Diseases of the esophagus-1

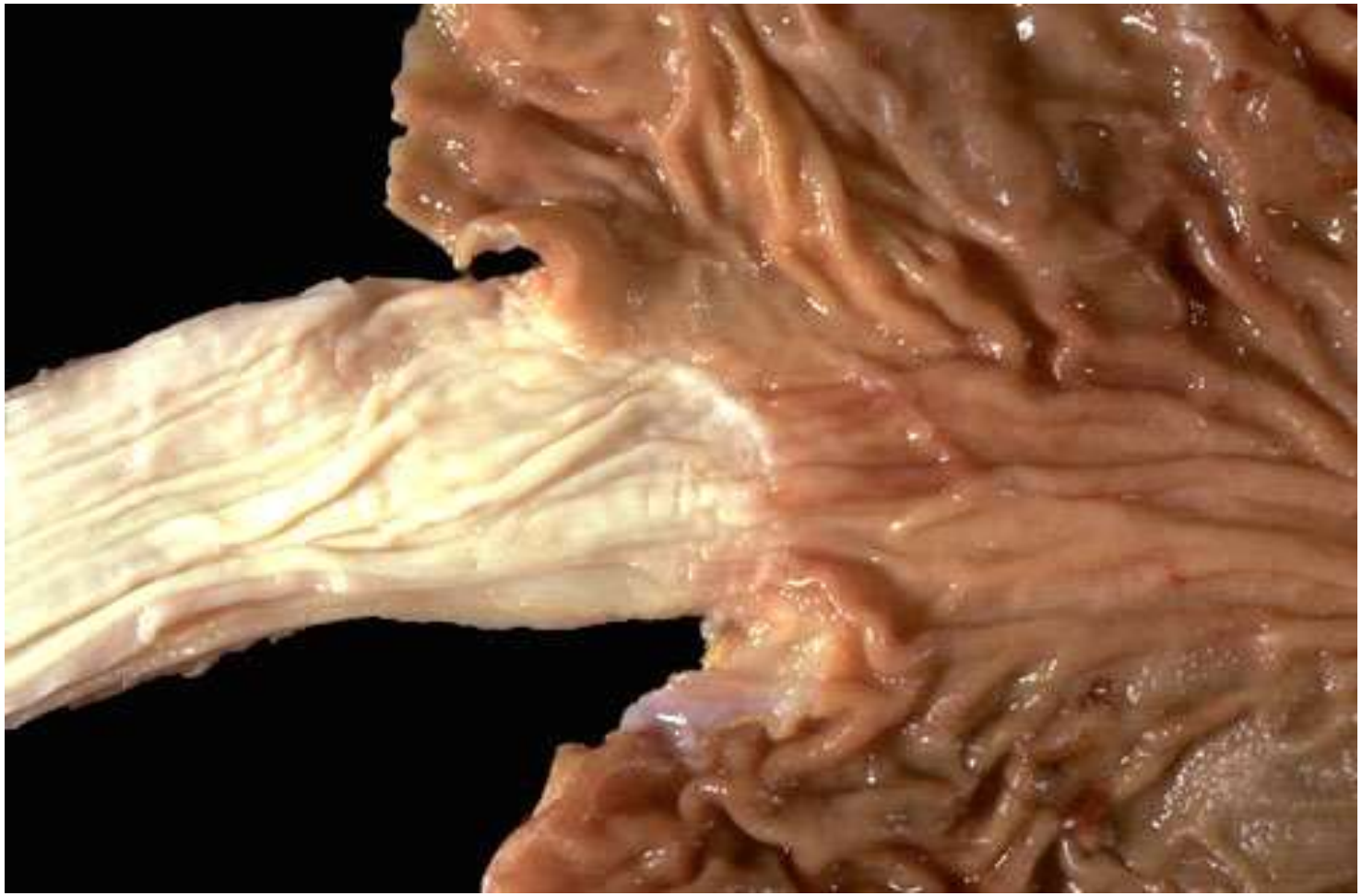
Manar Hajeer, MD, FRCPath

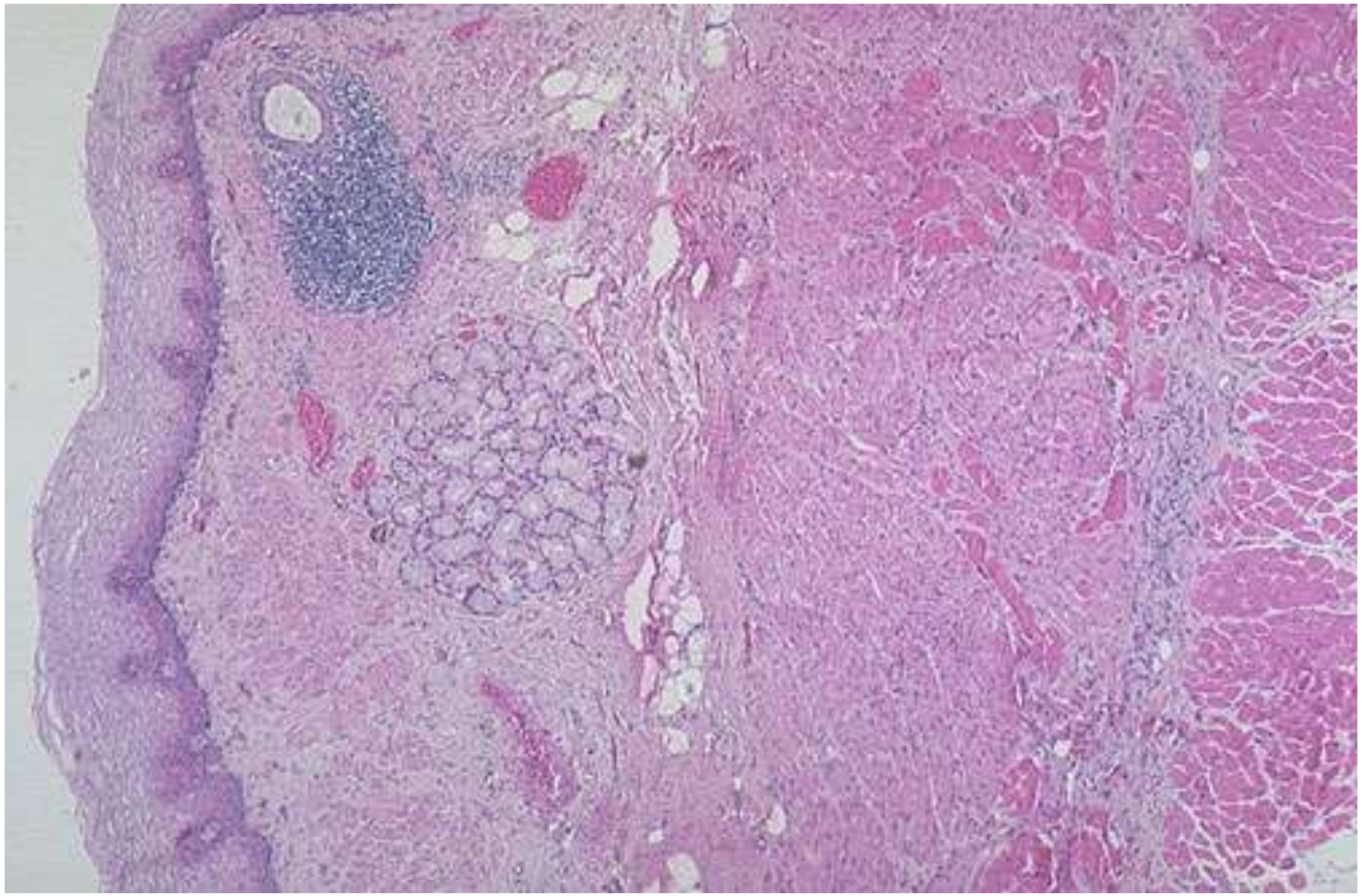
University of Jordan, School of medicine

Anatomy and histology:

Muscular tube extending from the epiglottis to the GEJ.

Lined by stratified squamous epithelium.





Diseases that affect the esophagus

- **1. Obstruction: mechanical or functional.**
- **2. Vascular diseases: varices.**
- **3. Inflammation: esophagitis.**
- 4. Tumors.

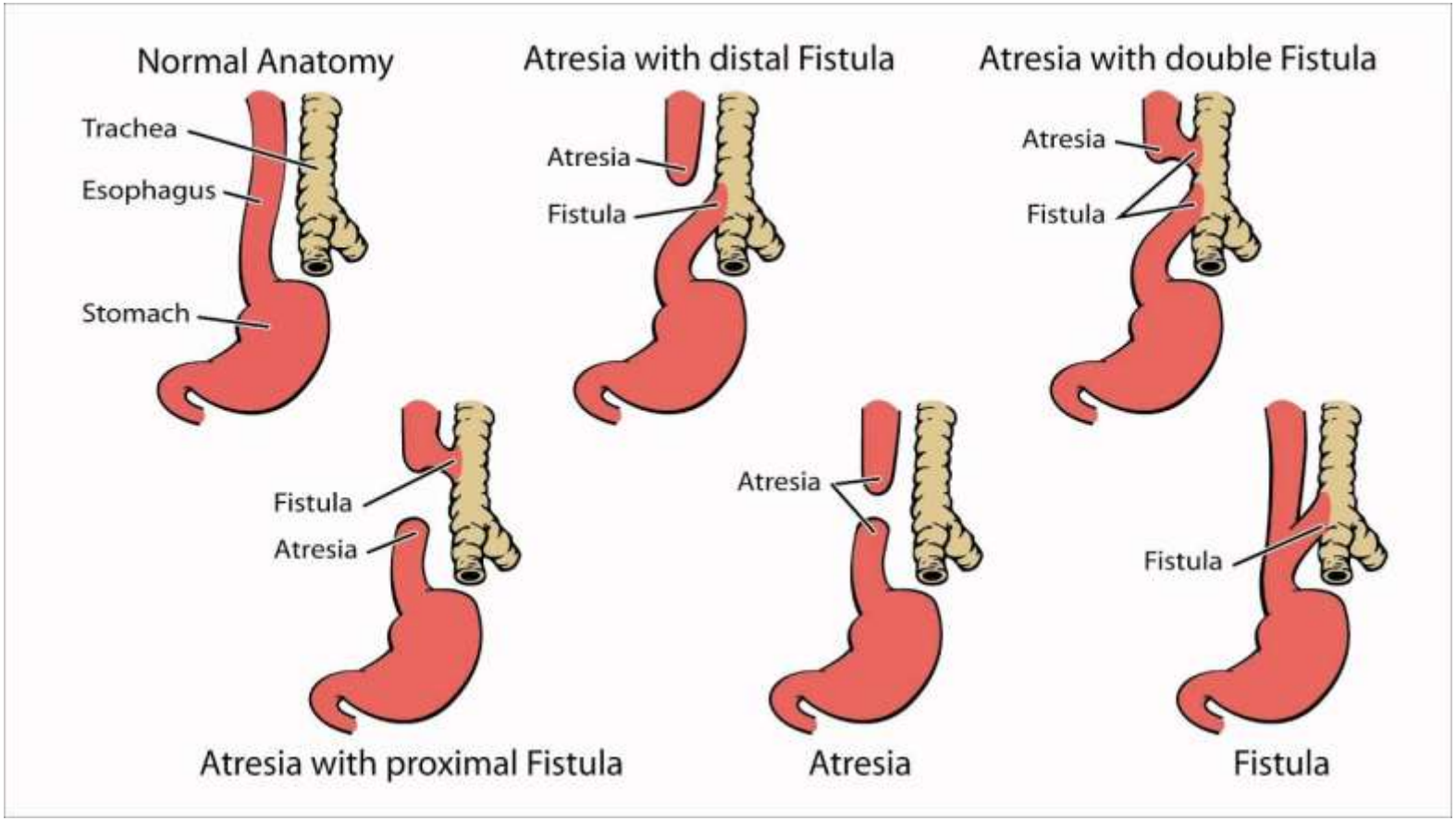
1-Mechanical Obstruction

- Congenital or acquired.

- Examples:
- Atresia
- Fistulas
- Duplications
- Agenesis (v rare)
- Stenosis.

Atresia

- Thin, non-canalized 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).


Normal Anatomy
Trachea
Esophagus
Stomach
Atresia with distal Fistula
Atresia
Fistula
Atresia with double Fistula
Atresia
Fistula
Fistula
Atresia
Atresia with proximal Fistula
Atresia
Atresia
Fistula
Fistula

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.
- Systemic sclerosis.
- Irradiation
- Ingestion of caustic agents

Clinical presentation

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

2-Functional Obstruction

Efficient delivery of food and fluids to the stomach requires coordinated waves of peristaltic contractions.

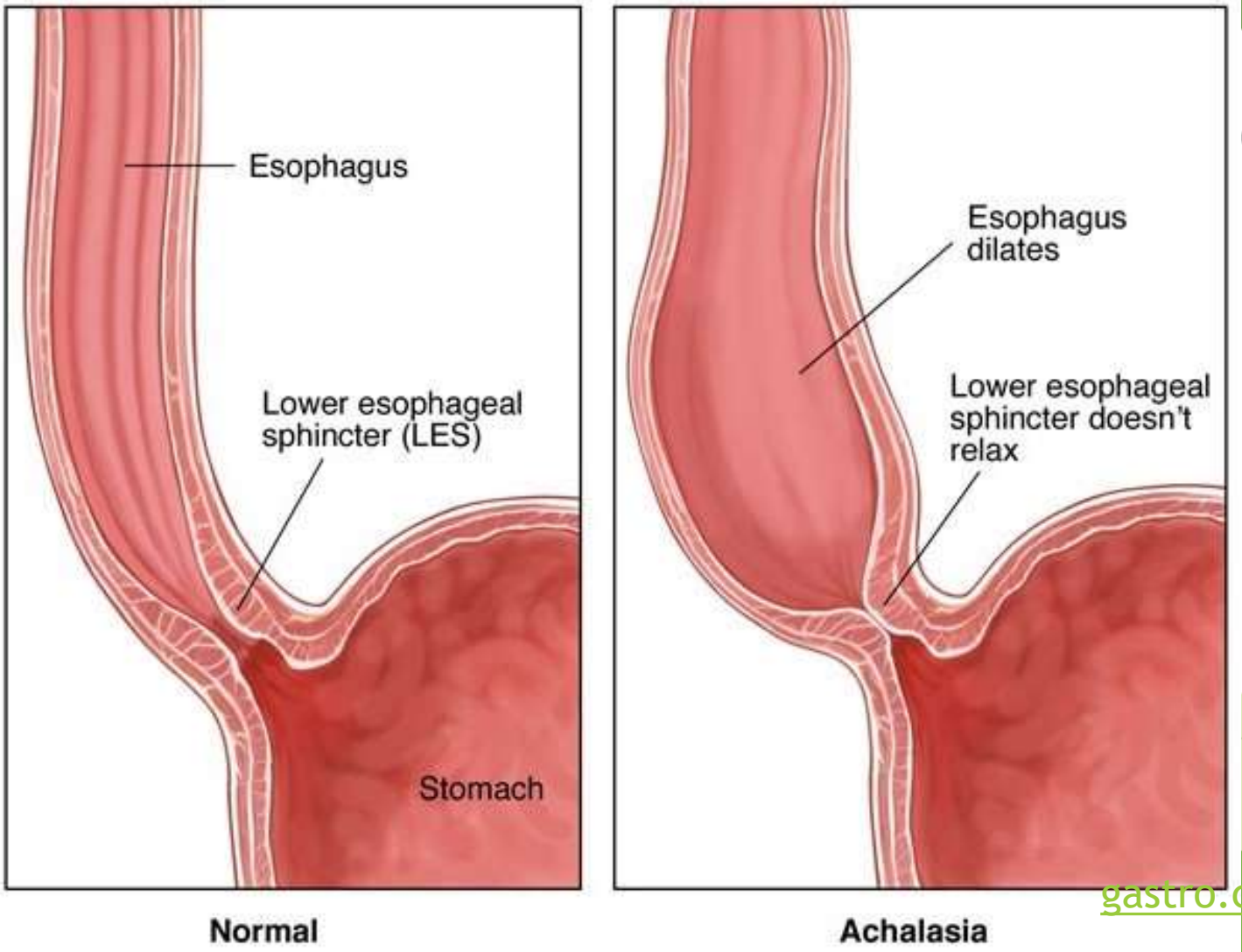
Esophageal dysmotility: discoordinated peristalsis or spasm of the muscularis.

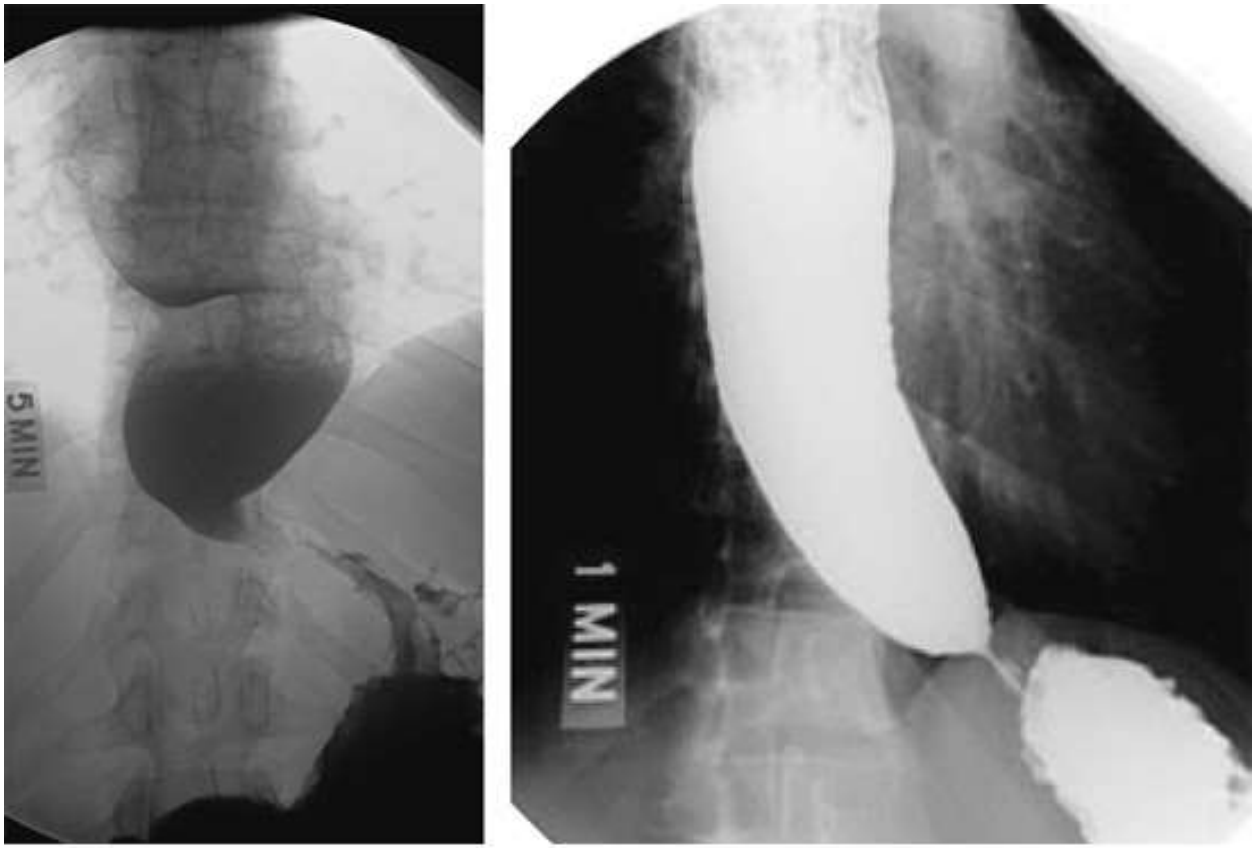
Achalasia: the most important cause.

Achalasia

- Triad:
- Incomplete LES relaxation
- Increased LES tone
- Esophageal aperistalsis.

- Primary >>>secondary.





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

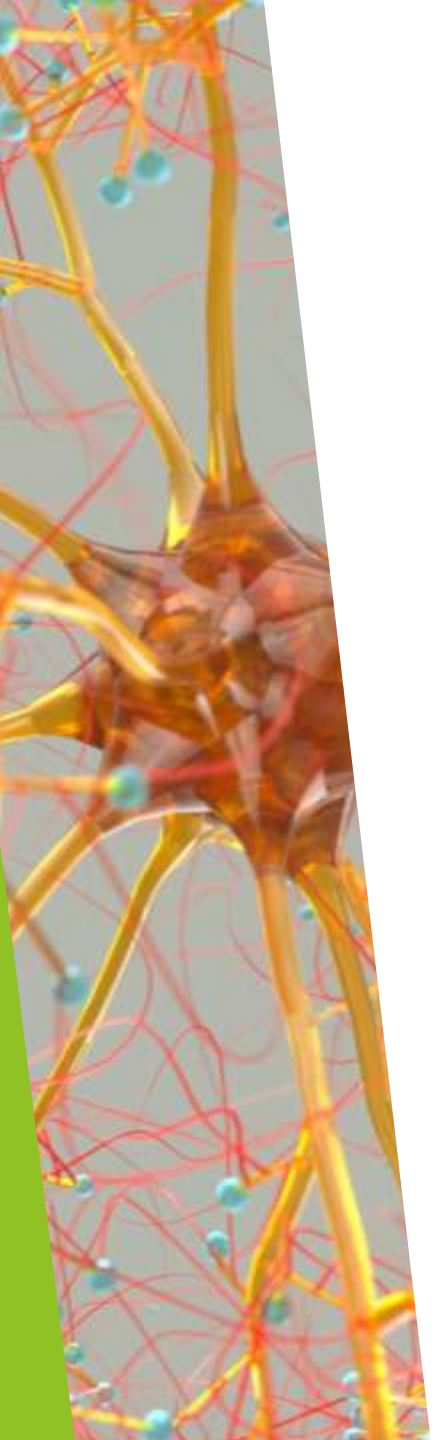
Primary achalasia

Degeneration of distal esophageal inhibitory neurons.

Idiopathic

Most common

Secondary achalasia



- Loss of neural innervation due to damage in:
- **Esophagus.**
- **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.

3-Vascular diseases: Esophageal Varices

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

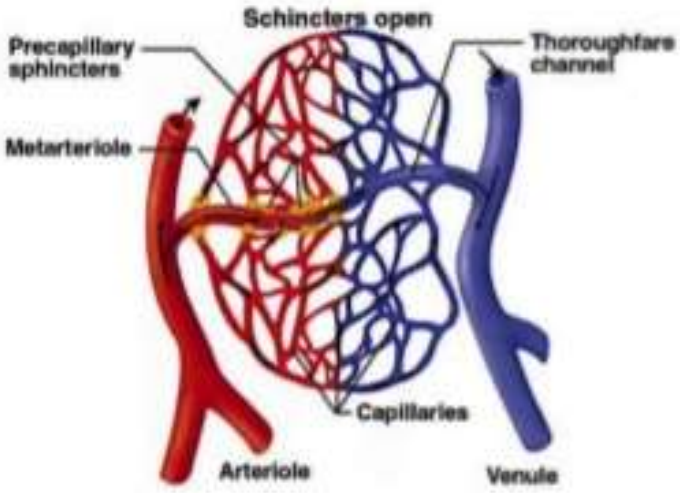
Medpics - UCSD School of Medicine

Pathogenesis:

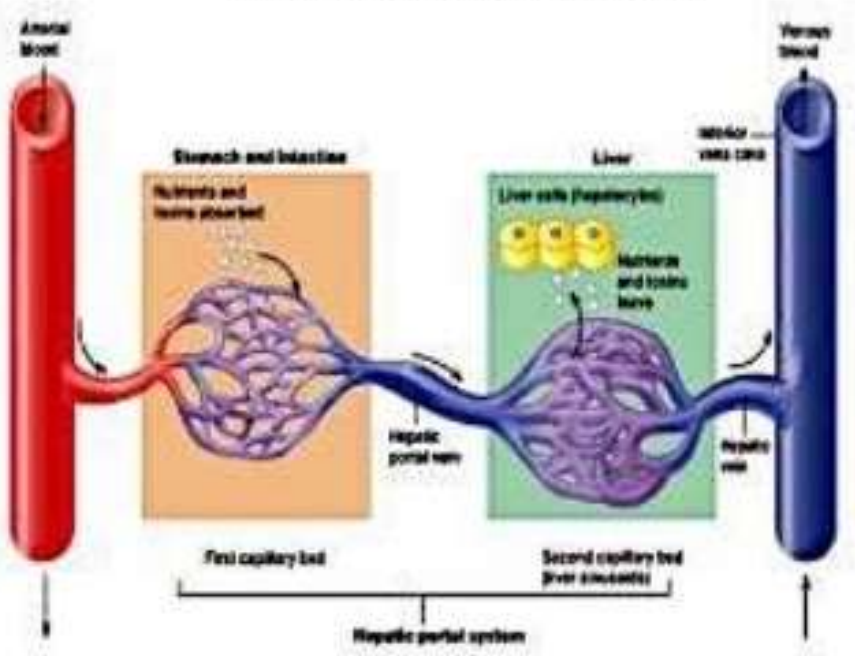
- **Portal circulation**: blood from GIT>>portal vein>>liver (detoxification)>>inferior vena cava.
- Diseases that impede portal blood flow >> portal hypertension >>esophageal varices.
- Distal esophagus : site of Porto-systemic anastomosis.
- **Portal hypertension**>>collateral channels in distal esophagus>>shunt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

Portal system

Usual circulation



Portal circulation



https://www.slideshare.net/rongon28us/hepatic-portal-vein-and-portocaval-anatomosis

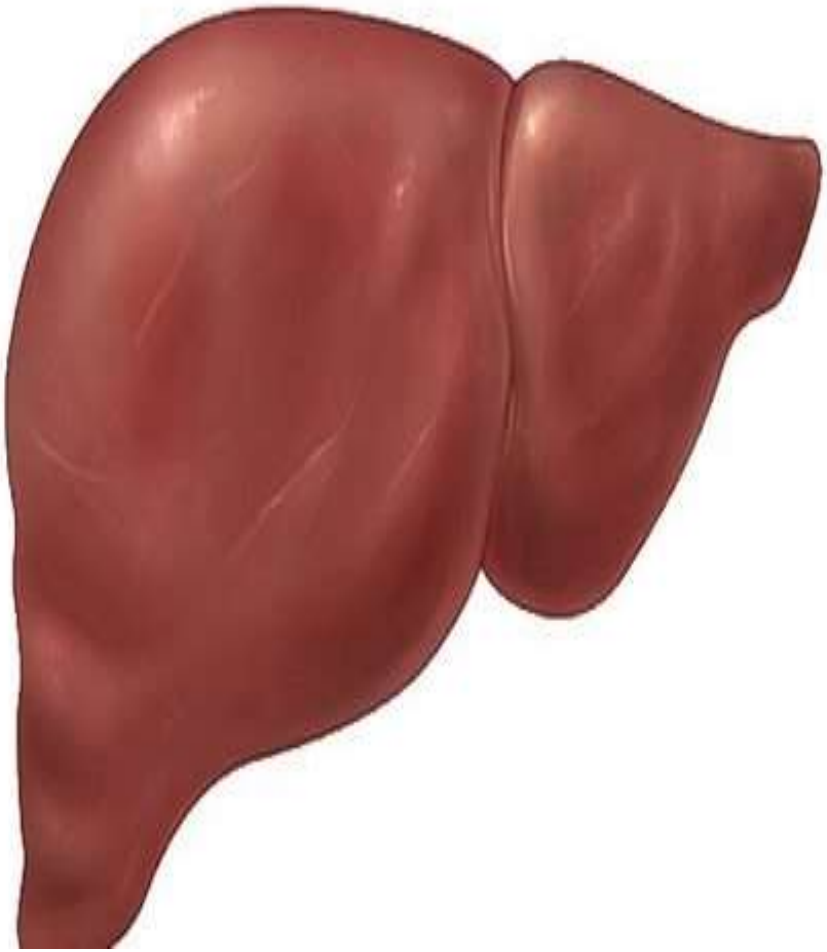
Causes of portal hypertension

- Cirrhosis is most common

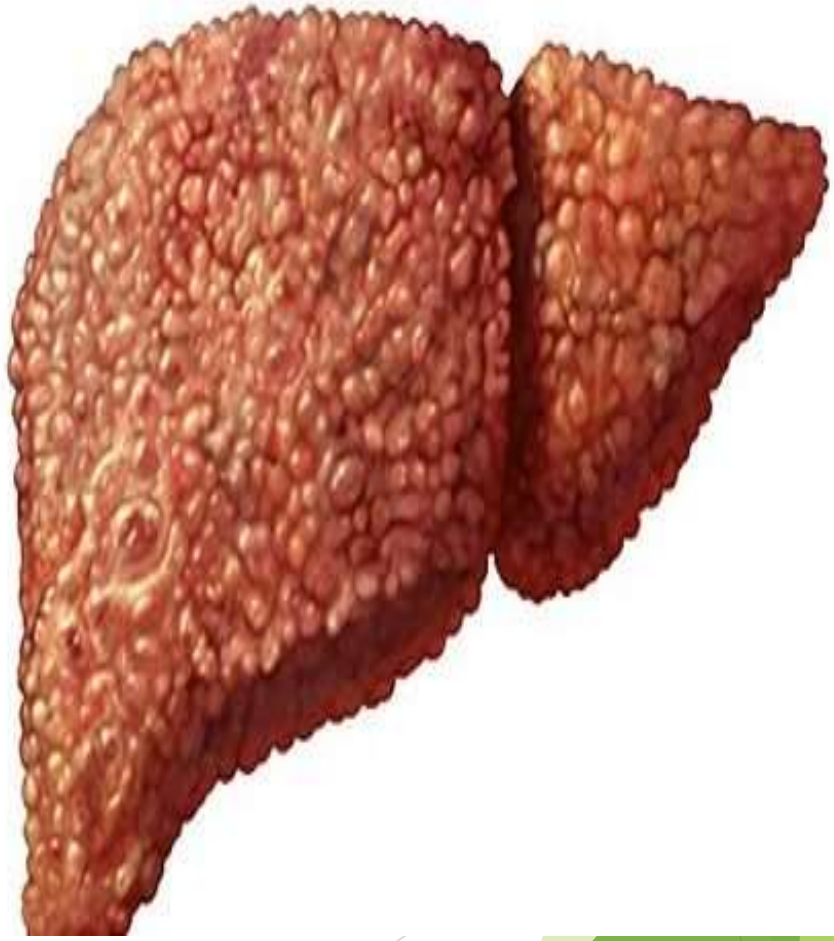
  Alcoholic liver disease.

- Hepatic schistosomiasis 2nd most common worldwide.

Normal Liver



Liver with Cirrhosis



http://www.researchintoasthma.com/7-random-facts-about-liver-cirrhosis.html

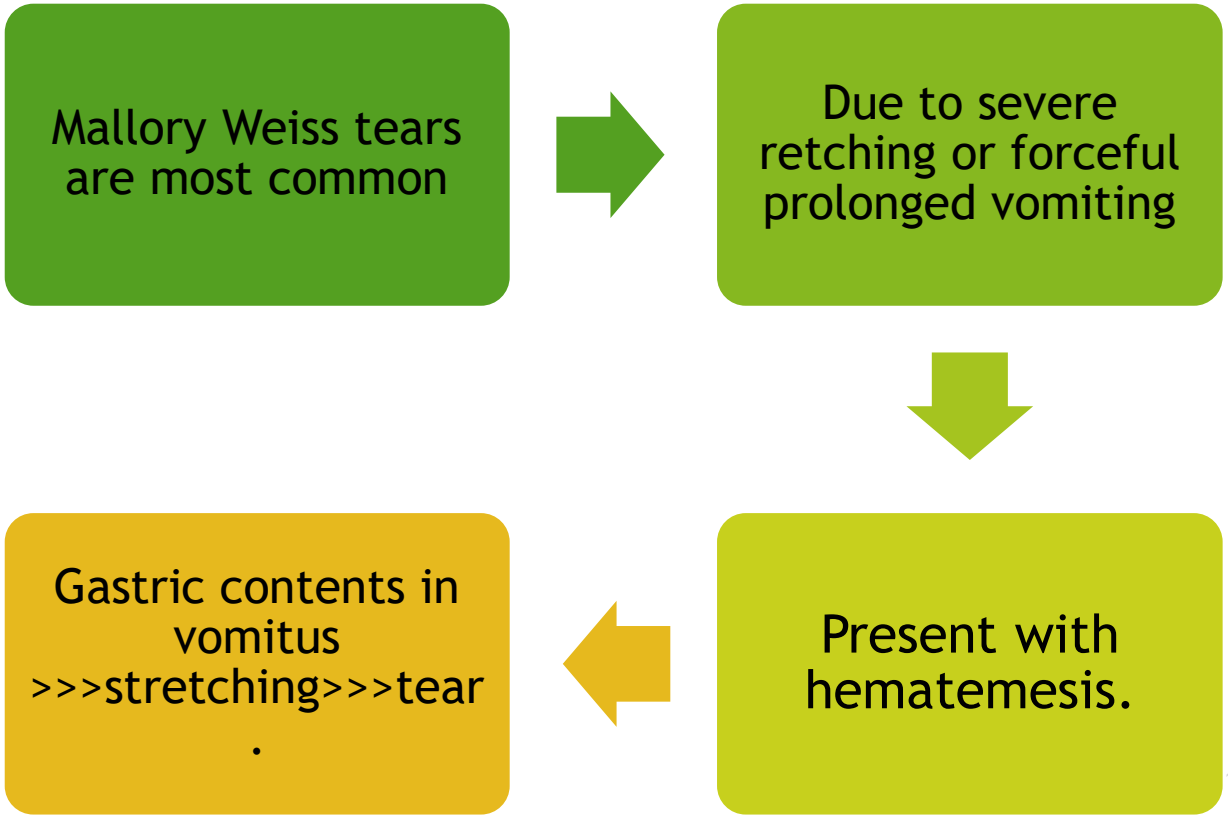
Clinical Features

- Often asymptomatic.
- Rupture leads to massive hematemesis and death.
- 20% of patients die from the first bleed despite interventions.
- Death due to hemorrhage, hepatic come, and hypovolemic shock
- Rebleeding in 60%.

4-ESOPHAGITIS

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

Esophageal Lacerations



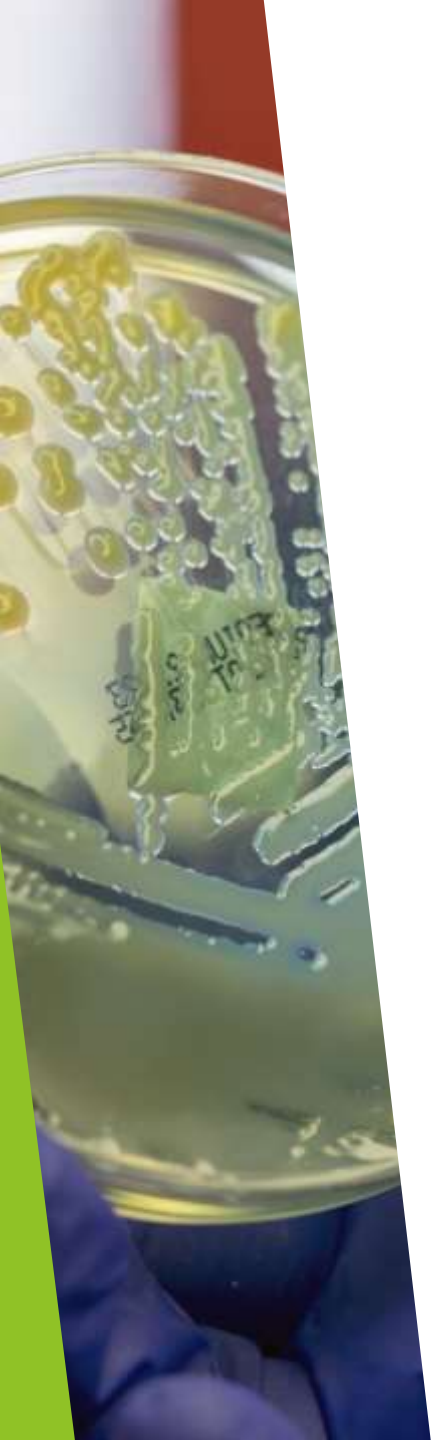
- Linear lacerations
- longitudinally oriented
- Cross the GEJ.
- Superficial
- Heal quickly , no surgical intervention

Chemical Esophagitis

- **Damage to esophageal mucosa by irritants**
- Alcohol,
- Corrosive acids or alkalis
- Excessively hot fluids
- Heavy smoking
- Medicinal pills (doxycycline and bisphosphonates)
- Iatragenic (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



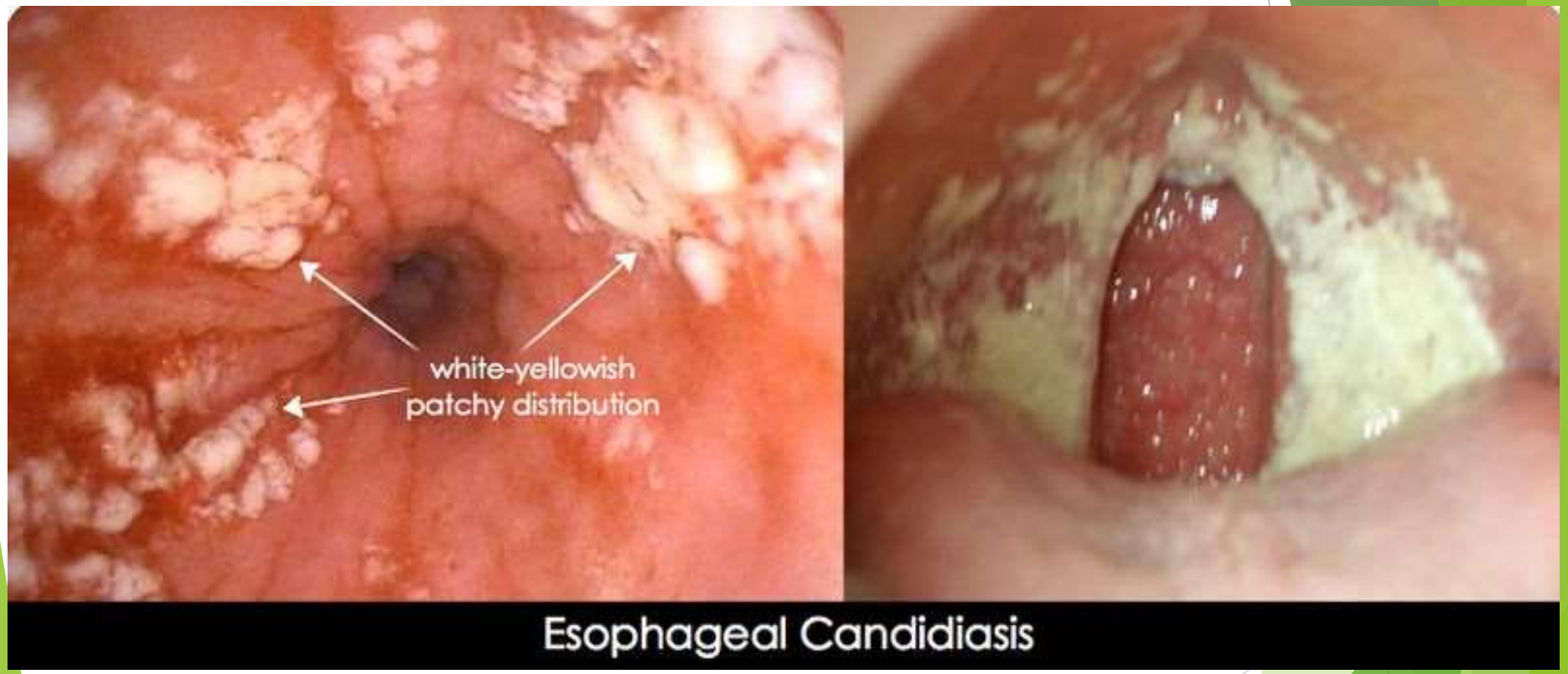
Infectious esophagitis

- Mostly in debilitated or immunosuppressed.

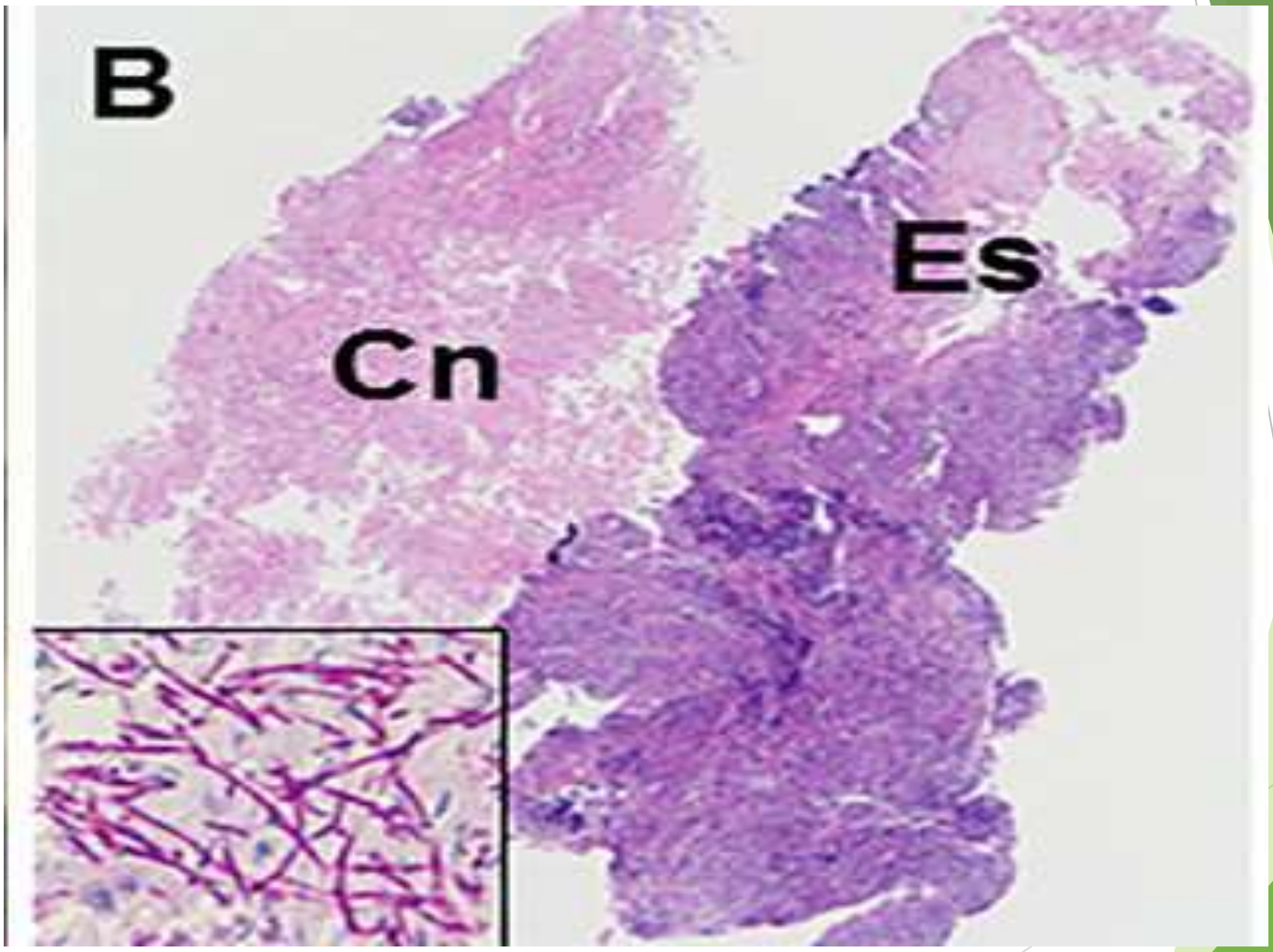
- Viral (HSV, CMV)
- Fungal (candida >>> mucormycosis & aspergillosis)
- Bacterial: 10%.

- Candidiasis :

- Adherent.
- Gray-white pseudo membranes
- Composed of matted fungal hyphae and inflammatory cells



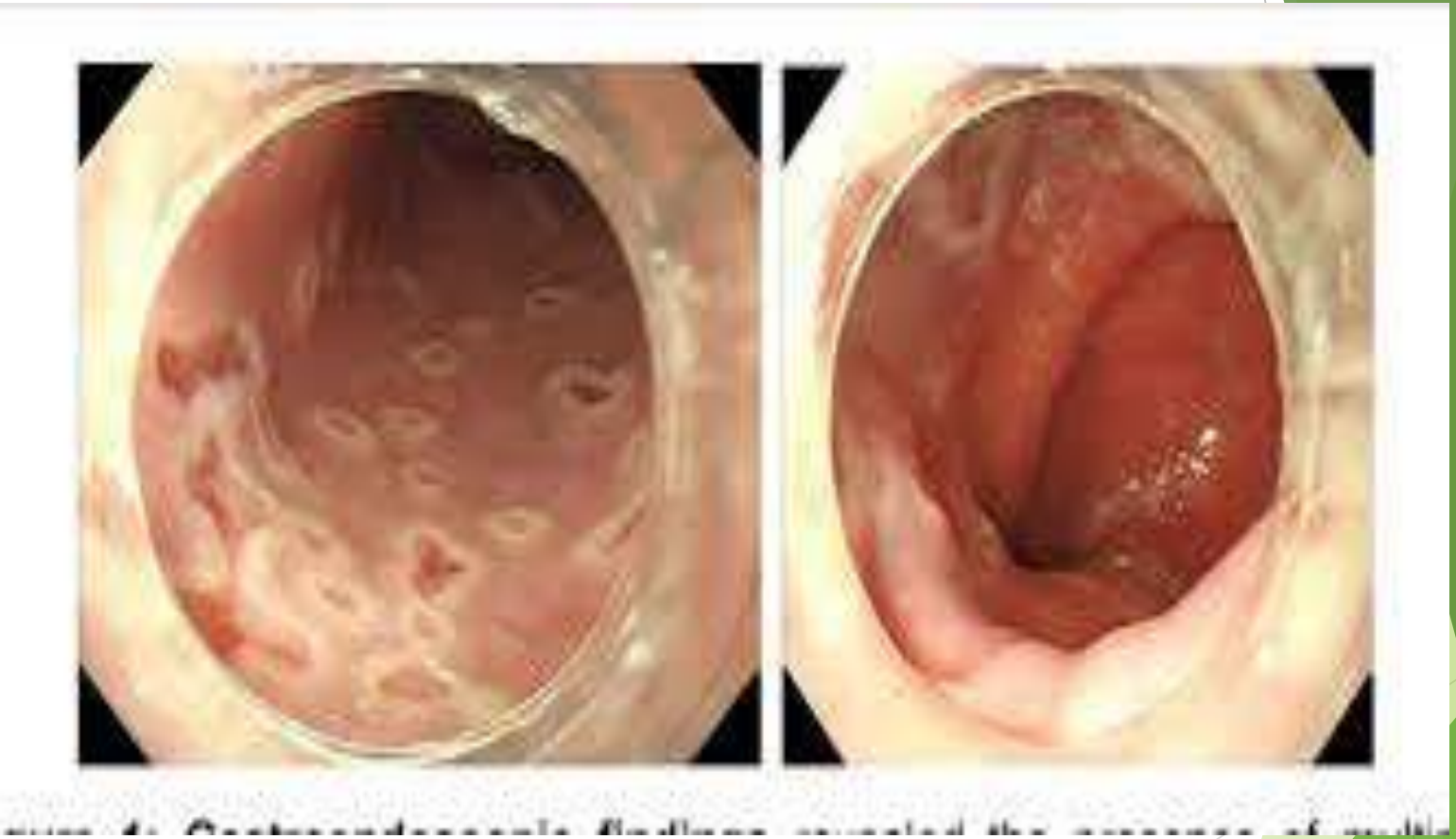
https://www.pinterest.com/pin/374291419013418659/



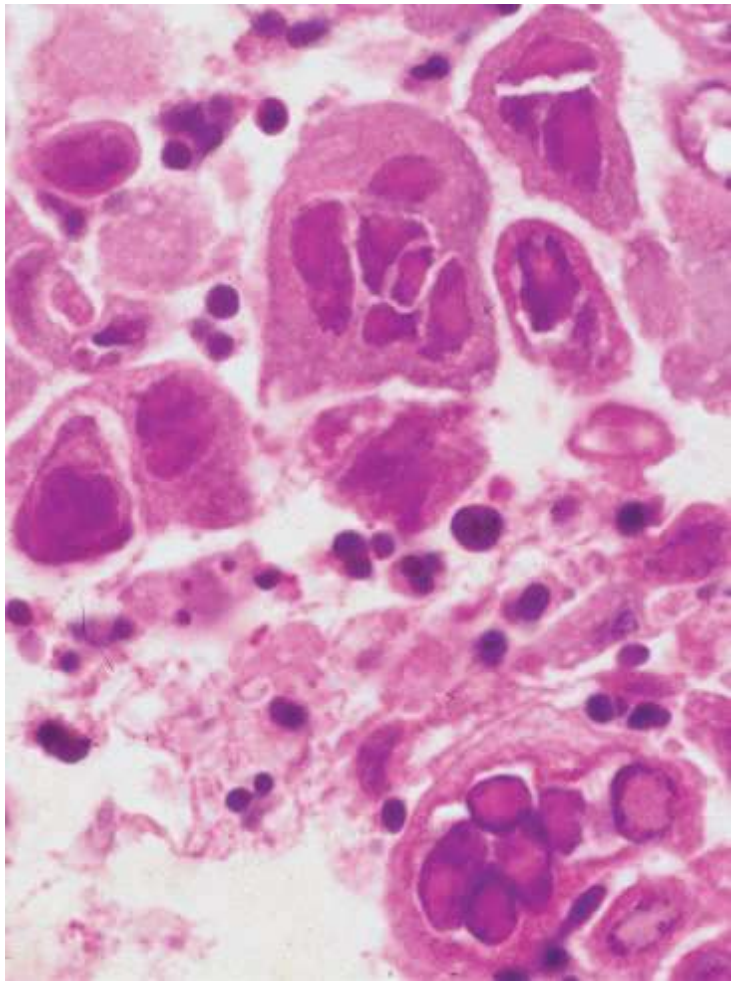
www.researchgate.net/publication/285369734_Esophageal_Candidiasis_as_the_Initial_Manifestation_of_Acute_Myeloid_Leukemia

- Herpes viruses
- Punched-out ulcers

- Histopathologic:
- Nuclear viral inclusions
- Degenerating epithelial cells ulcer edge
- Multinucleated epithelial cells.

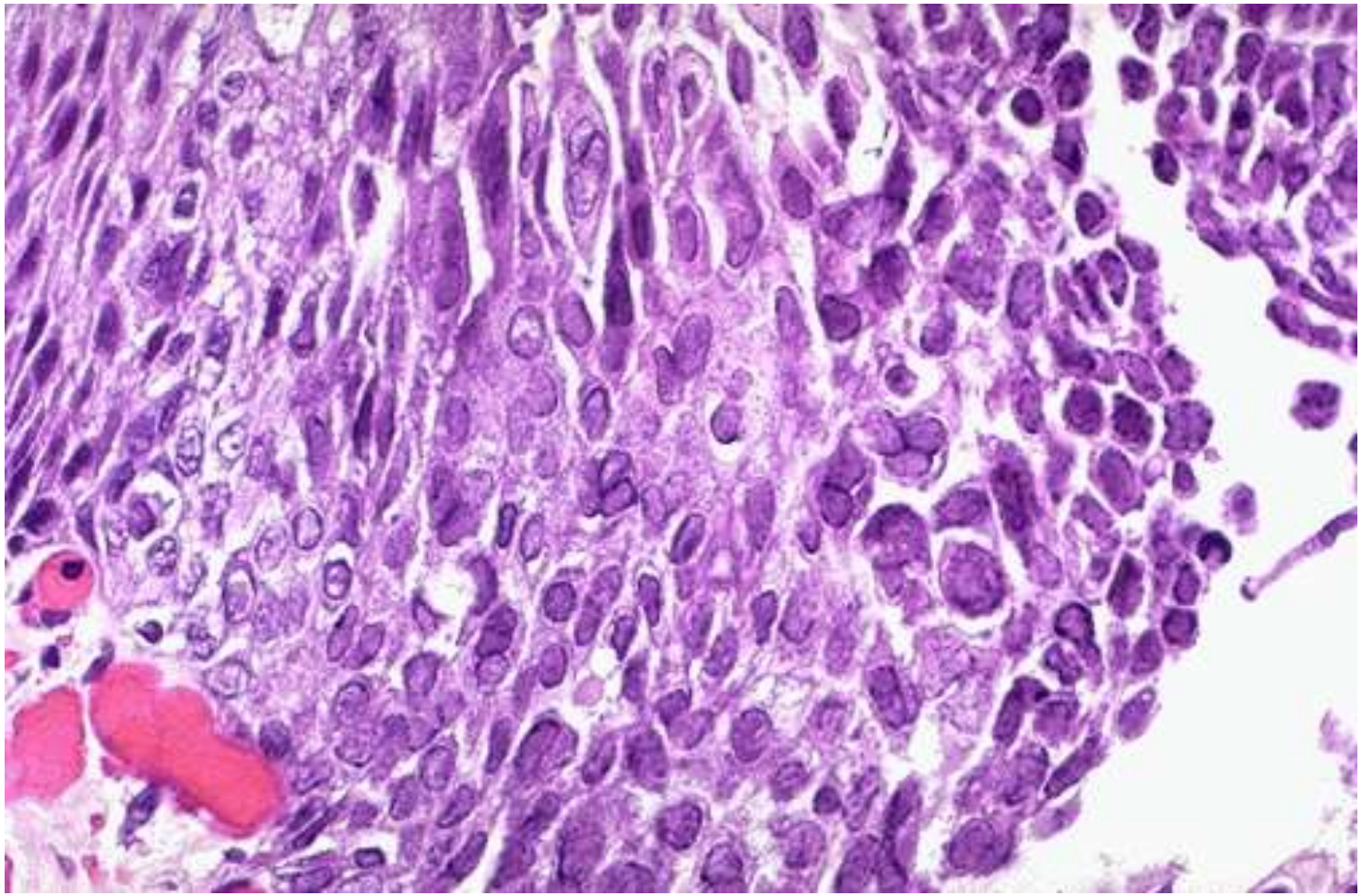


Semantic Scholar

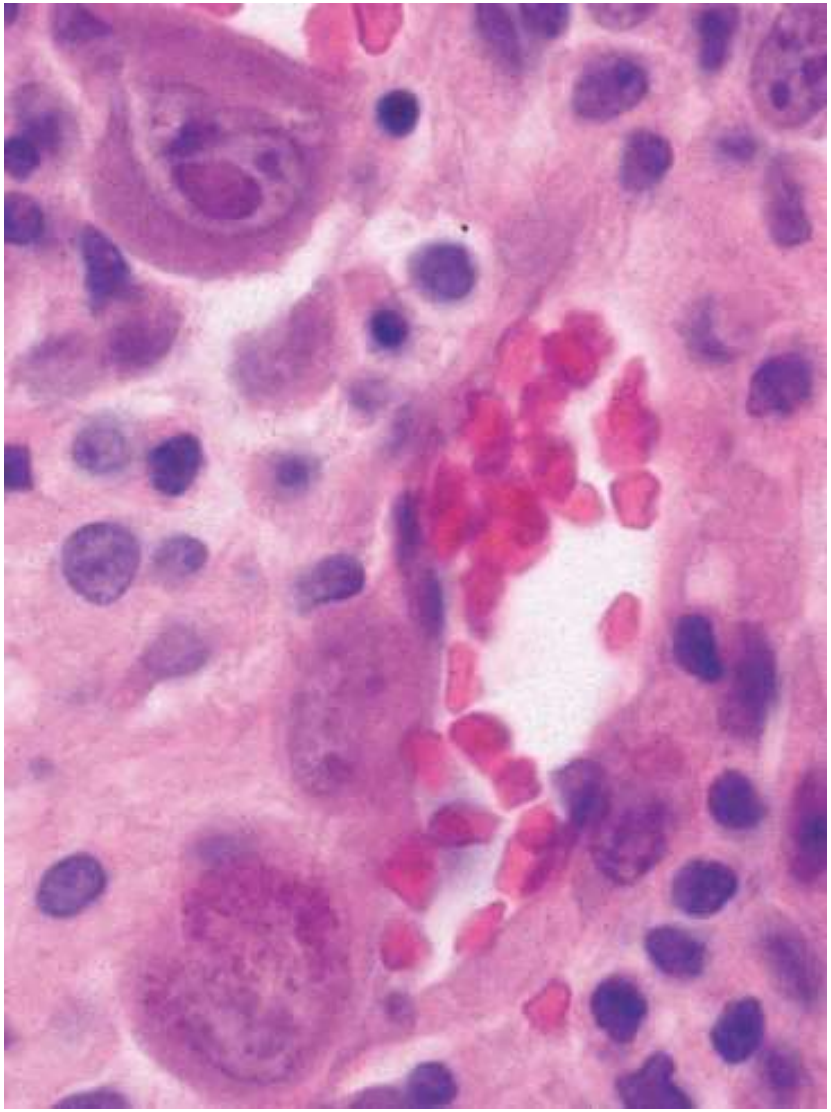


Robbins Basic Pathology

10th edition



- CMV :
- Shallower ulcerations.
- Biopsy: nuclear and cytoplasmic inclusions in capillary endothelium and stromal cells.(Mega cells)



Robbins Basic Pathology 10th edition