

# Complications of liver cirrhosis

# Complications of liver cirrhosis

- Recognize the major complications of cirrhosis.
- Understand the pathogenetic mechanisms underlying the occurrence of the complications.
- Recognize the clinical features inherent to the above mentioned complications.
- Describe the pathological findings of the different complications.

# Complications of liver cirrhosis

- Ascites,
- Spontaneous bacterial peritonitis,
- Hepatic encephalopathy,
- Portal hypertension,
- Variceal bleeding
- Hepatorenal syndrome.
- Hepatocellular carcinoma.

# Complications of liver cirrhosis

- PORTAL HYPERTENSION :
- Resistance to blood flow

*prehepatic, intrahepatic, and posthepatic*

*The dominant intrahepatic cause is cirrhosis, accounting for most cases of portal hypertension*

# Complications of liver cirrhosis

- *Ascites is the accumulation of excess fluid in the peritoneal cavity:*  
85%
- Serous: less than 3 gm/dL of protein

# Complications of liver cirrhosis

- Splenomegaly : Long-standing congestion may cause congestive splenomegaly. (1000 gm)
- Splenomegaly : Hematologic abnormalities attributable to hypersplenism, such as thrombocytopenia or pancytopenia.

# Complications of liver cirrhosis

- Spontaneous bacterial peritonitis

# Complications of liver cirrhosis

- JAUNDICE AND CHOLESTASIS: Causes of jaundice
- Bilirubin overproduction, hepatitis, and obstruction of the flow of bile.
- *Jaundice and icterus*
- *Cholestasis*, characterized by systemic retention of not only bilirubin but also other solutes eliminated in bile.



# Complications of liver cirrhosis

- *Hepatorenal syndrome*: Appearance of renal failure in individuals with severe chronic liver disease --- no intrinsic morphologic or functional causes for the renal failure.

# Complications of liver cirrhosis

- The incidence of this syndrome is about 8% per year among patients who have cirrhosis and ascites

# Complications of liver cirrhosis

- Decreased renal perfusion pressure due to systemic vasodilation
- Activation of the renal sympathetic nervous system with vasoconstriction of the afferent renal arterioles
- Increased synthesis of renal vasoactive mediators, that decrease glomerular filtration.

# Complications of liver cirrhosis

- ESOPHAGEAL VARICES

# Complications of liver cirrhosis

- Instead of returning directly to the heart, venous blood from the GI tract is delivered to the liver via the portal vein before reaching the inferior vena cava.

# Complications of liver cirrhosis

- This circulatory pattern is responsible for the *first-pass effect* in which drugs and other materials absorbed in the intestines are processed by the liver before entering the systemic circulation..

# Complications of liver cirrhosis

- Diseases that impede this flow cause portal hypertension and can lead to the development of esophageal varices, an important cause of esophageal bleeding

# Complications of liver cirrhosis

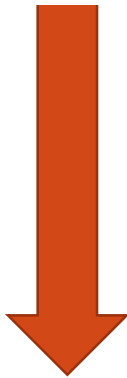
Portal hypertention



Portosystemic Shunt



Rectum ( hemorrhoids)



Cardioesophageal junction ( esophagogastric varices)



Abdominal wall collaterals (*caput medusae*)



# Complications of liver cirrhosis

- Pathogenesis
- Portal hypertension results in the development of collateral channels at sites where the portal and caval systems communicate. Although these collateral veins allow some drainage to occur, they lead to development of a congested subepithelial and submucosal venous plexus within the distal esophagus. (*varices*): 90% of cirrhotic patients
- Alcohol - Hepatic schistosomiasis

# Complications of liver cirrhosis

- **Morphology.** Varices can be detected by venogram : tortuous dilated veins lying primarily within the submucosa of the distal esophagus and proximal stomach. Venous channels directly beneath the esophageal epithelium may also become massively dilated.
- Varices may not be grossly obvious in surgical or postmortem specimens, because they collapse in the absence of blood flow .
- Variceal rupture results in hemorrhage into the lumen or esophageal wall, in which case the overlying mucosa appears ulcerated and necrotic. If rupture has occurred in the past, venous thrombosis, inflammation, and evidence of prior therapy may also be present.

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- Clinical features:
- Asymptomatic or rupture- → massive hematemesis.

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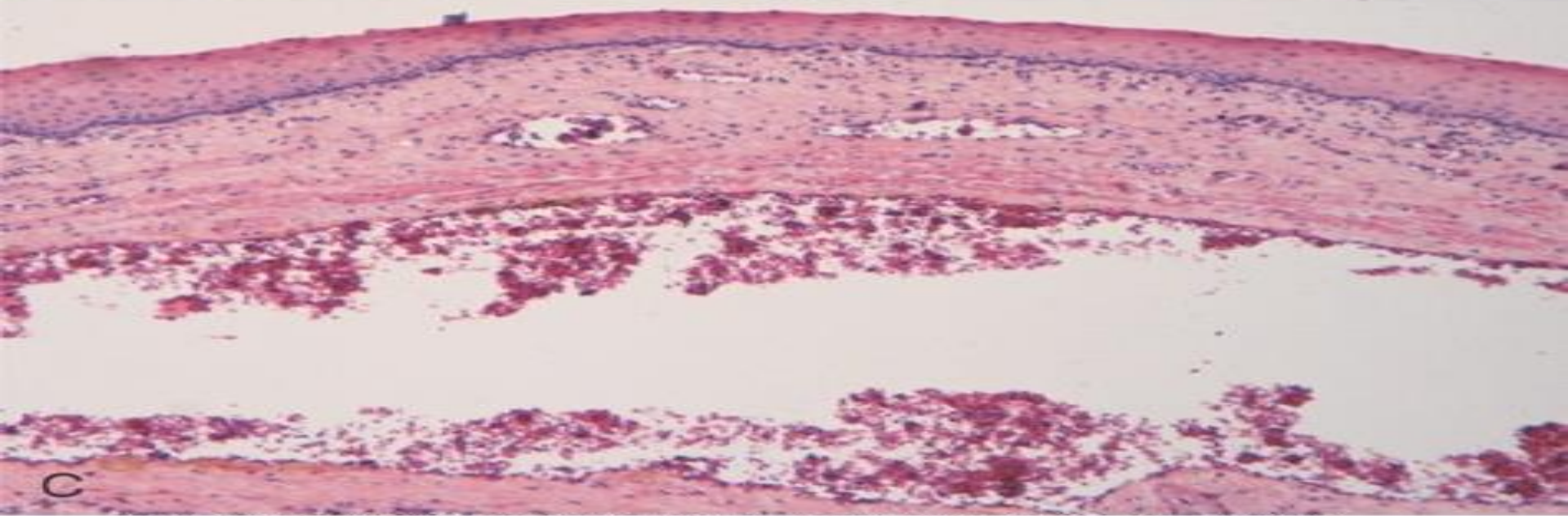
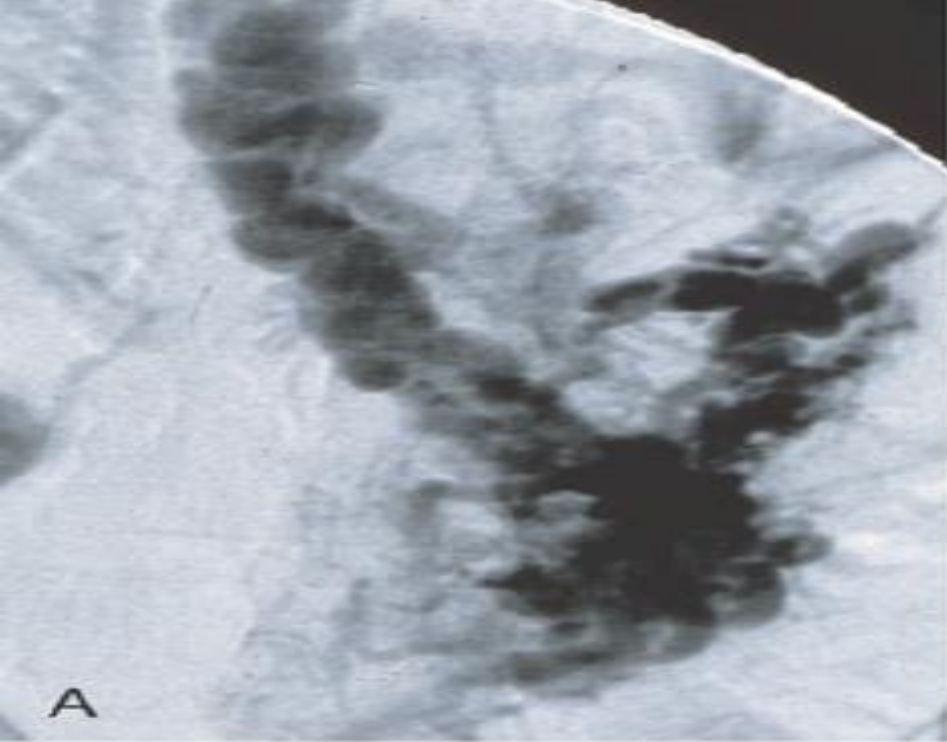
- Inflammatory erosion of thinned overlying mucosa
- Increased tension in progressively dilated veins
- Increased vascular hydrostatic pressure associated with vomiting are likely to contribute

# Complications of liver cirrhosis

- Medical emergency that is treated by any of several methods:  
sclerotherapy
- Endoscopic balloon tamponade
- Endoscopic rubber band ligation

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- Half of patients die from the first bleeding episode either as a direct consequence of hemorrhage or following hepatic coma triggered by hypovolemic shock.
- Additional 50% within 1 year.
- Each episode has a similar rate of mortality.
- Over half of deaths among individuals with advanced cirrhosis result from variceal rupture.



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- Hepatocellular Carcinoma



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- Conclusion