

# Diseases of the esophagus 1

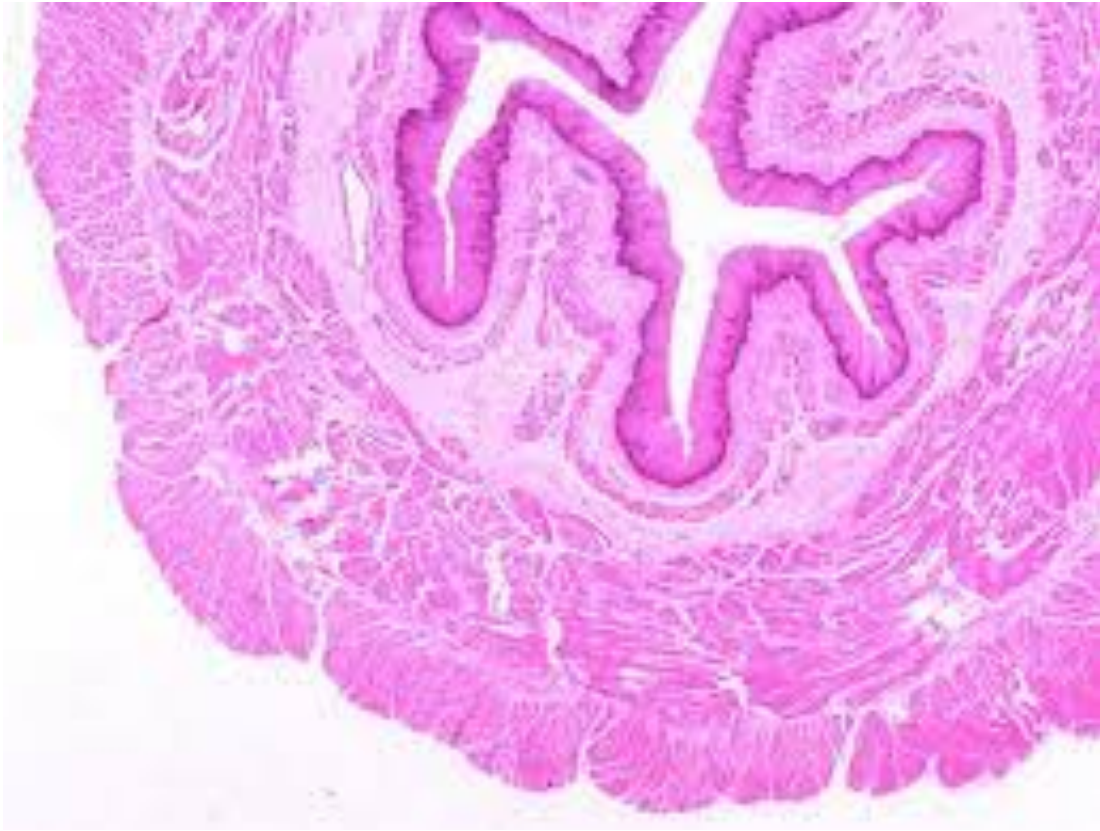
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University of Jordan, School of medicine



- ▶ A hollow, highly distensible muscular tube
- ▶ Extends from the epiglottis to the GEJ, located just above the diaphragm





# Diseases that affect the esophagus

- ▶ 1. Obstruction: mechanical or functional.
- ▶ 2. vascular diseases: varices.
- ▶ 3. Inflammation: esophagitis.
- ▶ 4. Tumours.



# Mechanical Obstruction

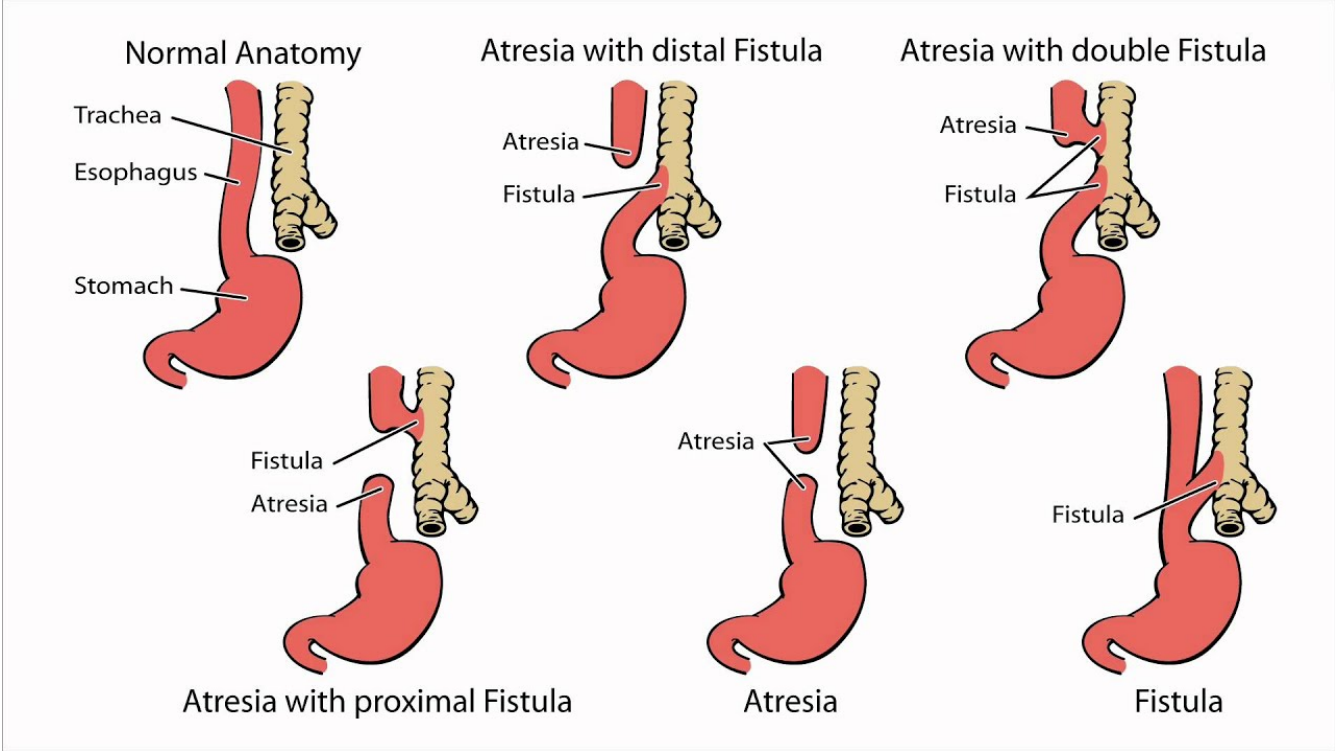
- ▶ Congenital or acquired.
- ▶ Examples:
  - ▶ Atresia
  - ▶ Fistulas
  - ▶ Duplications
  - ▶ Agenesia (v rare)
  - ▶ Stenosis.

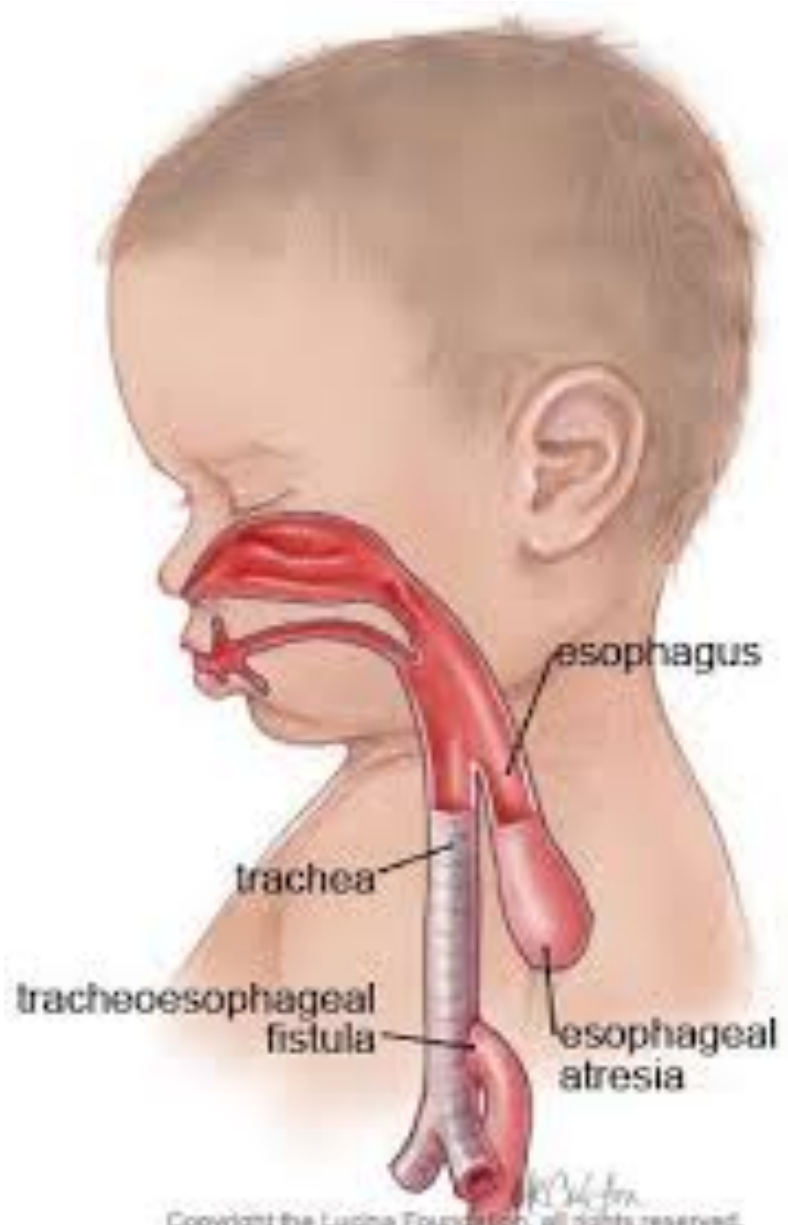


# Atresia

- ▶ Thin, noncanalized cord replaces a segment of esophagus.
- ▶ Most common location: at or near the tracheal bifurcation
- ▶ +- fistula (upper or lower esophageal pouches to a bronchus or trachea).







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# Clinical presentation:

- ▶ Shortly after birth: regurgitation during feeding
- ▶ Needs prompt surgical correction (rejoin).
- ▶ **Complications if w/ fistula:**
- ▶ Aspiration
- ▶ Suffocation
- ▶ Pneumonia
- ▶ Severe fluid and electrolyte imbalances.



# Esophageal stenosis

- ▶ Acquired>>>Congenital.
- ▶ Fibrous thickening of the submucosa & atrophy of the muscularis propria.
- ▶ Due to inflammation and scarring
- ▶ **Causes:**
- ▶ Chronic GERD.
- ▶ Irradiation
- ▶ Ingestion of caustic agents



# Clinical presentation

- ▶ Progressive dysphagia
- ▶ Difficulty eating solids that progresses to problems with liquids.



# Functional Obstruction

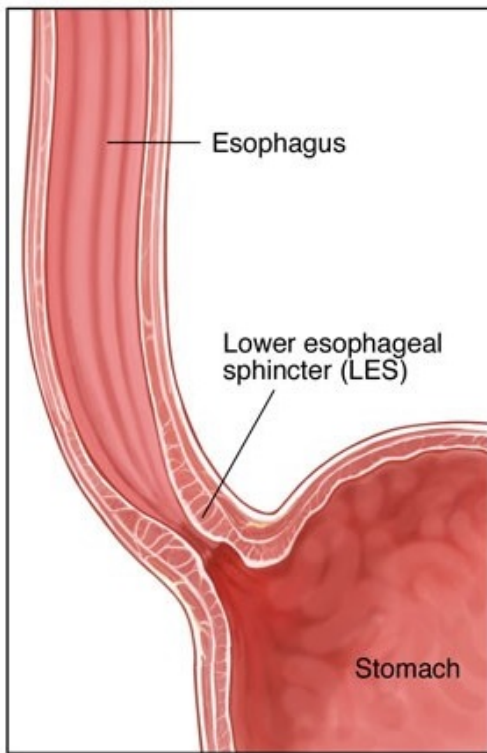
- ▶ Efficient delivery of food and fluids to the stomach requires coordinated waves of peristaltic contractions.
- ▶ Esophageal dysmotility: discoordinated peristalsis or spasm of the muscularis.
- ▶ **Achalasia: the most important cause.**



# Achalasia

- ▶ **Triad:**
  - ▶ Incomplete LES relaxation
  - ▶ Increased LES tone
  - ▶ Esophageal aperistalsis.
- 
- ▶ Primary >>>secondary.



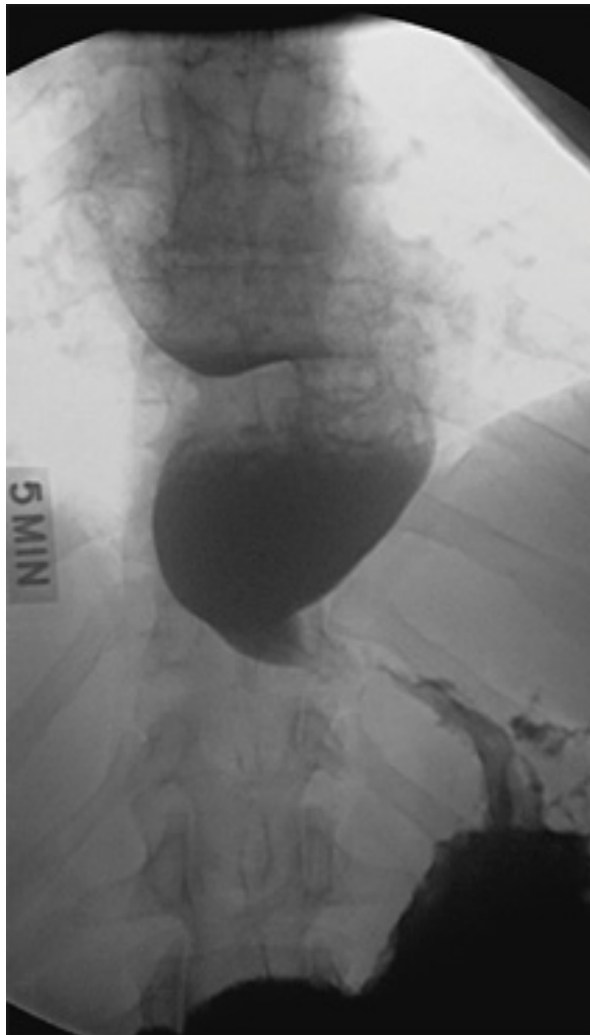


**Normal**



**Achalasia**



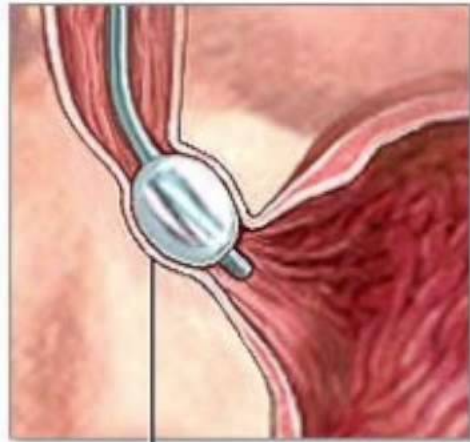


Source: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine, 18th Edition*: [www.accessmedicine.com](http://www.accessmedicine.com)

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- Pneumatic balloon dilatation of the LES



- Lower esophageal sphincter





# Primary achalasia

- ▶ Failure of distal esophageal inhibitory neurons.
- ▶ Idiopathic
- ▶ Most common



# Secondary achalasia

- ▶ Degenerative changes in neural innervation
- ▶ **Intrinsic**
- ▶ **Vagus nerve**
- ▶ **Dorsal motor nucleus of vagus**
  
- ▶ **Chagas disease**, *Trypanosoma cruzi* infection>>destruction of the myenteric plexus>> failure of LES relaxation>> esophageal dilatation.



# Clinical presentation

- ▶ Difficulty in swallowing
- ▶ Regurgitation
- ▶ Sometimes chest pain.

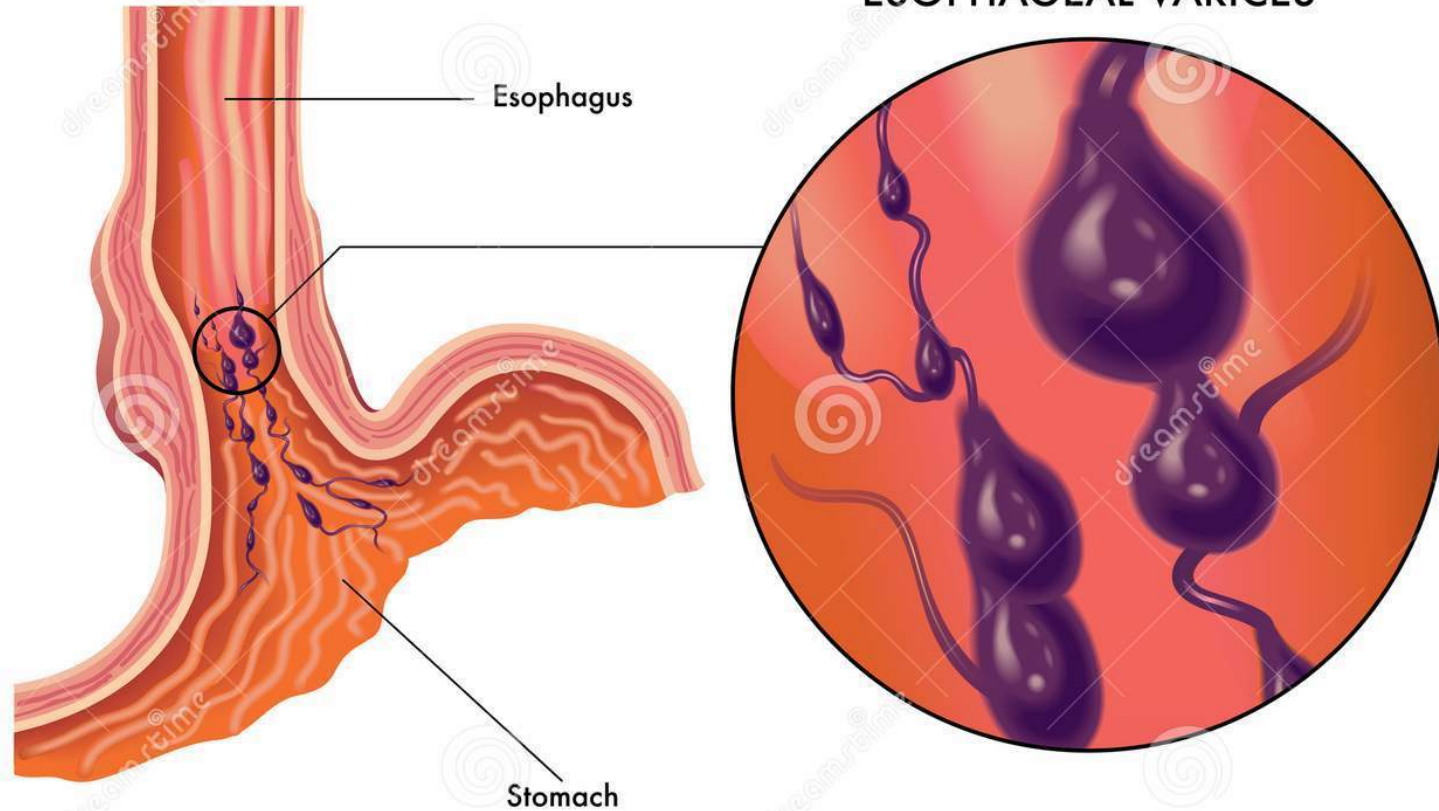


# Vascular diseases: Esophageal Varices

- ▶ Tortuous dilated veins within the submucosa of the distal esophagus and proximal stomach.
- ▶ Diagnosis by: endoscopy or angiography.



## ESOPHAGEAL VARICES



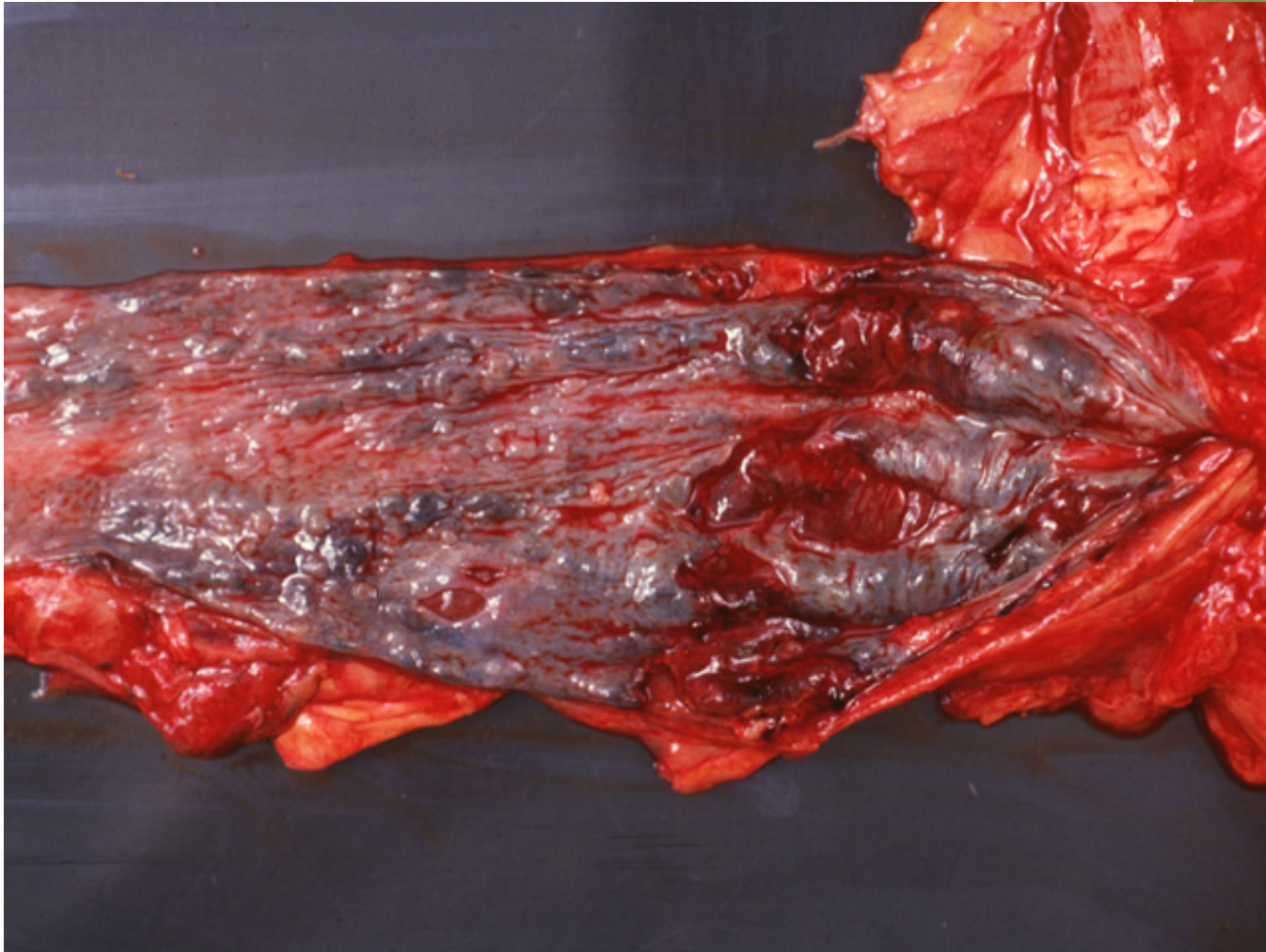
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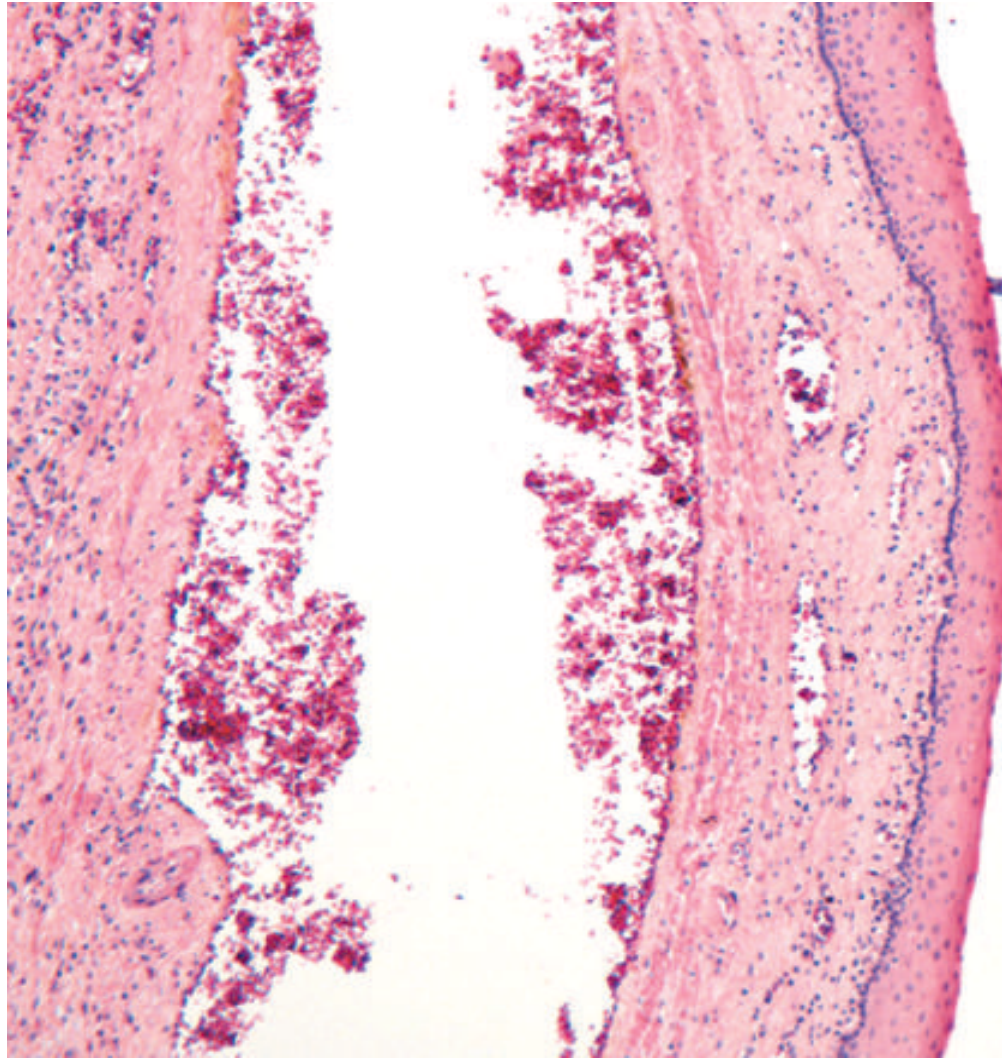
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# Dilated varices beneath intact squamous mucosa



# Pathogenesis:

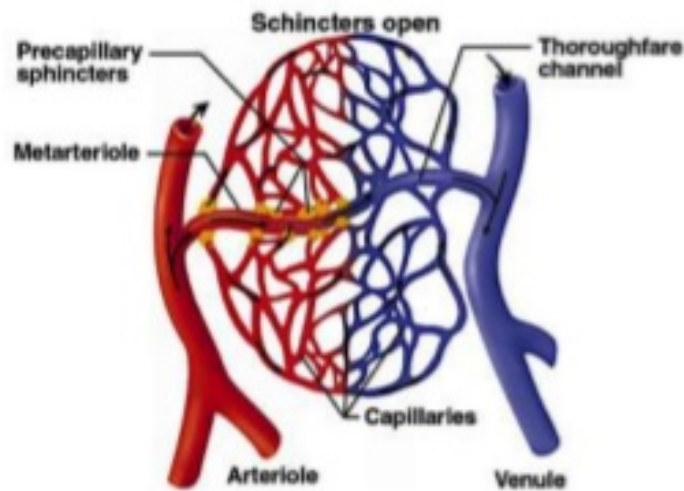
- ▶ **Portal circulation:** blood from GIT>>portal vein>>liver (detoxification)>>inferior vena cava.
- ▶ Diseases that impede portal blood flow >> portal hypertension >>esophageal varices.
- ▶ Distal esophagus : site of Porto-systemic anastomosis.
- ▶ **Portal hypertension**>>collateral channels in distal esophagus>>shunt of blood from portal to systemic circulation>>dilated collaterals in distal esophagus>>varices



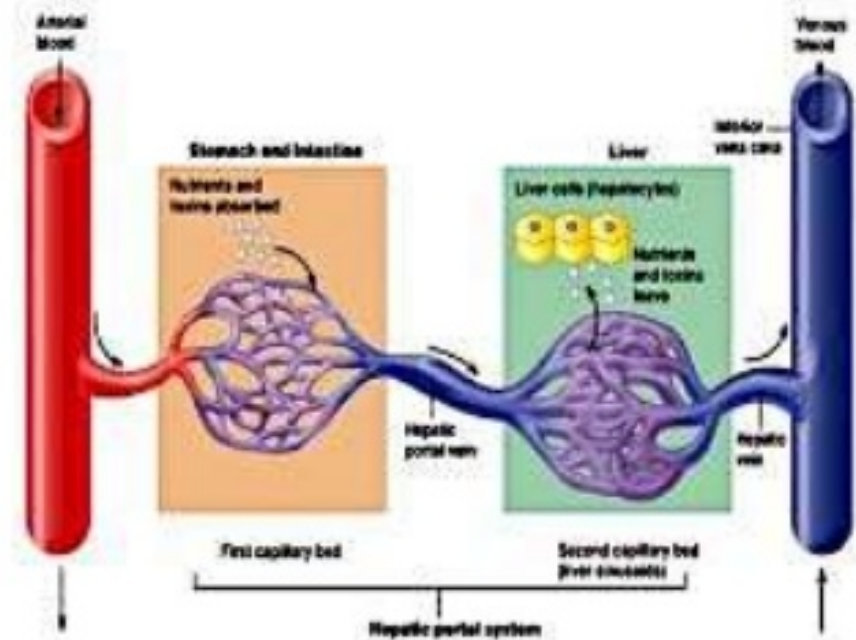


# Portal system

Usual circulation



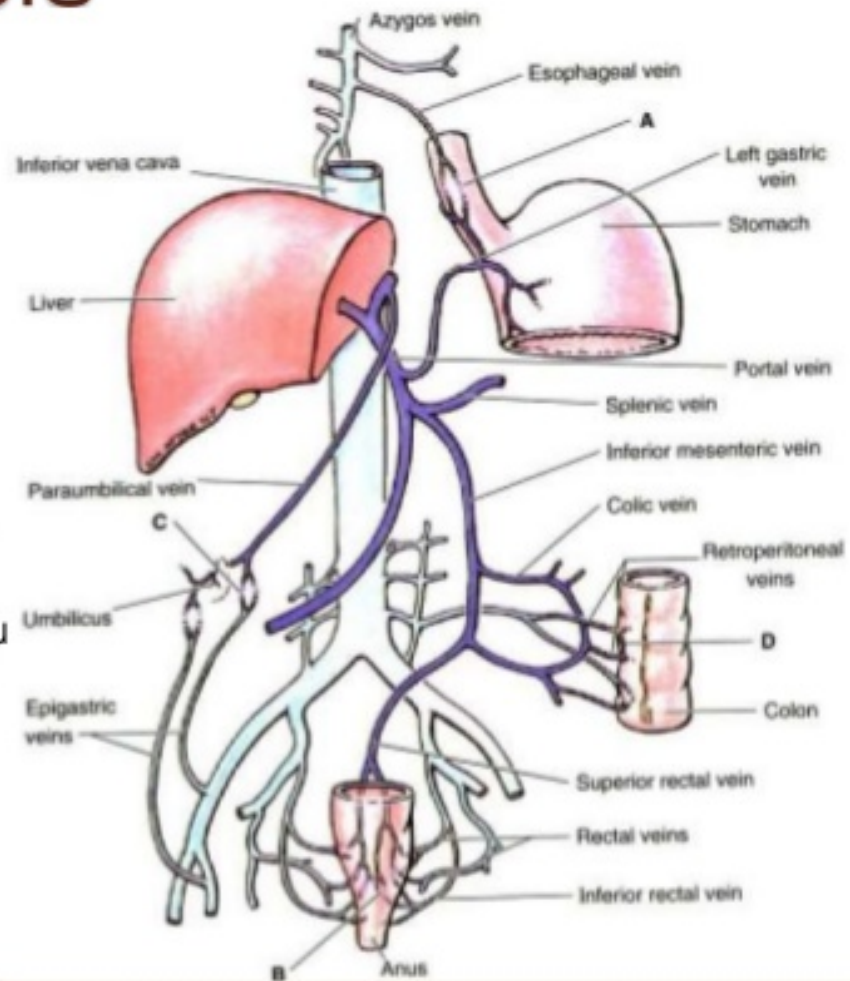
Portal circulation



# SITES OF PORTACAVAL ANASTOMOSIS

## Five sites of portal/systemic circulation :

1. Lower third of the Esophagu
2. Paraumbilical Area
3. Upper end of Anal canal
4. Retroperitoneal
5. Bare area of liver

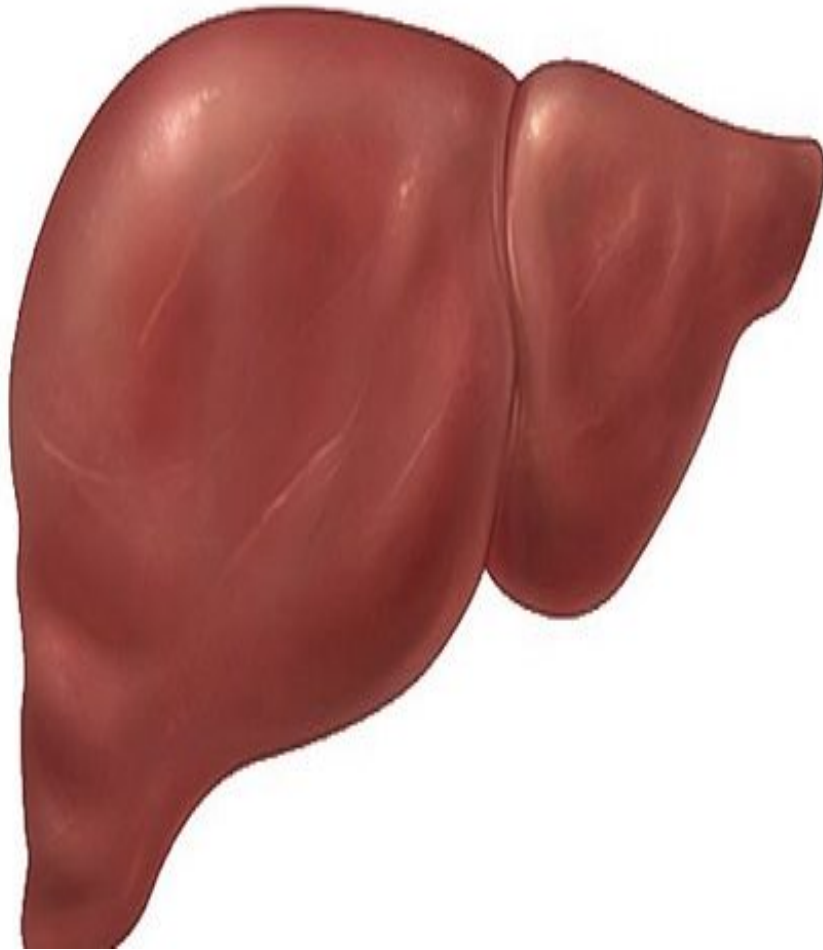


# Causes of portal hypertension

- ▶ Cirrhosis is most common  
Alcoholic liver disease.
- ▶ Hepatic schistosomiasis 2<sup>nd</sup> most common worldwide.



Normal Liver



Liver with Cirrhosis



# Clinical Features

- ▶ Often asymptomatic.
- ▶ Rupture leads to **massive hematemesis and death.**
- ▶ 50% of patients die from the first bleed despite interventions.
- ▶ Death due to: hemorrhage, hepatic come, and hypovolemic shock
- ▶ Rebleeding in 20%.



# ESOPHAGITIS

- ▶ Esophageal Lacerations.
- ▶ Mucosal Injury
- ▶ Infections
- ▶ Reflux Esophagitis
- ▶ Eosinophilic Esophagitis

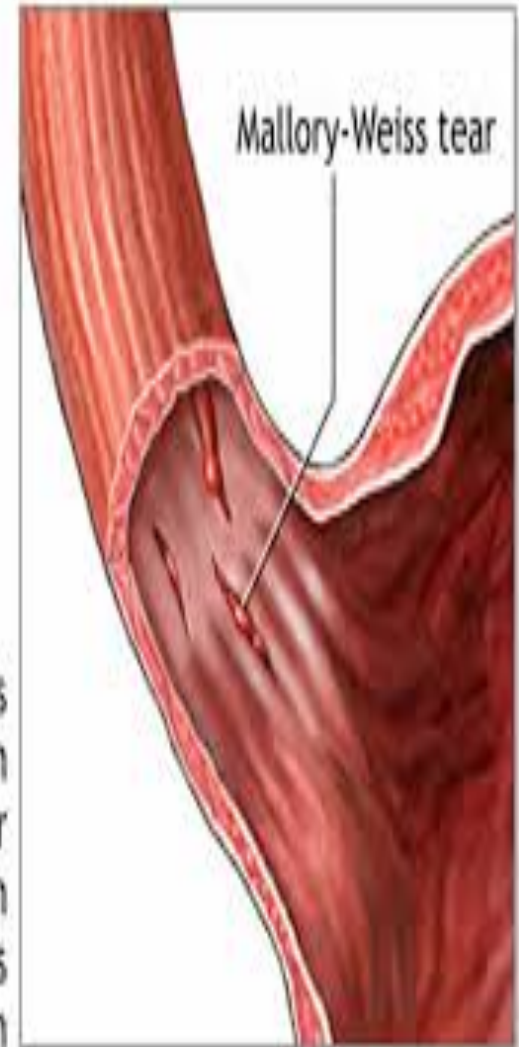


# Esophageal Lacerations

- ▶ **Mallory weiss tears are most common**
- ▶ Due to : severe retching or prolonged vomiting
- ▶ Present with hematemesis.
- ▶ Failure of gastroesophageal musculature to relax prior to antiperistaltic contraction associated w/ vomiting>>stretching>>>tear.



- ▶ Linear lacerations
- ▶ longitudinally oriented
- ▶ Cross the GEJ.
- ▶ Superficial
- ▶ Heal quickly , no surgical intervention



Mallory-Weiss tear is a tear in the mucosal layer at the junction of the esophagus and stomach





# Chemical Esophagitis

- ▶ Damage to esophageal mucosa by irritants
- ▶ Alcohol,
- ▶ Corrosive acids or alkalis
- ▶ Excessively hot fluids
- ▶ Heavy smoking
- ▶ Medicinal pills (doxycycline and bisphosphonates)
- ▶ Iatrogenic (chemotx, radiotx , GVHD)



# Clinical symptoms & morphology

- ▶ Ulceration and acute inflammation.
- ▶ Only self-limited pain, odynophagia (pain with swallowing).
- ▶ Hemorrhage, stricture, or perforation in severe cases



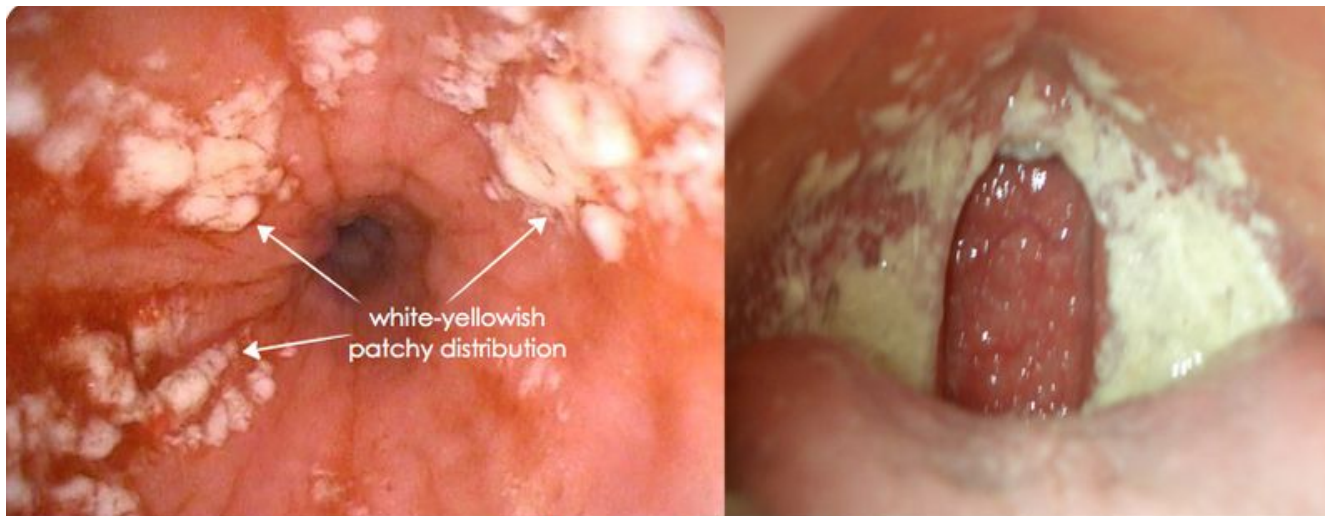
# Infectious esophagitis

- ▶ Mostly in debilitated or immunosuppressed.
- ▶ Viral (HSV, CMV)
- ▶ Fungal (candida >>> mucormycosis & aspergillosis)
- ▶ Bacterial: 10%.



- ▶ **Candidiasis :**
- ▶ Adherent.
- ▶ Gray-white pseudomembranes
- ▶ Composed of matted fungal hyphae and inflammatory cells



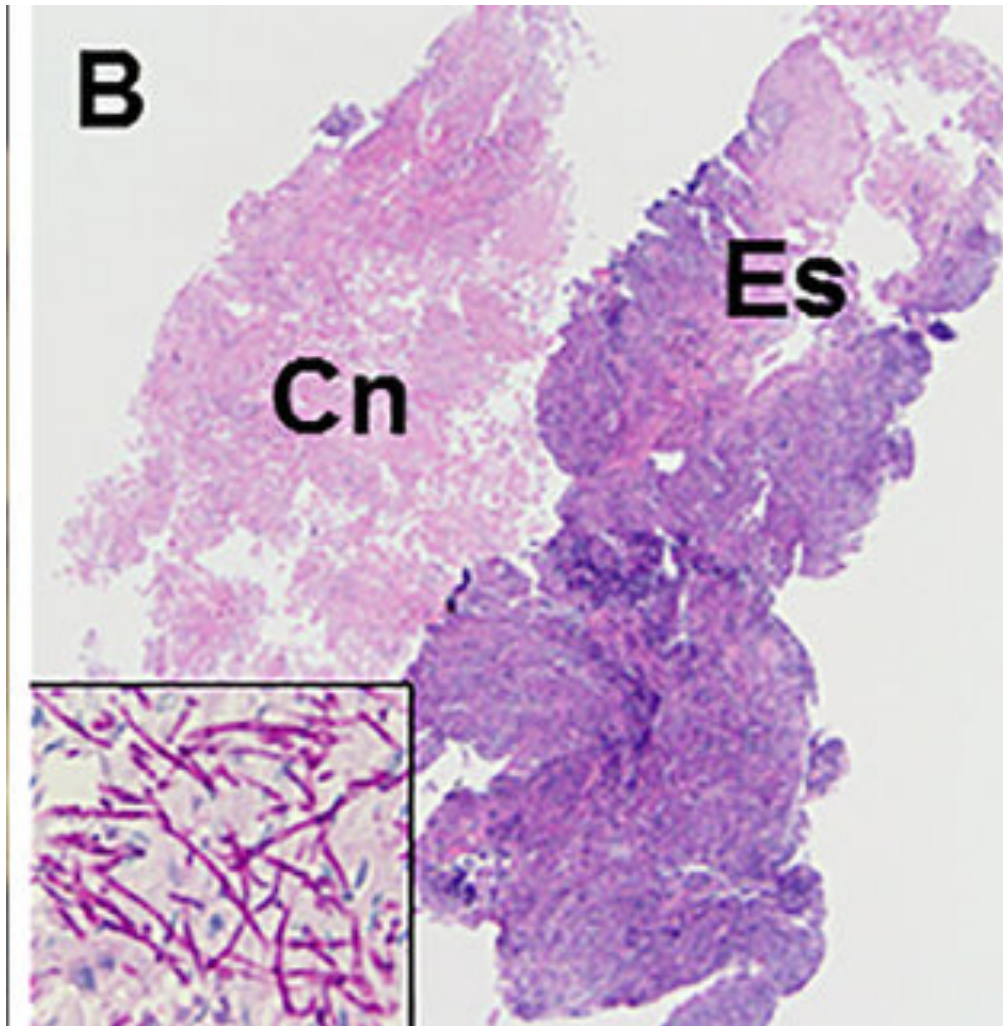


white-yellowish  
patchy distribution

Esophageal Candidiasis

<https://www.pinterest.com/pin/374291419013418659/>





[www.researchgate.net/publication/285369734\\_Esophageal\\_Candidiasis\\_as\\_the\\_Initial\\_Manifestation\\_of\\_Acute\\_Myeloid\\_Leukemia](http://www.researchgate.net/publication/285369734_Esophageal_Candidiasis_as_the_Initial_Manifestation_of_Acute_Myeloid_Leukemia)



- ▶ **Herpes viruses**
- ▶ Punched-out ulcers
- ▶ Histopathologic:
- ▶ Nuclear viral inclusions
- ▶ Degenerating epithelial cells ulcer edge
- ▶ Multinucleated epithelial cells.

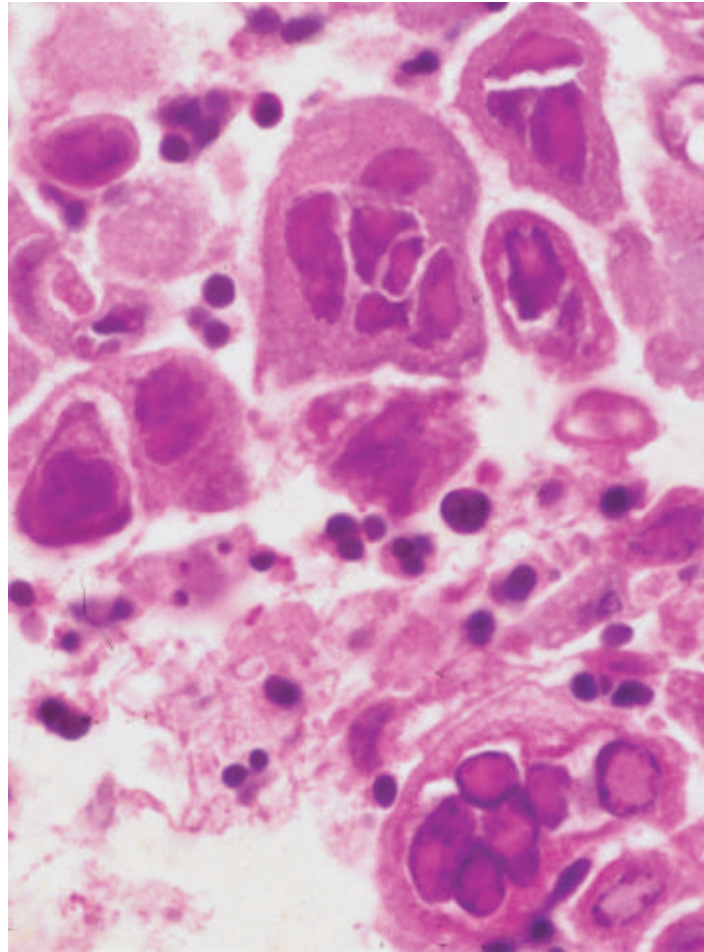




Figure 4: Gastroenterology findings revealed the presence of multiple







Robbins Basic Pathology 10th edition



- ▶ **CMV :**
- ▶ Shallower ulcerations.
- ▶ Biopsy: nuclear and cytoplasmic inclusions in capillary endothelium and stromal cells. Megalo. cells



