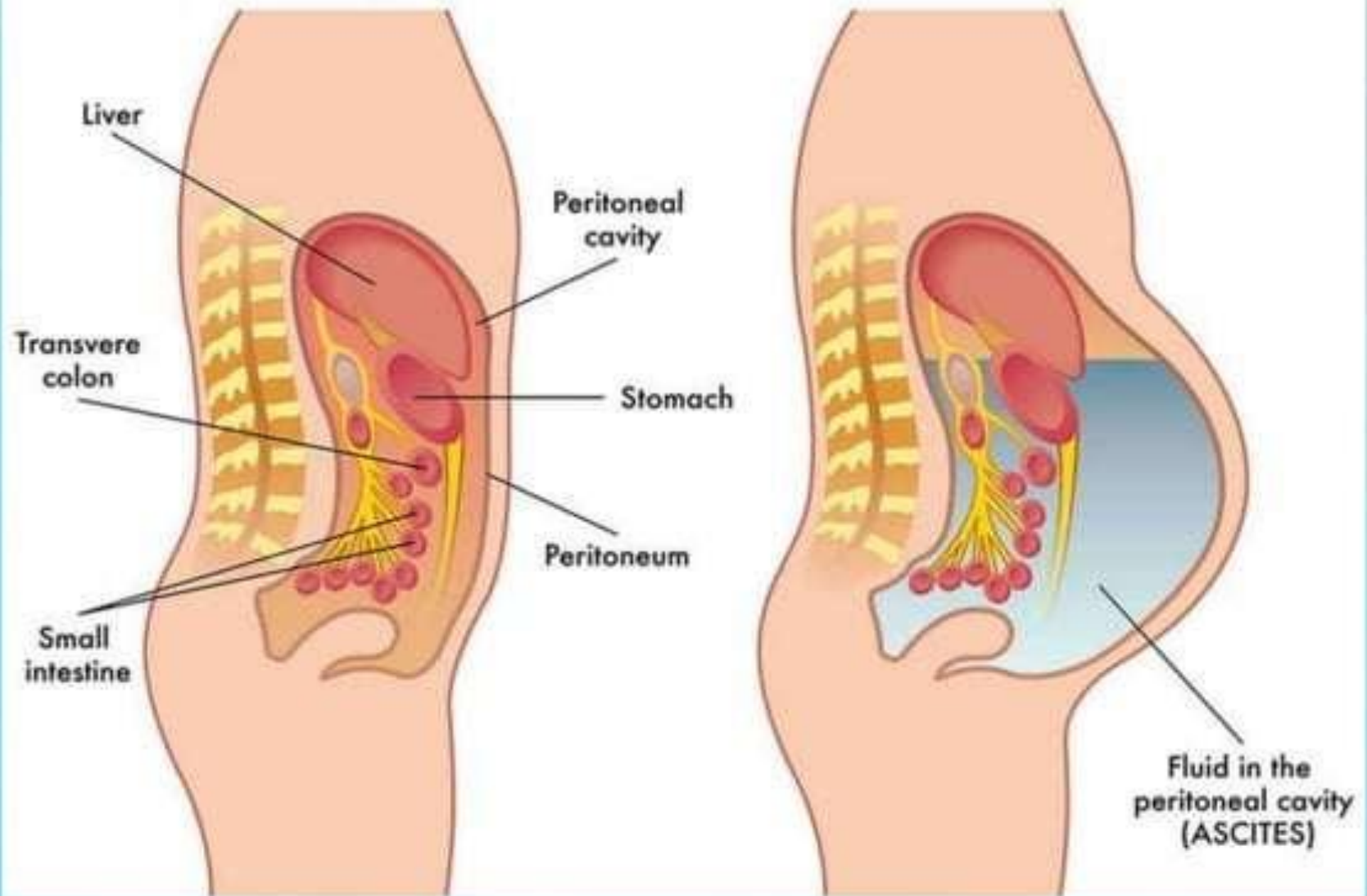
- Mesothelium cell of the peritoneum produces the peritoneal fluid.
- Increase pressure in the portal vein causes large vein (varices) to develop across the oesophagus and stomach to get around the blockage. The varices become fragile and can bleed easily.





Healthy

Ascites



## DEFINATION:

- Its accumulation of fluid in the peritoneal cavity (serous membrane which covers the abdominal organs).
- **Ascites** is defined as accumulation of more than 25 ml of fluid in the peritoneal cavity.
- Ascites is abnormal Intraperitoneal accumulation of watery fluid containing small amounts of proteins.

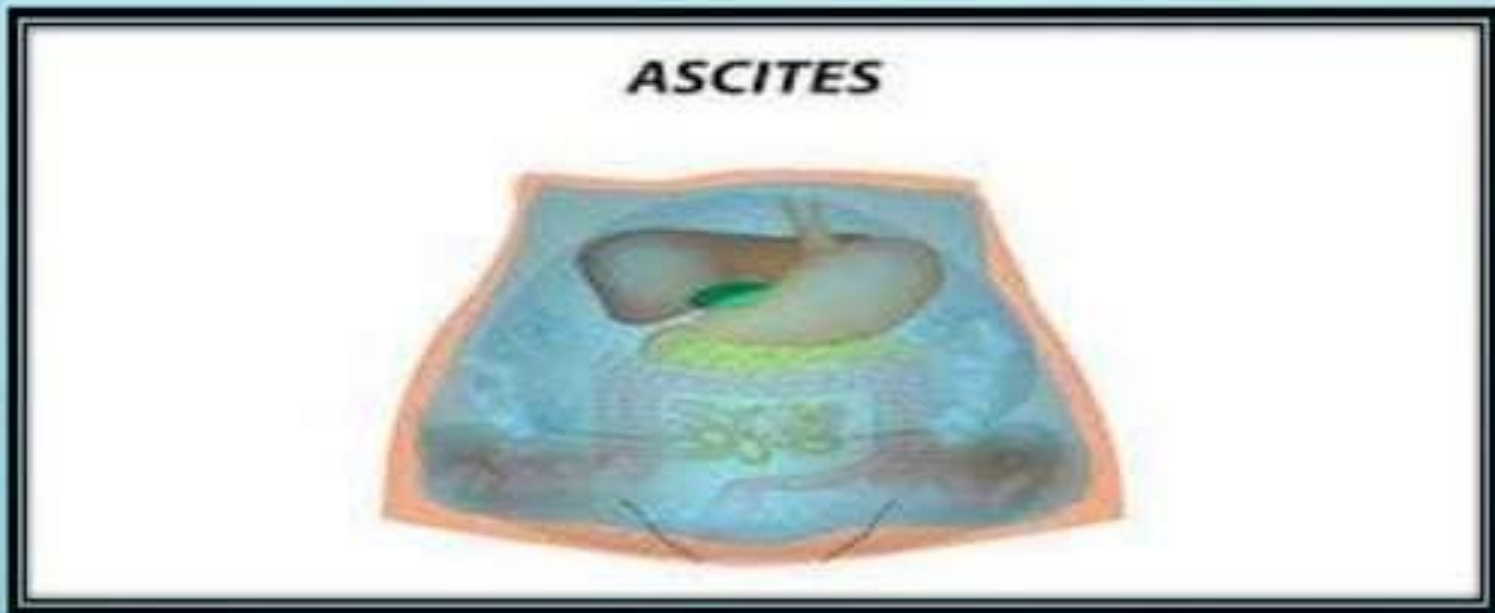
CONT....

- Ascites is the accumulation of excess fluid in the peritoneal cavity, (there is little amount of serous fluid normally in the peritoneal cavity for lubrication & easy movement of the abdominal organs).
- Abdominal swelling caused by accumulation of fluid, most often related to liver disease.



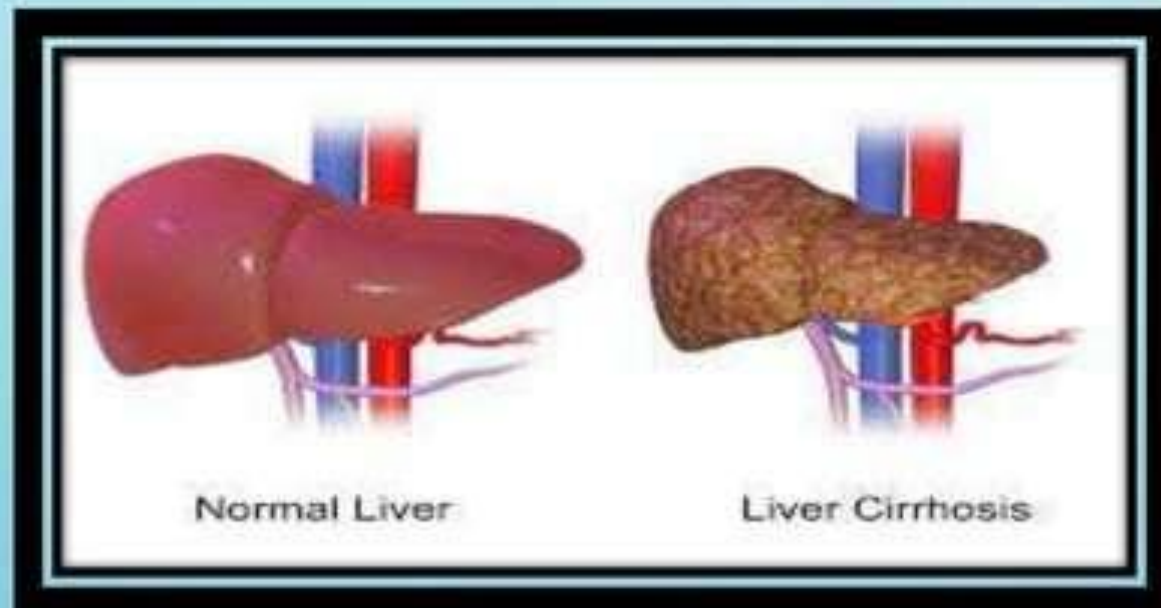
## CONT....

- Many diseases can cause ascites, but the most common cause is **portal hypertension**, which is usually due to **liver cirrhosis**.
- A condition of pathologic fluid accumulation within the abdominal cavity which is a common complication in liver cirrhosis.



# LIVER CIRRHOSIS

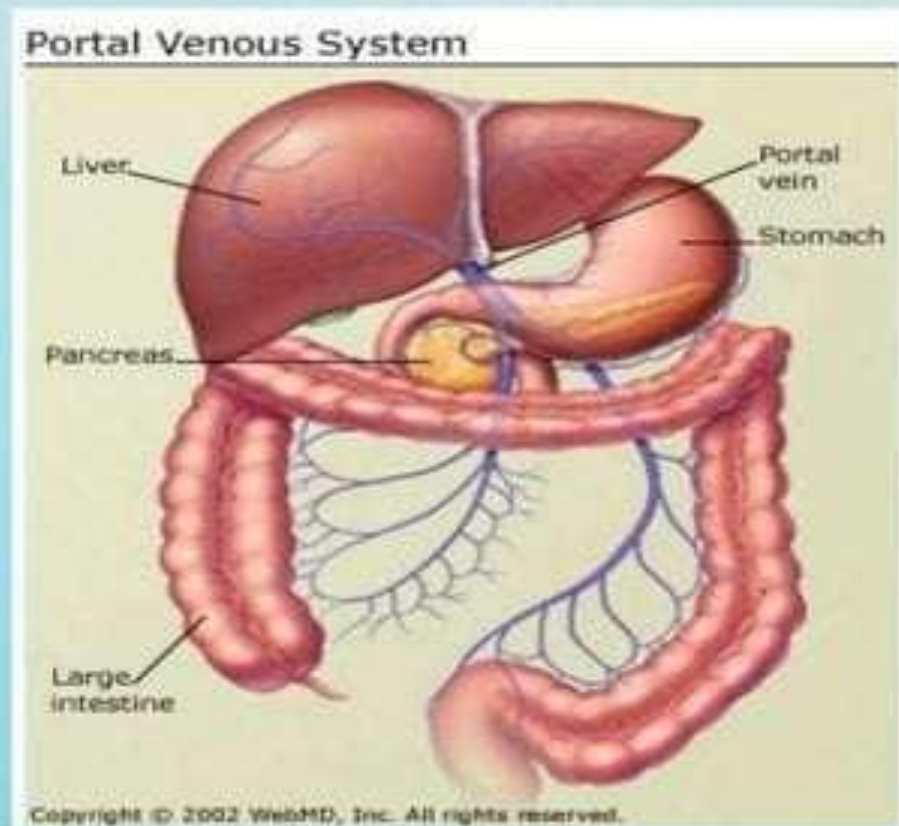
- **LIVER CIRRHOSIS:** A chronic, degenerative disease characterized by replacement of normal liver tissue with diffuse fibrosis that disrupts the structure and function of the liver.





# PORTAL HYPERTENSION:

- **PORTAL HYPERTENSION:** is an increase in the pressure within the **portal** vein, which carries blood from the digestive organs to the liver.



# ***Causes of Ascites***

**TUBERCULOUS PERITONITIS**

**CANCER METASTASIS**

**AUTOIMMUNE HEPATITIS**

**LIVER TUMOR**

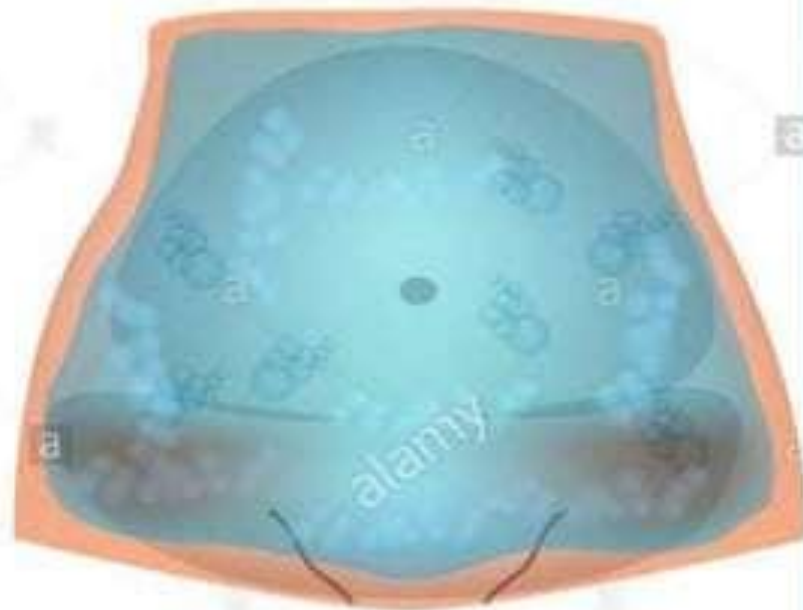
**LIVER CIRRHOSIS**

**DISEASES OF THE KIDNEYS**

**HEPATIC VEIN THROMBOSIS**

**HEART AND PERICARDIAL DISEASES**

**DISEASES OF THE GASTROINTESTINAL TRACT**



# CAUSES:

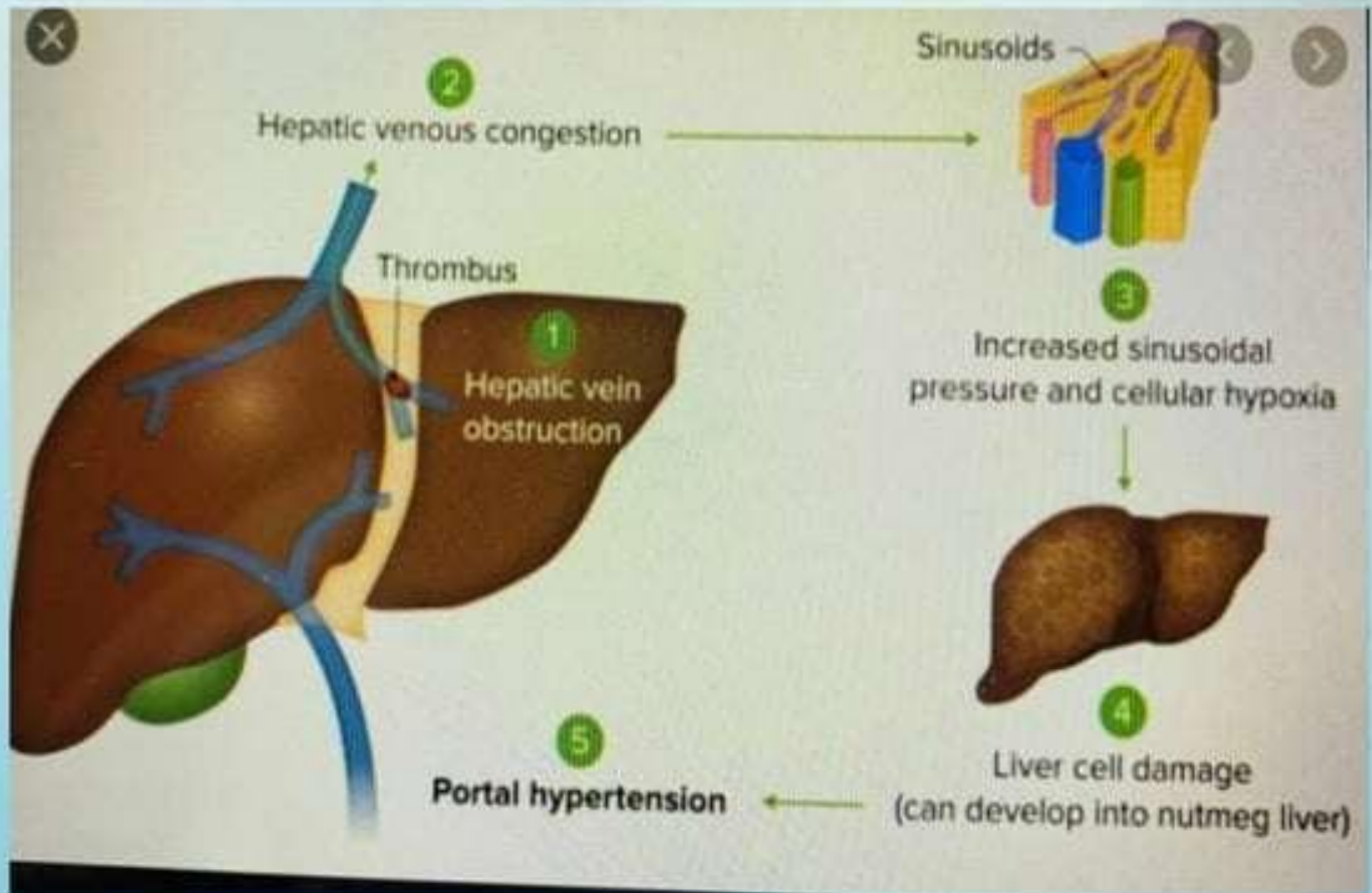
<b>GENERAL</b>	<b>SPECIFIC</b>
<b>Liver disease</b>	<ul style="list-style-type: none"><li>•Cirrhosis (80%)</li><li>•Veno-occlusive Disease</li></ul>
<b>Heart disease</b>	<ul style="list-style-type: none"><li>•Congestive cardiac failure</li><li>•Constrictive pericarditis</li></ul>
<b>Malignancy</b>	<ul style="list-style-type: none"><li>•Liver Cancer</li><li>•Ovarian cancer</li><li>•Peritoneal metastasis</li><li>•Pancreatic cancer</li></ul>
<b>Hypoalbuminaemia(low albumin)</b>	<ul style="list-style-type: none"><li>•Nephrotic syndrome</li><li>•Protein-losing enteropathy</li><li>•Malnutrition</li></ul>



Cont..

<b>GENERAL</b>	<b>SPECIFIC</b>
<b>Hepatic vein obstruction</b>	•Budd-Chiari syndrome
<b>Chronic inflammation</b>	•Pancreatitis •Appendicitis •Infective peritonitis

# Budd-Chiari syndrome



## Types of Ascites:

- **Transudate:** is fluid buildup caused by systemic conditions that alter the pressure in blood vessels, causing fluid to leave the vascular system.



## **Causes of high serum ascites albumin gradient (SAAG or Transudate) are:**

- Cirrhosis– 81% (alcoholic in 65%, viral in 10%, cryptogenic in 6%)
- Heart failure – 3%
- Hepatic venous occlusion: Budd-Chiari syndrome or Veno-occlusive disease
- Constrictive pericarditis
- Kwashiorkor (childhood protein-energy malnutrition)

- **Exudates:** is fluid buildup caused by tissue leakage due to inflammation or local cellular damage.

## **Causes of low serum-ascites albumin gradient (SAAG or "exudates") are:**

- Cancer (metastasis and primary peritoneal carcinomatosis)– 10%
- Infection: Tuberculosis – 2%  
or spontaneous bacterial peritonitis
- Pancreatitis– 1%
- Serositis
- Nephrotic Syndrome



# PATHOPHYSIOLOGY:

Cirrhosis with portal hypertension



Splanchnic arterial vasodilatation



Decrease in circulation arterial  
blood volume



Activation of rennin- angiotensin and sympathetic  
nervous system and antidiuretic hormone

Cont...

Kidney retains sodium and water

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graph TD; A[Kidney retains sodium and water] --> B[Hypervolemia]; B --> C["Persistent activation of systems for retention of sodium and water: ascites and edema formation"]; C --> D["Continued arterial under filling: cycle repeats"];
```

Hypervolemia

Persistent activation of systems for retention of sodium and water: **ascites and edema formation**

Continued arterial under filling: cycle repeats

# CLINICAL MANIFESTATION:

- Increased abdominal girth
- Rapid weight gain
- Shortness of breath
- Uncomfortable
- Umbilical Hernia
- Fluid and electrolyte imbalance





Cont....

- Fatigue
- Bloating
- Nausea and vomiting
- Decreased appetite
- Abdominal pain
- Back pain



# Cont..

- Constipation
- Frequent Urination
- Heart burn
- Edema



# Symptoms of Ascites



**Fatigue**



**Decreased appetite**



**Sudden weight gain**



**Abdominal discomfort/pain**



**Bloating**



**Back pain**



**Nausea and/or vomiting**



**Constipation**



**Swollen/distended stomach**



**Frequent urination/urgent urination**



**Shortness of breath/  
difficulty breathing**



**Heartburn**





# ASSESSMENT AND DIAGNOSTIC FINDINGS:

## ASSESSMENT:

- Health History
- Physical Examination:



# 3 CLINICAL SIGNS

## INSPECTION:

- Flank fullness (massive ascites)

## PERCUSSION:

- **Puddle's Sign**(Minimum fluid: up to 150 ml)
- **Shifting dullness**(Moderate amount of fluid up to 500ml)
- **Fluid trill**(Massive amount of fluid, up to 1000-1500 ml)

Proper exposure for examination



## **PUDDLE'S SIGN**

- Make the client sit in “Knee-elbow” position
- Percusses at a point of maximum prominence of the lax abdominal (puddle).
- Elicitation of dull note suggested the presence of fluid.



# Puddle sign

- This test is done to detect small amount of ascetic fluid even up to 120ml which is not detectable by fluid thrill and shifting dullness.



Knee-elbow position



# SHIFTING DULLNESS

## Percussion

### Ascites

#### **Shifting Dullness:**

- Percuss from the midline out to Lt. flank until dullness is reached.
- Mark this point and ask the patient to roll toward you.
- Wait for 30 sec. then repeat percuss again.
- If the dull area become resonant is indication of ascites.
- *This maneuver is used to detect mild to moderate ascites.*



# FLUID TRILL

- Make the patient lie comfortably on the couch.
- Ask another person to place the edge of palm in the midline( to stabilize abdominal fat and wall).
- Place the palm of one hand on the opposite side of the abdominal.
- Flick the skin on the side of abdominal you are standing.



## Eliciting fluid thrill



## DIAGNOSTIC FINDING:

- Blood tests
- Liver function test
- Percussion
- Ultrasound of abdominal
- CT scan of abdominal



## Cont...

- Chest and abdominal X-ray
- Paracentesis
- Shifting dullness
- Bulging flanks
- Puddle sign





## Ascites fluid appearance:

APPEARANCE	INTERPRETATION
<b>Clear/ straw coloured</b>	<ul style="list-style-type: none"><li>•Liver cirrhosis</li></ul>
<b>Cloudy</b>	<ul style="list-style-type: none"><li>•Bacterial peritonitis(SBP)</li><li>•Perforated bowel</li><li>•Pancreatitis</li></ul>
<b>Bloody</b>	<ul style="list-style-type: none"><li>•Malignancy</li></ul>
<b>Chylous (milk coloured)</b>	<ul style="list-style-type: none"><li>•Lymphoma</li><li>•Tuberculosis(TB)</li><li>•Malignancy</li></ul>

## Cont..

- Ascites amylase activity of  $>1000/L$  identifies pancreatic ascites.
- Neutrophil count of  $> 250 \times 10^6/L$  strongly suggest infection (spontaneous bacterial peritonitis).
- Triglyceride at a level  $>1.1g/L$  is diagnostic of chylous ascites.

## **GRADES OF ASCITES:**

- **Grade 1:** Mild ascites detectable only by ultrasound examination.
- **Grade 2:** Moderate ascites manifested by moderate symmetrical distension of the abdomen.
- **Grade 3:** Large or gross ascites with marked abdominal distension.

# COMPLICATION OF ASCITES:

- Spontaneous bacterial peritonitis
- Abdominal wall hernias
- Pleural effusion
- Bloody ascites





# MANAGEMENT:

- **MEDICAL MANAGEMENT:**

- **PHARMACOLOGIC THERAPY:**

- Diuretic = furosemide
- Aldosterone antagonist = Spirolactone
- **Ammonium chloride and acetazolamide (diamox) are contraindicated because of the possibility of precipitating hepatic coma.**

- Ascites is generally treated while an underlying cause is sought, in order to prevent complications, relieve symptoms, and prevent further progression. In people with mild ascites, therapy is usually as an outpatient. The goal is weight loss of no more than 1.0 kg/day for people with both ascites and peripheral edema and no more than 0.5 kg/day for people with ascites alone. In those with severe ascites causing a tense abdomen, hospitalization is generally necessary for Paracentesis.



## **TRANSUDATIVE ASCITES**

- Restriction sodium and water intake, promoting urine output with diuretics and if, necessary, removing ascites directly by Paracentesis.

## **Treatment in ("Transudate") are:**

- Diet
- Diuretics
- Paracentesis

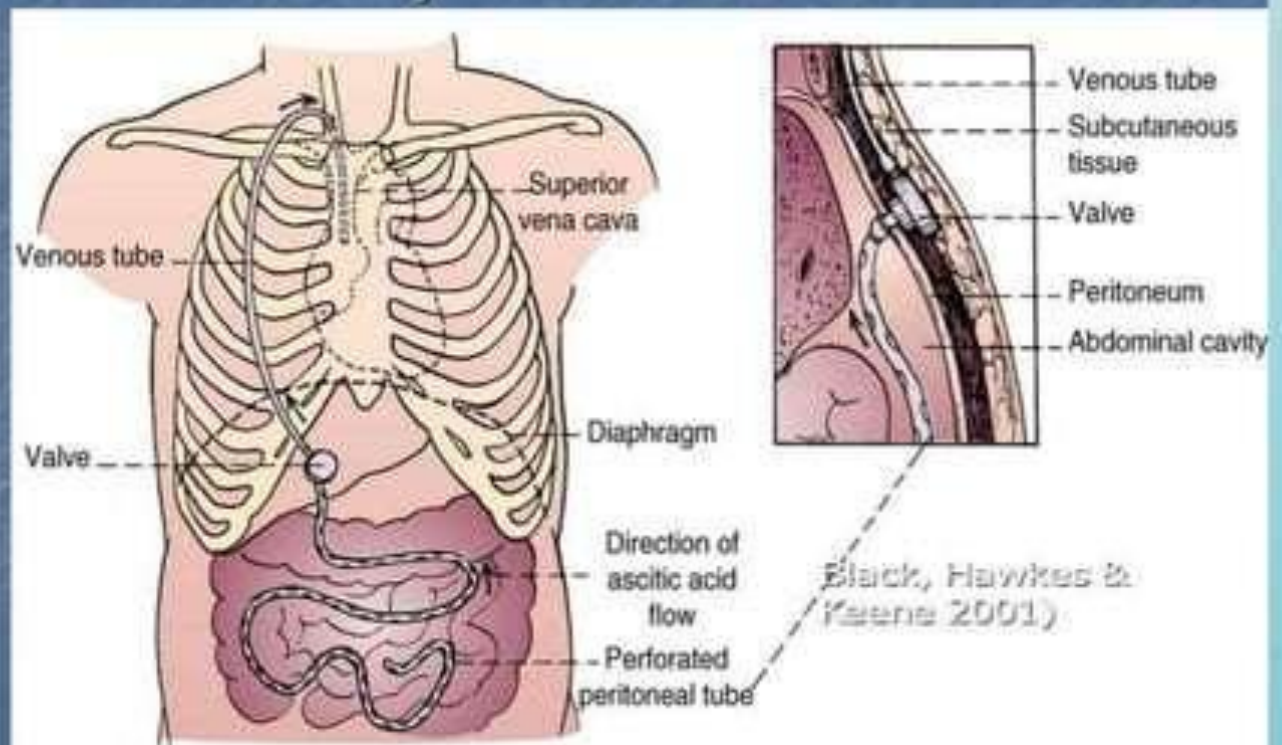


# Surgery

- **Peritoneovenous shunt-** (Leveen Shunt) is a shunt which drain peritoneal fluid from the peritoneum into veins, usually the intra jugular vein or the superior vena cava.

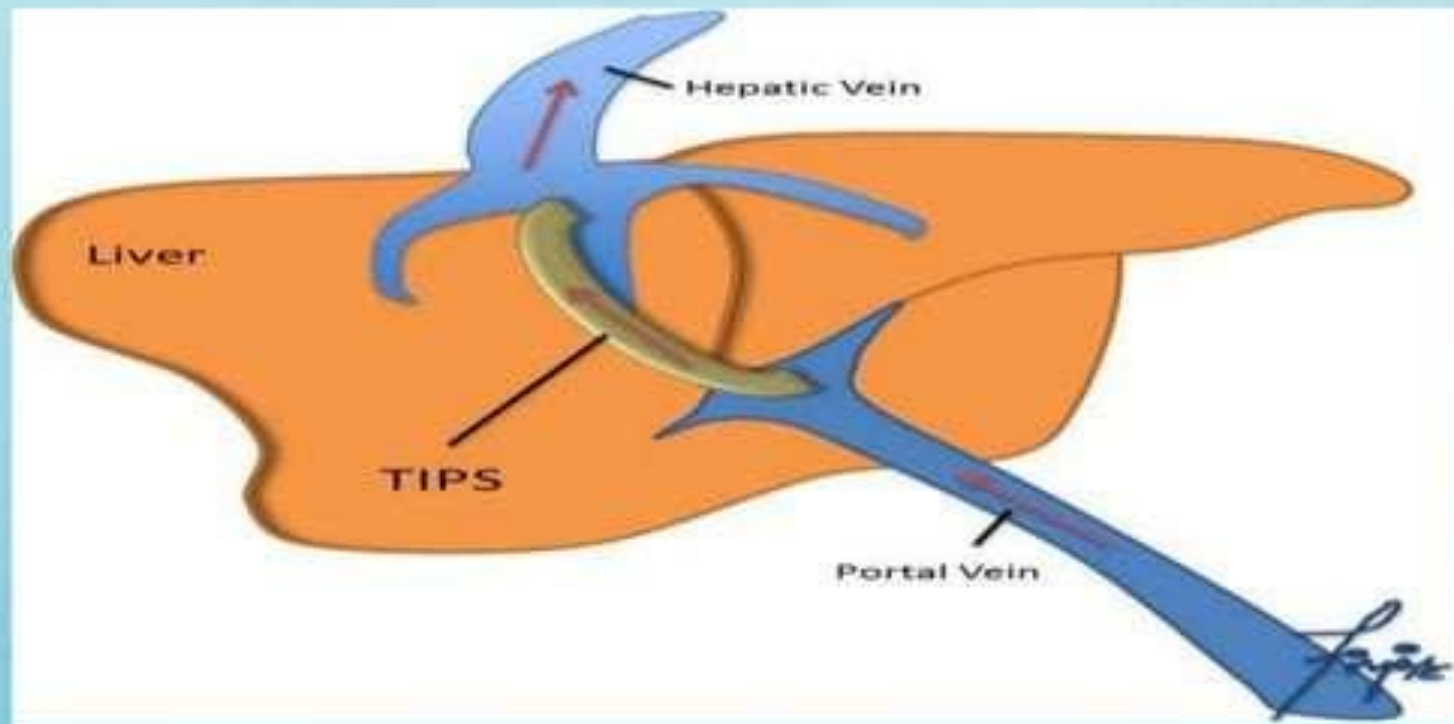
Figure 47-6 : LeVeen Peritoneovenous Shunt

Provides continuous reinfusion of ascitic fluid into the venous system



# TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT(TIPS):

TIPS is an artificial channel between the liver that establishes communication between the inflow portal vein and the outflow hepatic vein. It is use to treat portal hypertension which frequently leads to intestinal bleeding.



## **EXUDATIVE ASCITES**

- Due to malignancy is treated with **Paracentesis** but fluid replacement is generally not required.



# NON-PHARMACOLOGIC THERAPY:

- **Bed rest**
- **Fluid management:** the patient with ascites along with cirrhosis presents with hyponatremia and Hypovolemia. If the sodium level is less than 130 meqv/ liter, water restriction to 1.5 liter per day is recommended.
- **Diet management:** Patient with ascites is advised to take low sodium diet. Maintaining nutritional pattern in patient with ascites is vital. Measure the height and weight along with BMI is one of the methods to assess the nutritional status of the patient with ascites.



- **Measurement of weight:** Measure the weight of the patient daily and compare the findings with previous findings. If patient is not able to move, provide position to the patient 2nd hourly.



# NURSING MANAGEMENT



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# **NURSING MANAGEMENT**

## **ASSESSMENT:**

- Assessment should be ongoing and precise.
- Pain. Pain should be assessed continuously and should be acted upon.
- GI function. GI function should be monitored to assess response to interventions.
- Fluid and electrolyte. F&E should be balanced.



## **NURSING DIAGNOSIS:**

- Imbalanced nutrition less than body requirements related to abdominal pain.
- Activity intolerance related to fatigue.
- Deficient knowledge related to new diagnosis of ascites.



## **GOAL:**

- Reduce level of pain.
- Restore fluid and electrolyte balance.
- Prevent complications.
- Restore normal GI functions.

## **NURSING INTERVENTION:**

- Activity intolerance related to fatigue.
- **Desired outcome:** The patient will demonstrate active participation in necessary and desired activities and demonstrate increase in activity level.

## **INTERVENTIONS**

Assess the patients activities of daily living, as well as actual and perceived limitations to physical activity

Teach deep breathing exercises and relaxation techniques. Provide adequate ventilation in the room.

## **RATIONALES**

To create a baseline of activity levels and mental status related to fatigue and activity intolerance.

To allow the patient to relax while at rest and to facilitate effective stress management. To allow enough oxygenation in the room



# **NURSING RESEARCH:**

## **Treatment for ascites in adults with decompensated liver cirrhosis.**

### **Background:**

- Approximately 20% of people with cirrhosis develop ascites. Several different treatments are available; including, among others, Paracentesis plus fluid replacement, transjugular intrahepatic portosystemic shunts, Aldosterone antagonists, and loop diuretics.



## **Objectives:**

- To compare the benefits and harms of different treatments for ascites in people with decompensated liver cirrhosis through a network meta-analysis and to generate rankings of the different treatments for ascites according to their safety and efficacy.

## **Result:**

- There was no evidence of differences in mortality adverse events, or liver transplantation in people receiving different interventions compared to Paracentesis plus fluid replacement.

## **Authors' conclusions:**

- Based on very low-certainty evidence, there is considerable uncertainty about whether interventions for ascites in people with decompensated liver cirrhosis decrease mortality, adverse events, or liver transplantation compared to Paracentesis plus fluid replacement in people with decompensated liver cirrhosis and ascites.



# Summarization

- **Definition:** Its accumulation of fluid in the peritoneal cavity (serous membrane which covers the abdominal organs).
- **CAUSES**
- **Types of Ascitis: Transudate and exudates.**

Cont...

- **PATHOPHYSIOLOGY**
- **CLINICAL MANIFESTATION**
- **MANAGEMENT**



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THANK

YOU