

Diseases of the esophagus-1

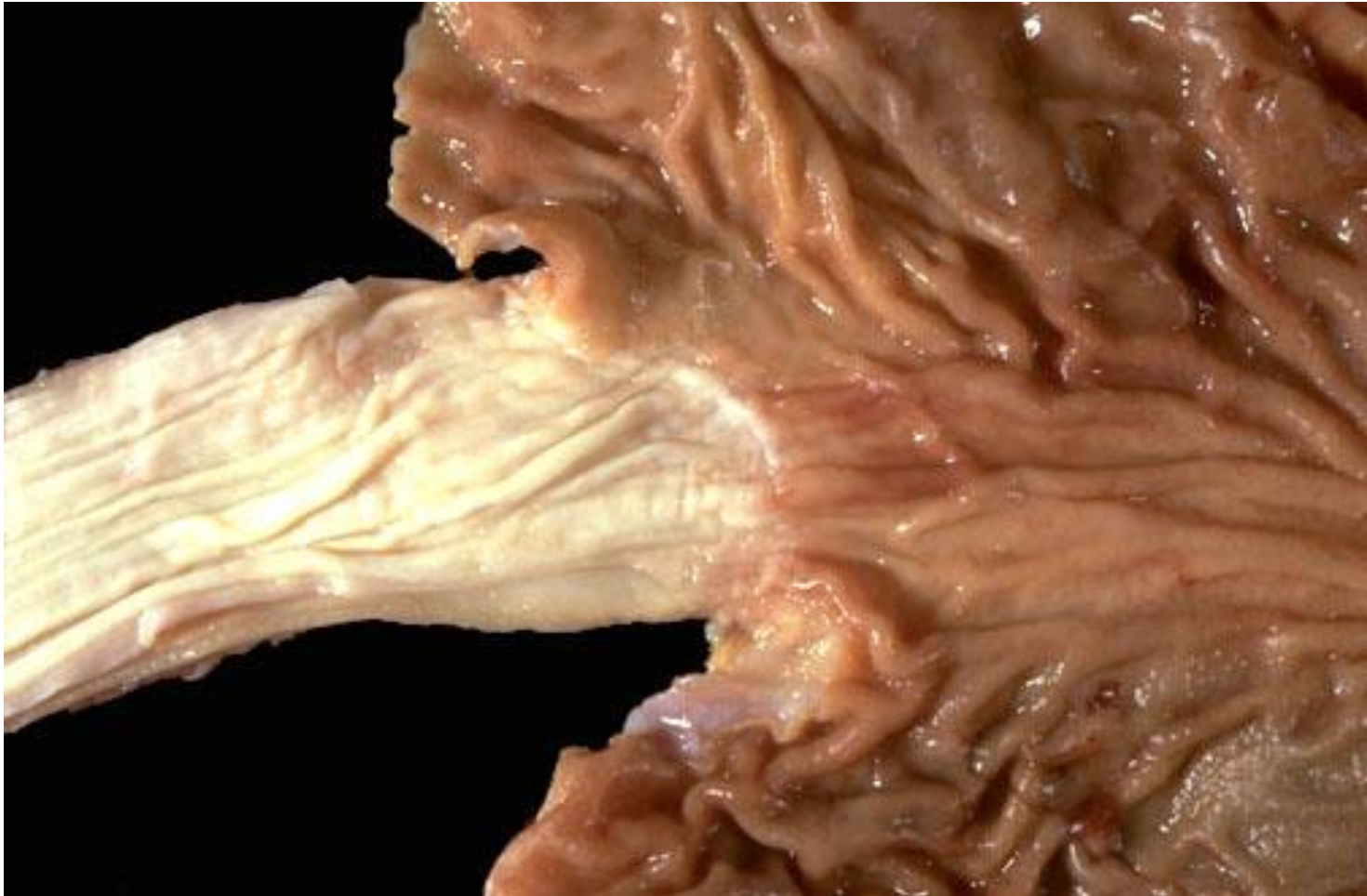
Manar Hajeer, MD, FRCPath

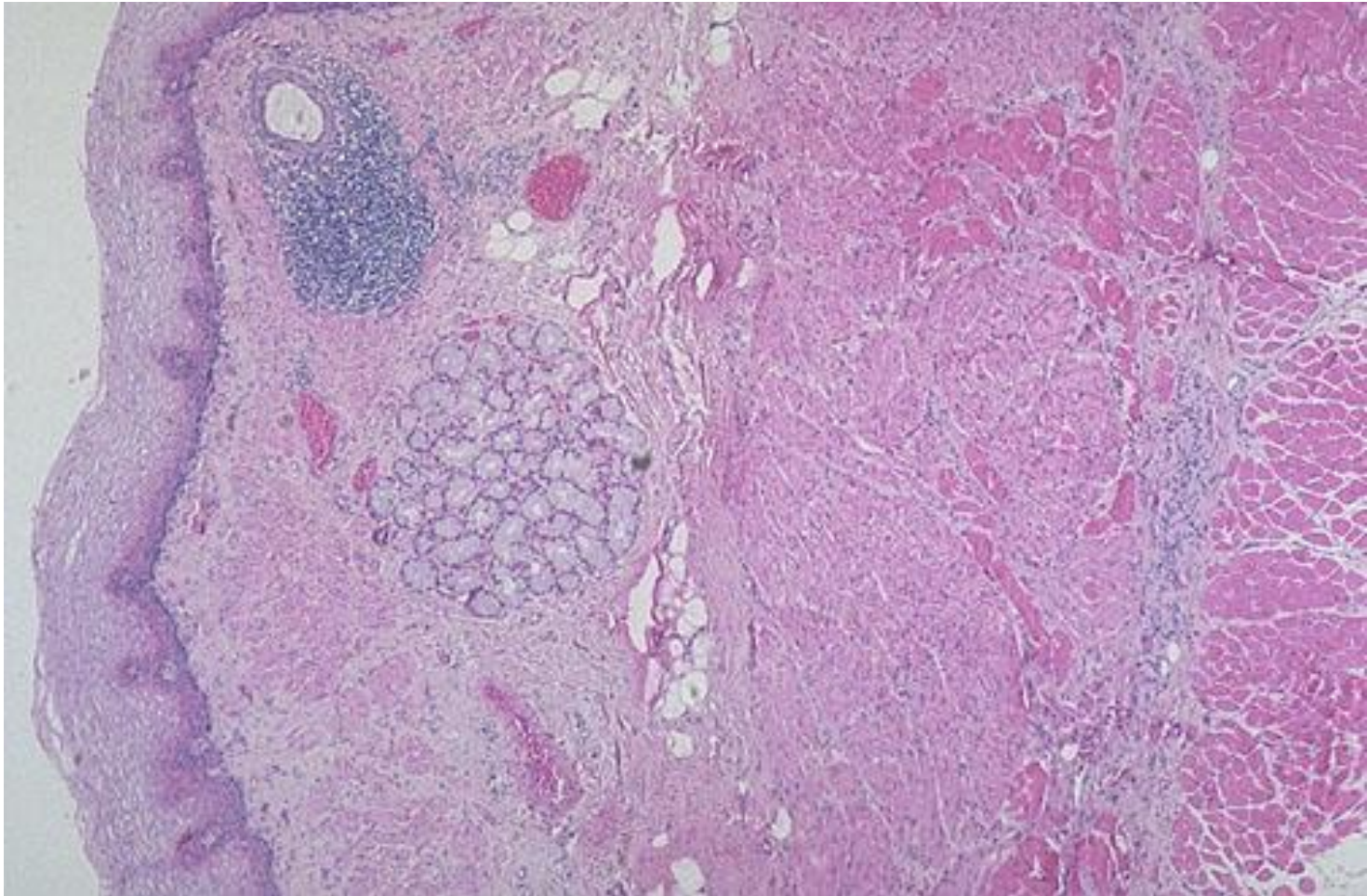
University of Jordan, School of medicine

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.

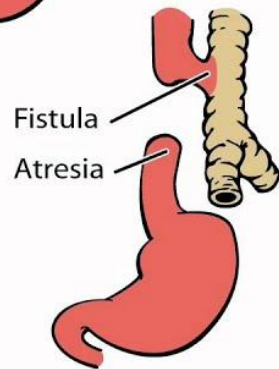
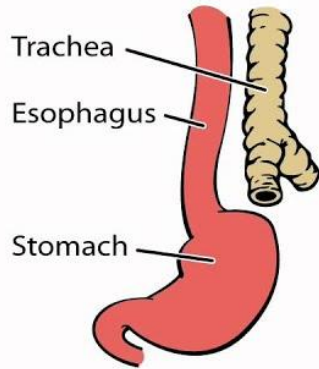
1-Mechanical Obstruction

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

Atresia

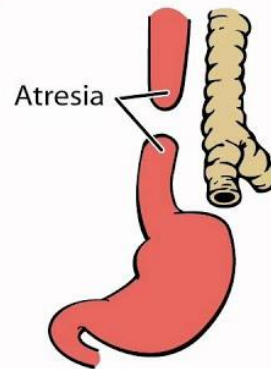
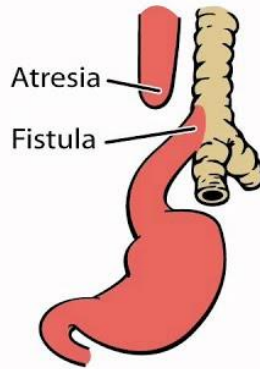
- ▶ Thin, non-canalized cord replaces a segment of esophagus.
- ▶ Most common location: at or near the tracheal bifurcation
- ▶ +- fistula (upper or lower esophageal pouches to a bronchus or trachea).

Normal Anatomy



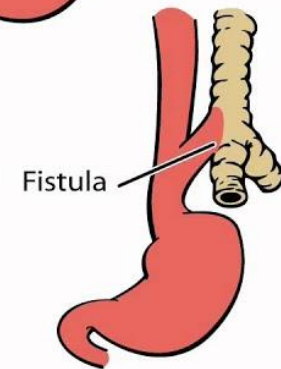
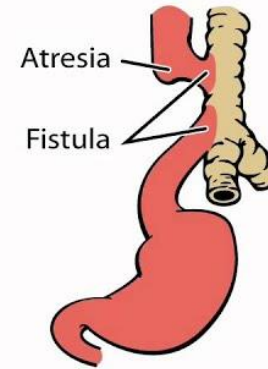
Atresia with proximal Fistula

Atresia with distal Fistula



Atresia

Atresia with double 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: disordinated peristalsis or spasm of the muscularis.

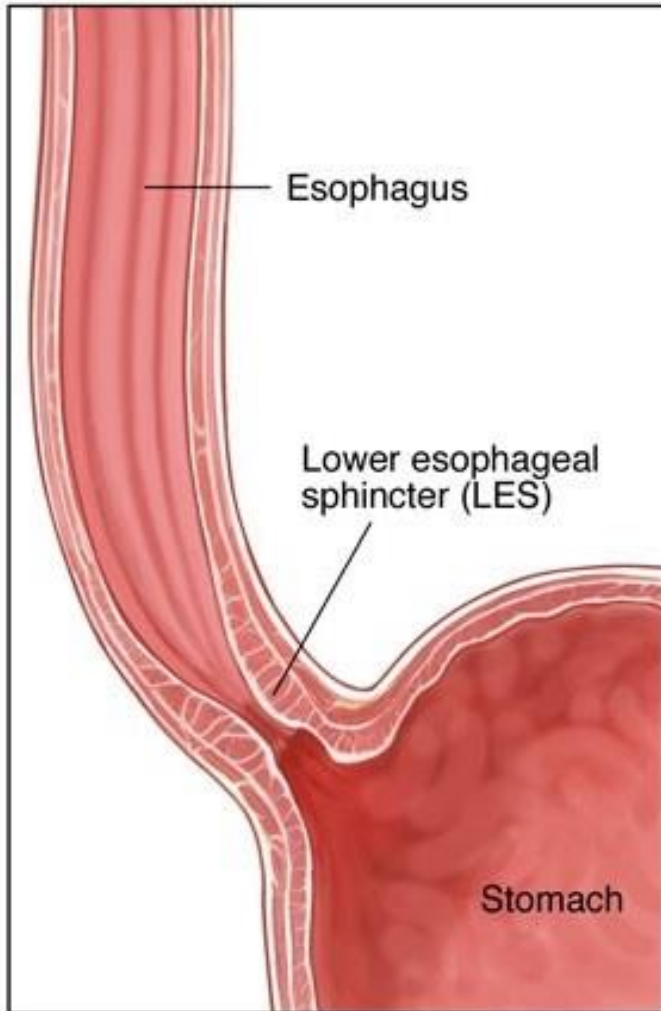


Achalasia: the most important cause.

Achalasia

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

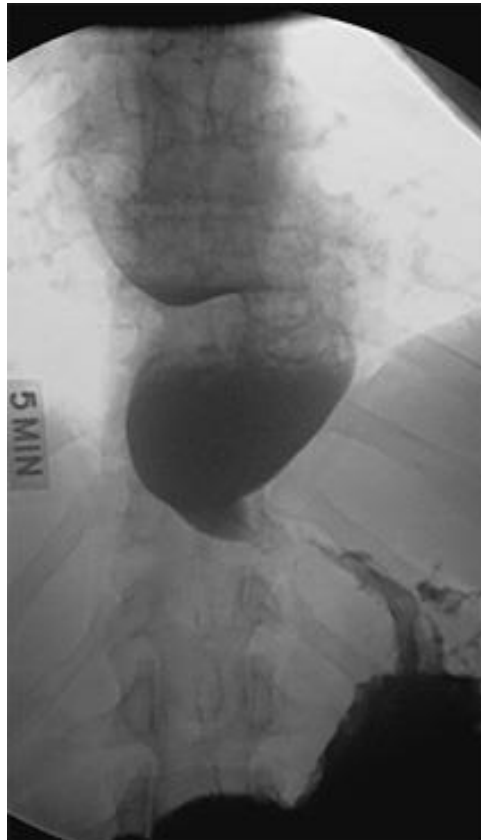
- ▶ Primary >>>secondary.



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

Copyright © The McGraw-Hill Companies, Inc. All rights reserved.

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.

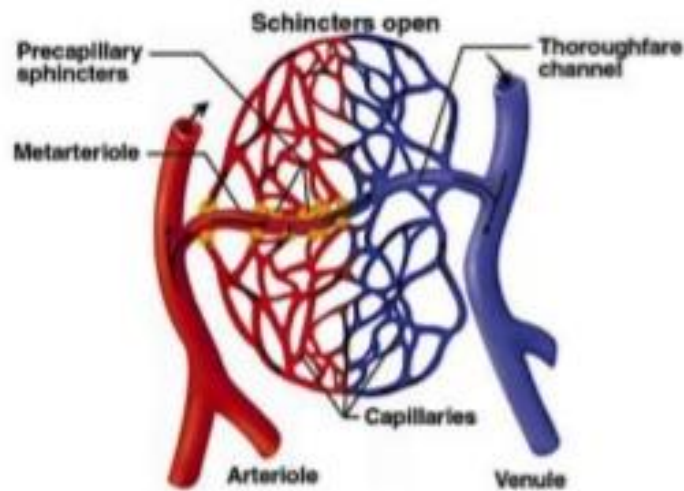


Pathogenesis:

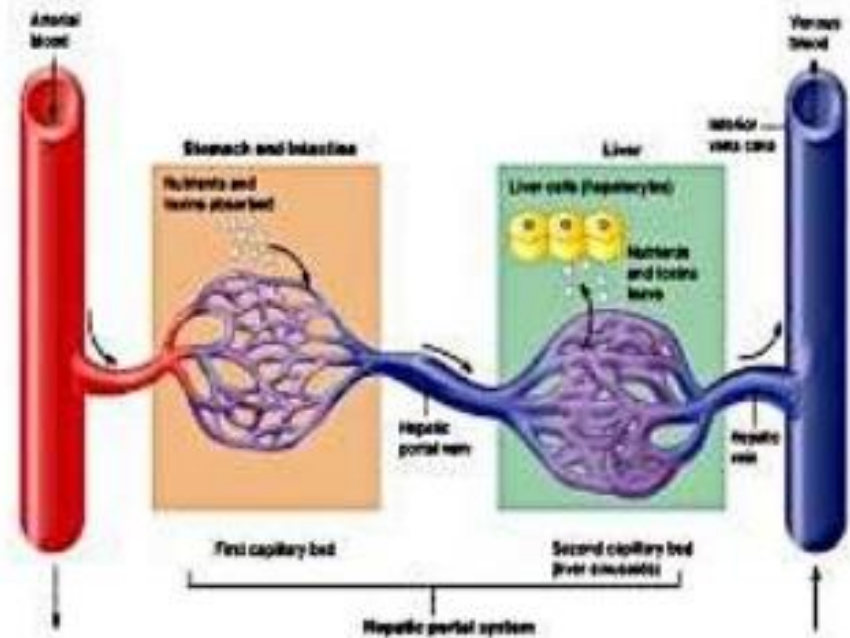
- ▶ **Portal circulation:** blood from GIT>>portal vein>>liver (detoxification)>>inferior vena cava.
- ▶ Diseases that impede portal blood flow >> portal hypertension >>esophageal varices.
- ▶ Distal esophagus : site of Porto-systemic anastomosis.
- ▶ **Portal hypertension**>>collateral channels in distal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

Portal system

Usual circulation



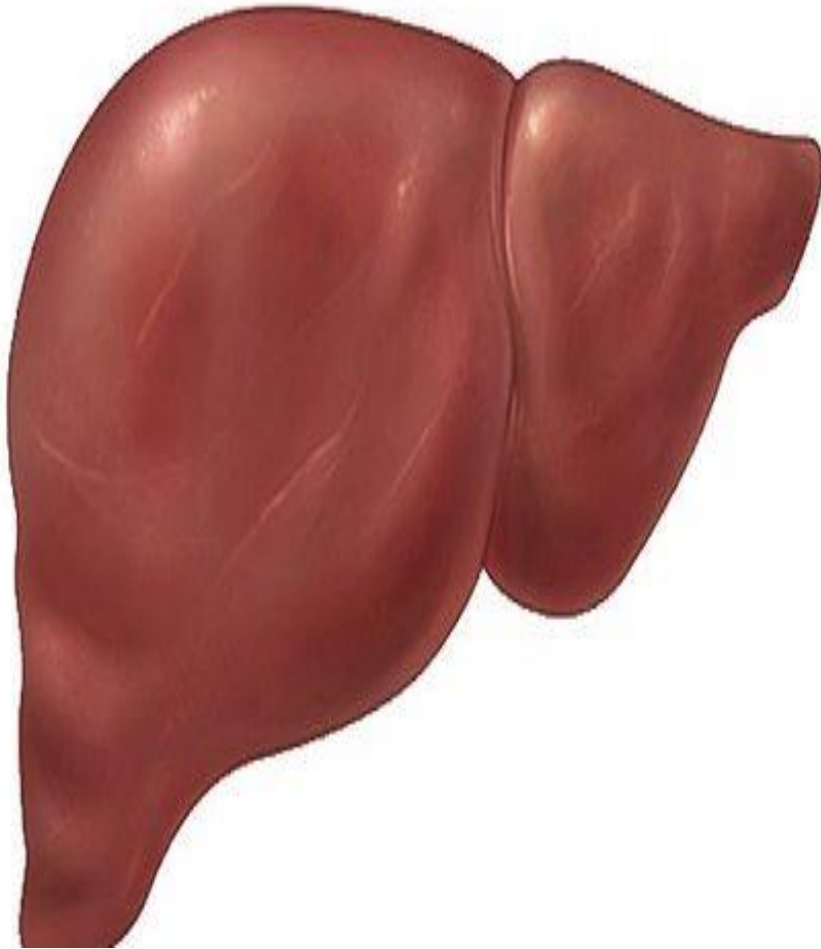
Portal circulation



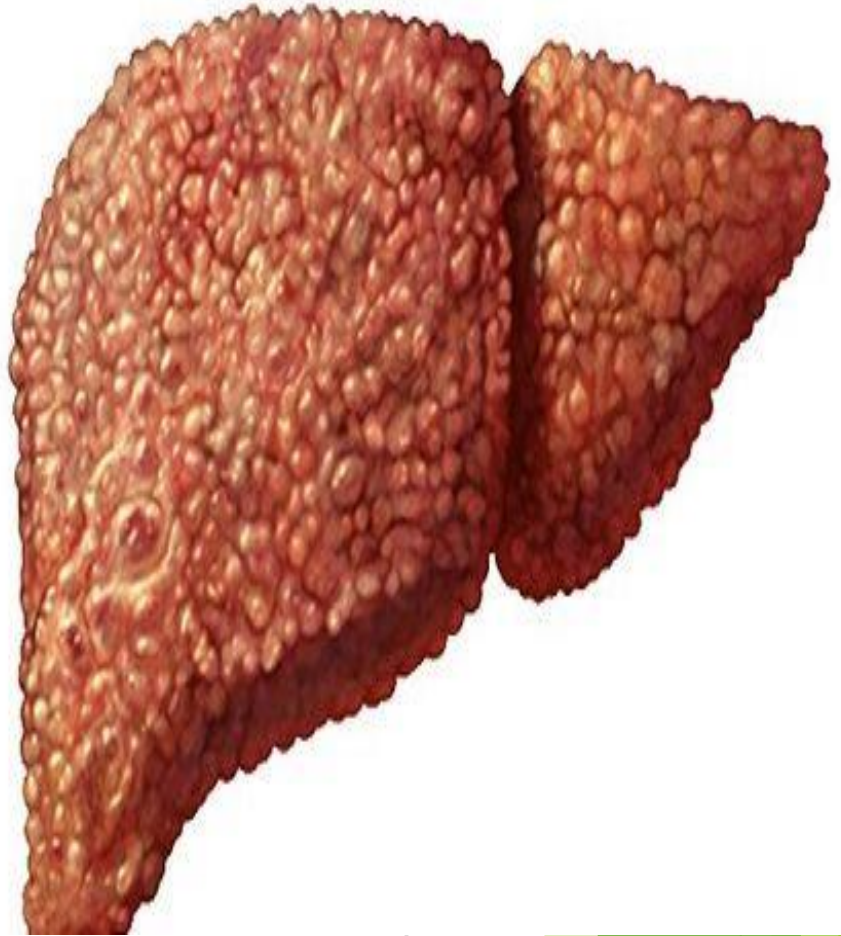
Causes of portal hypertension

- ▶ Cirrhosis is most common
Alcoholic liver disease.
- ▶ Hepatic schistosomiasis 2nd most
common worldwide.

Normal Liver



Liver with Cirrhosis



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 coma, and hypovolemic shock

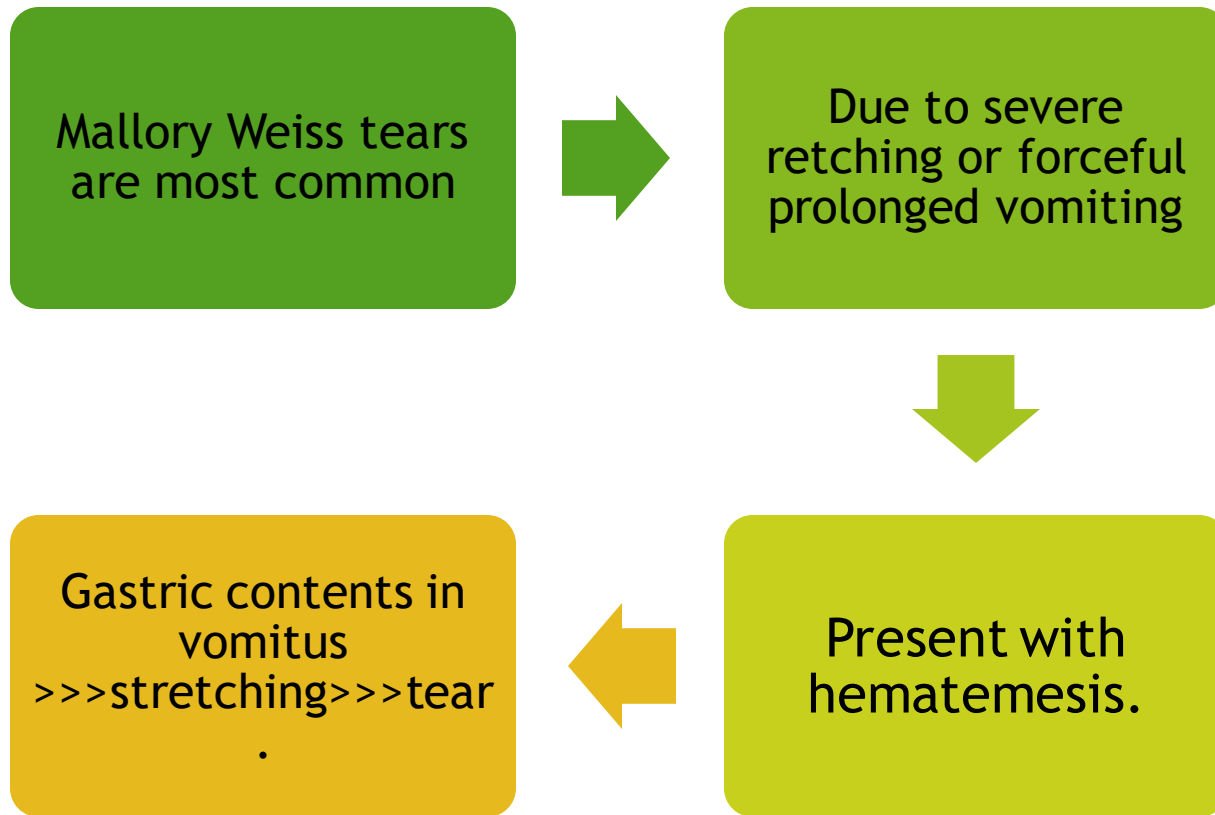


Rebleeding in 60%.

4-ESOPHAGITIS

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

Esophageal Lacerations



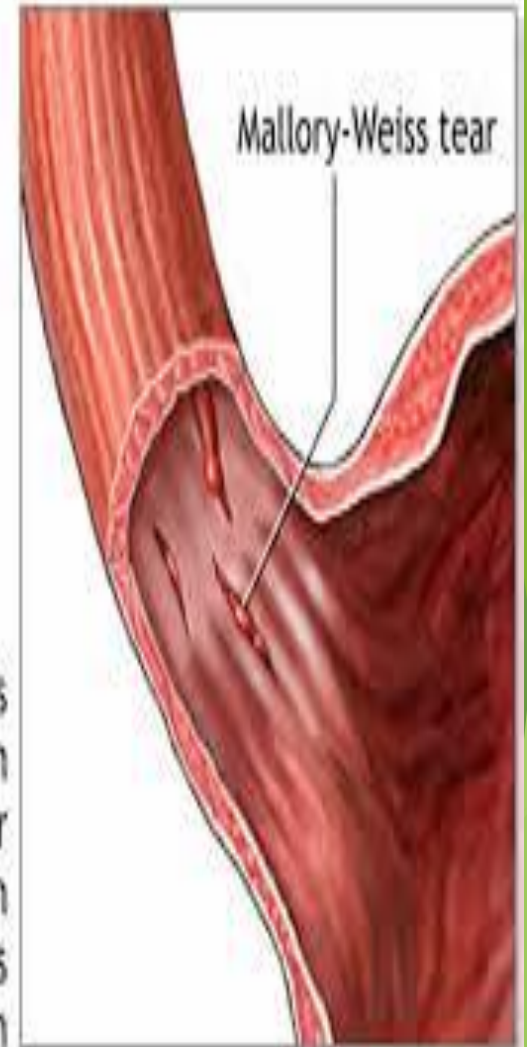
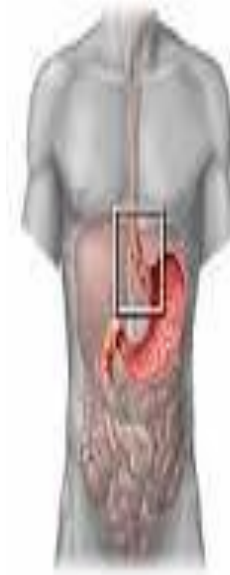
Linear lacerations

longitudinally oriented

Cross the GEJ.

Superficial

Heal quickly , no surgical intervention



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

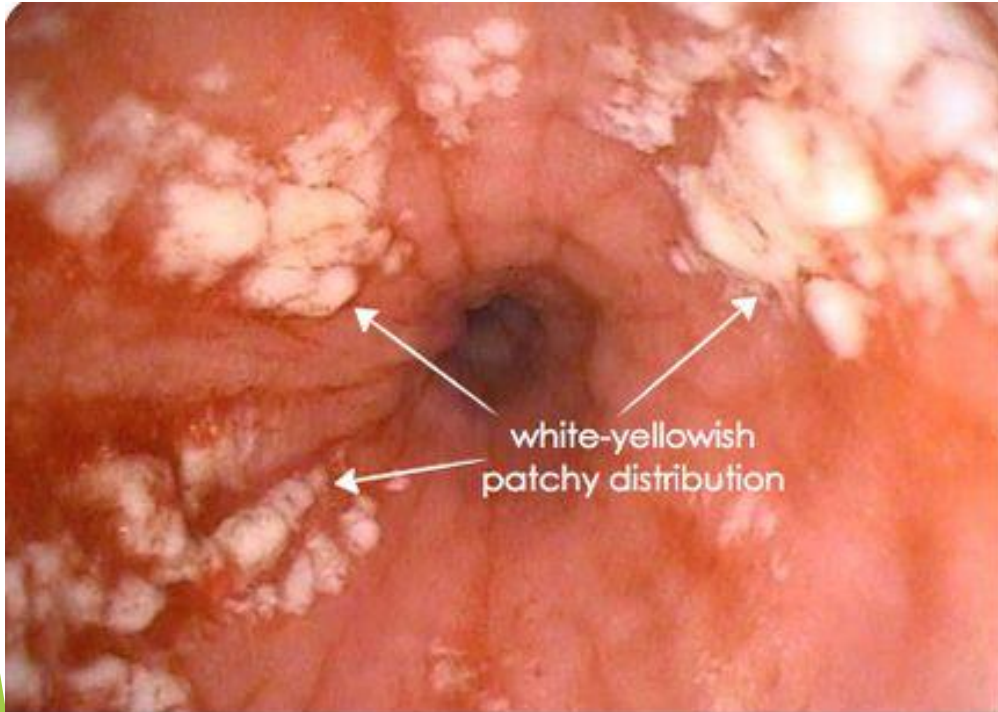
- ▶ Ulceration and acute inflammation.
- ▶ Only self-limited pain, odynophagia (pain with swallowing).
- ▶ Hemorrhage, stricture, or perforation in severe cases

Infectious esophagitis

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

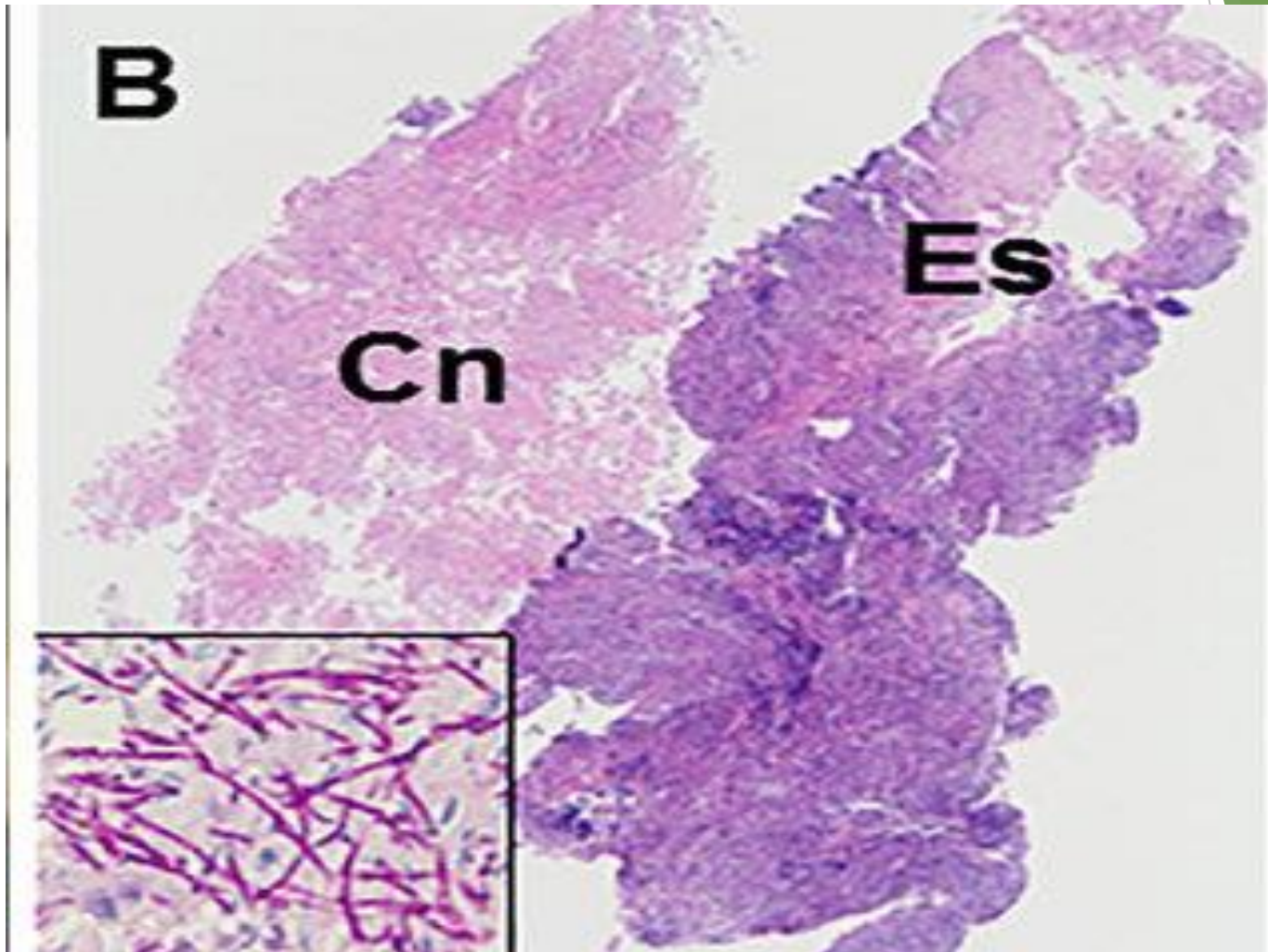


- ▶ **Candidiasis :**
- ▶ Adherent.
- ▶ Gray-white pseudo membranes
- ▶ Composed of matted fungal hyphae and inflammatory cells



Esophageal Candidiasis

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

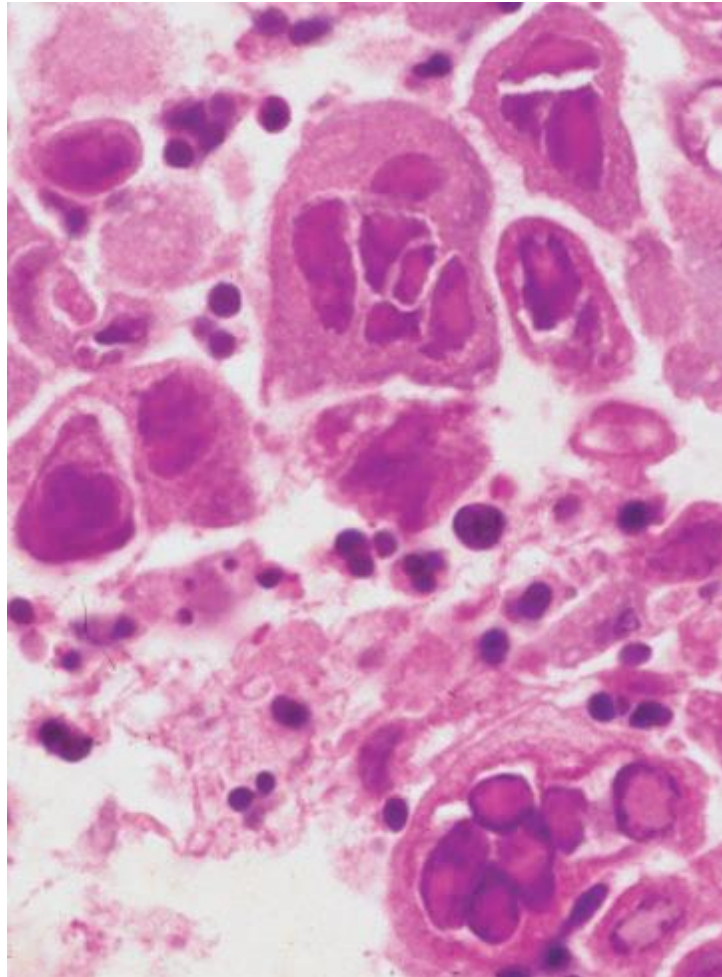


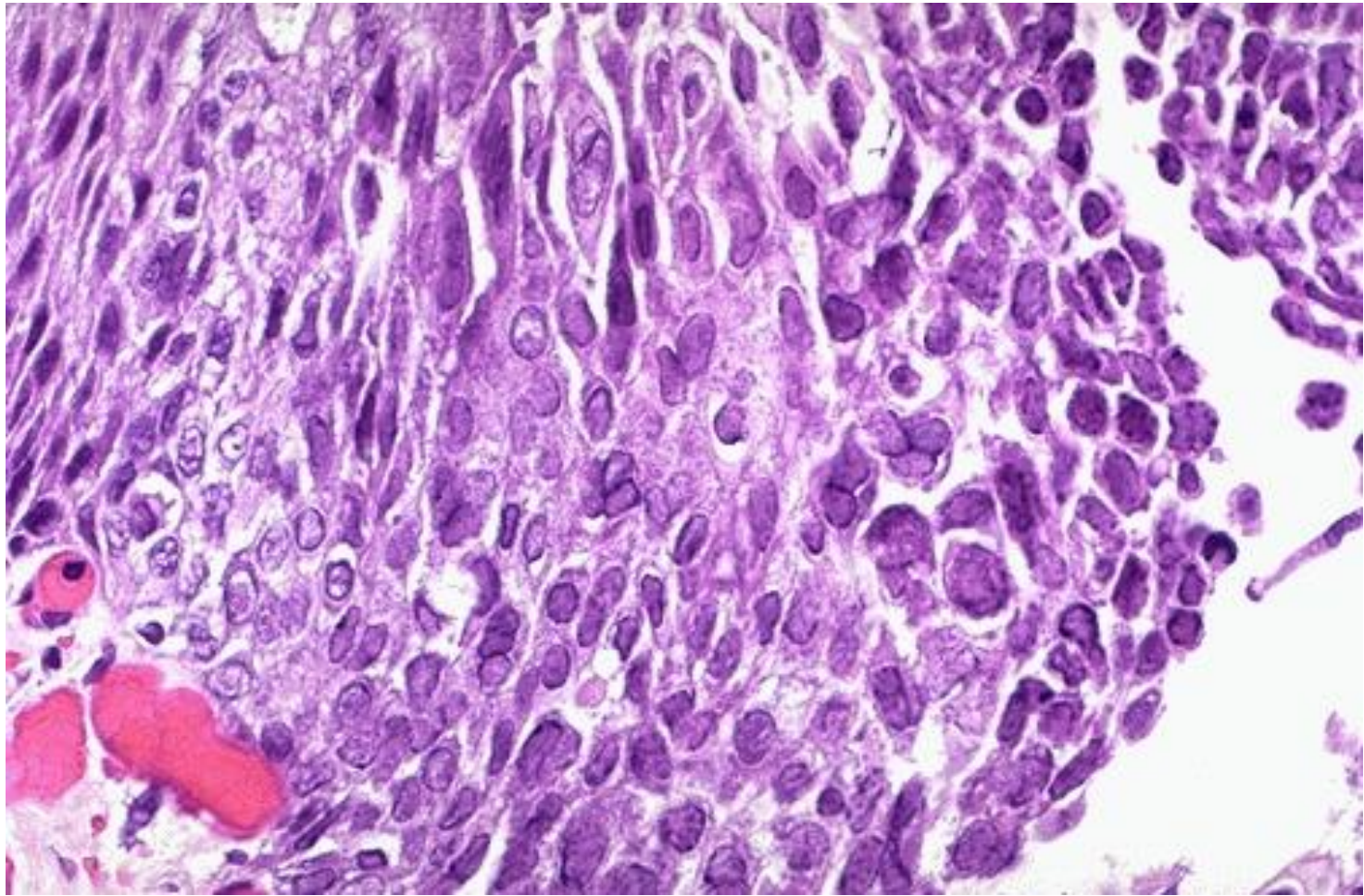
www.researchgate.net/publication/285369734_Esophageal_Candidiasis_as_the_Initial_Manifestation_of_Acute_Myeloid_Leukemia

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



Figure 4: Gastroendoscopic findings revealed the presence of multiple





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

