

Digestive System

University of Jordan
Faculty of Medicine
Batch of 2013-2019



☒ Slide ☐ Sheet ☐ Handout ☐ Other

☐ Anatomy

☐ Embryology

☐ Physiology

☐ Histology

☒ Pathology

☐ Pharmacology

☐ Microbiology

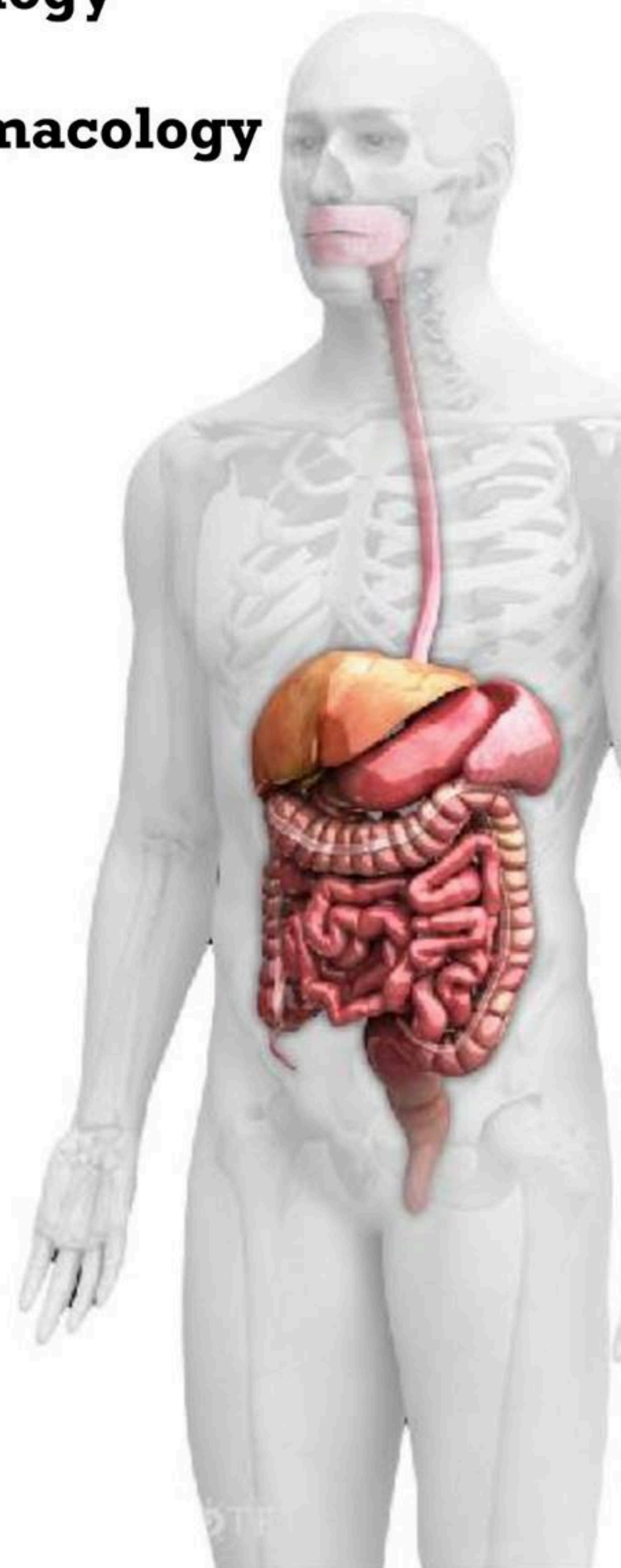
☐ PBL

Slide #: 1

Doctor: Mazen Al-Salhi

Date: 27-3-2015

Price:



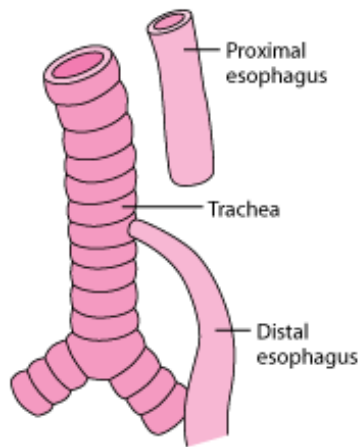


The Gastrointestinal Tract

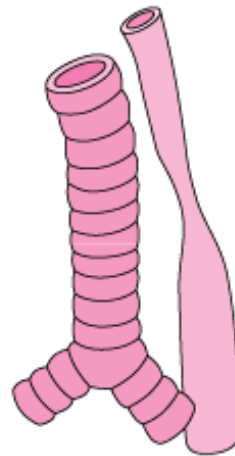
Dr. Mazin Al-Salihi



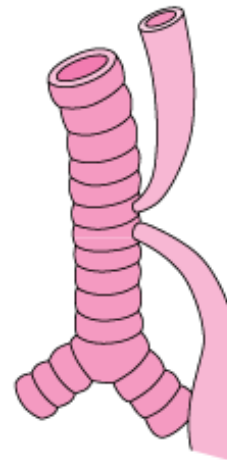
Esophagus



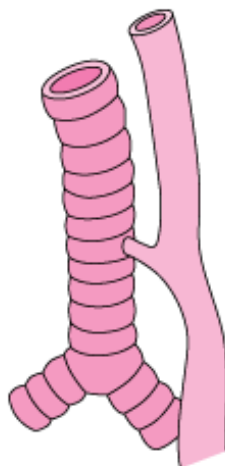
Atresia with
distal fistula
(86%)



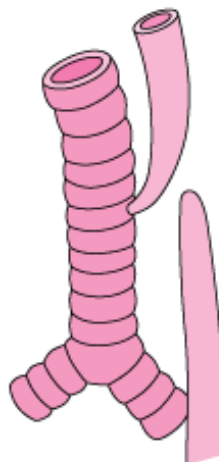
Isolated
esophageal
atresia
(8%)



Atresia with
double fistula
(1%)



Isolated
tracheoesophageal
fistula (H type)
(4%)



Atresia with
proximal fistula
(1%)

Esophageal obstruction

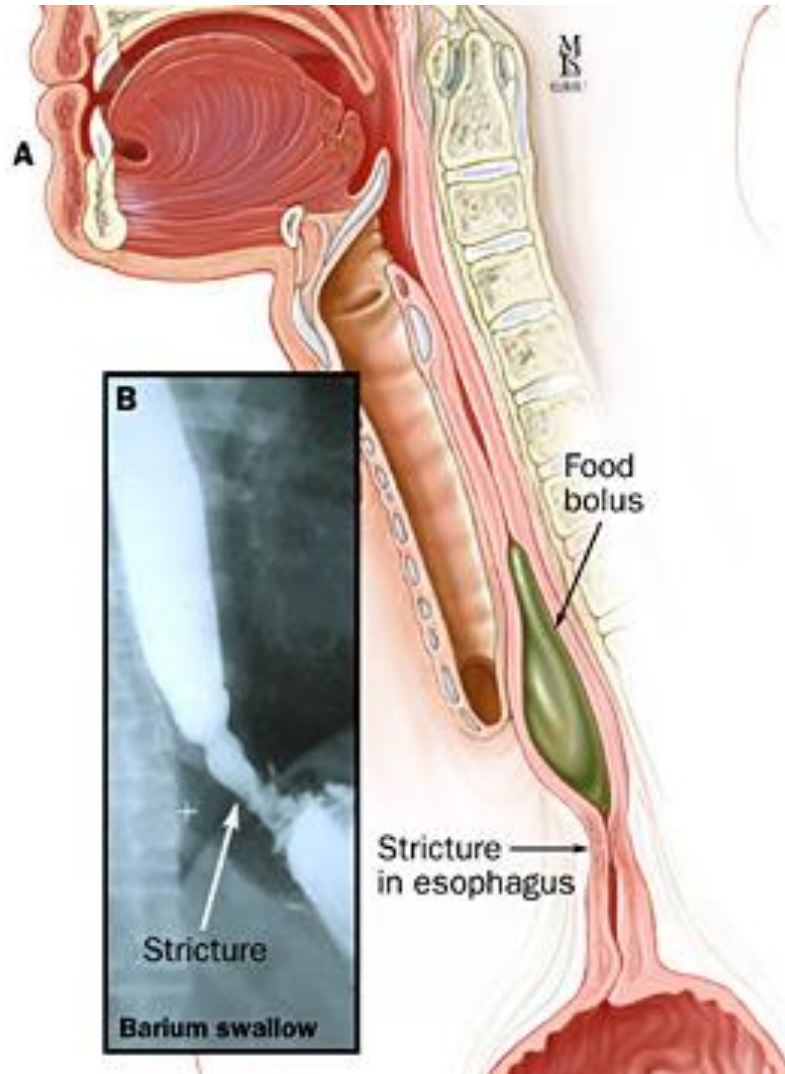
Mechanical:

- Agenesia (v. rare)
- Atresia

Typically at or near the
tracheal bifurcation

Associated with fistula
resulting in aspiration,
suffocation, pneumonia,
or severe fluid and
electrolyte imbalances

- Stenosis



Esophageal obstruction

Mechanical:

- Agenesis (v. rare)
- Atresia
- Stenosis

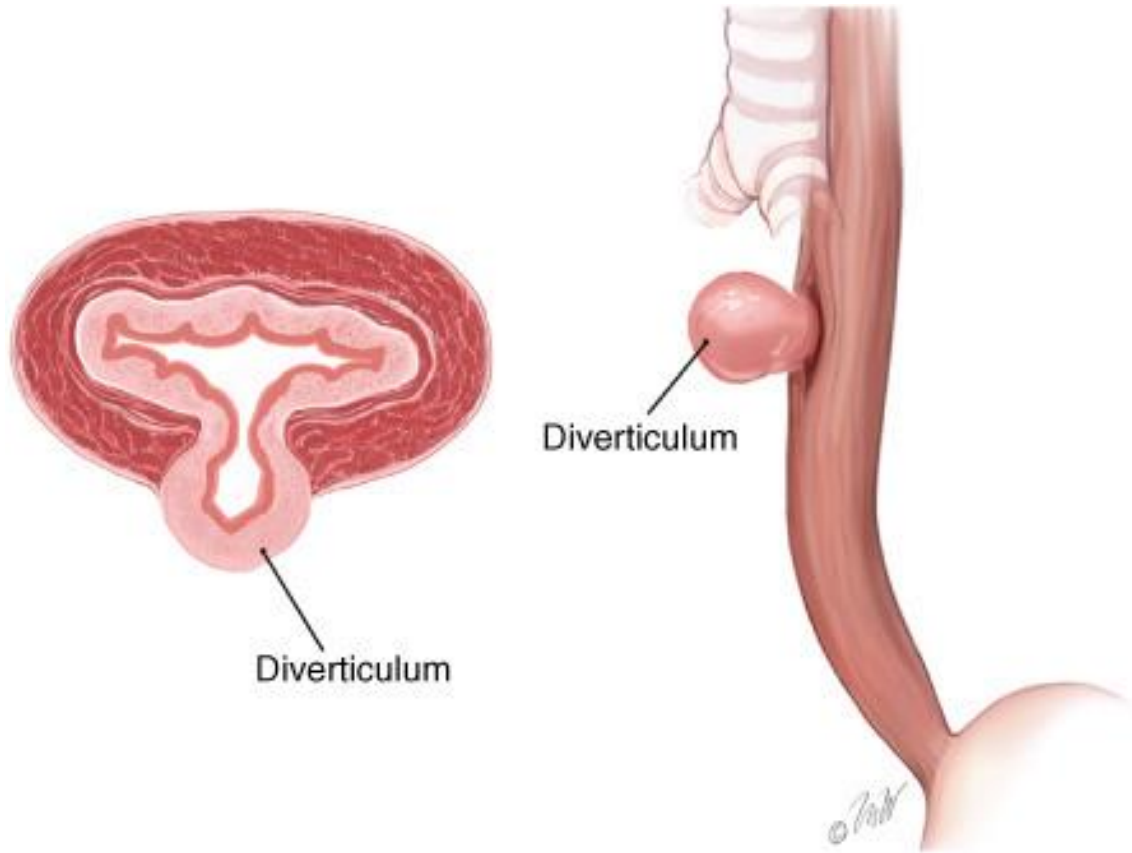
often due to inflammation and scarring

GERD

Radiation

Caustic injury

Dysphagia progressive:
solid→liquid



Esophageal obstruction

Functional:

Discoordinated contraction or spasm of the muscularis (may induce diverticula)

Achalasia:

- 1ry idiopathic
- 2ry (e.g. Chagas disease)

Triad of incomplete LES relaxation, increased LES tone, and esophageal aperistalsis

Esophageal obstruction

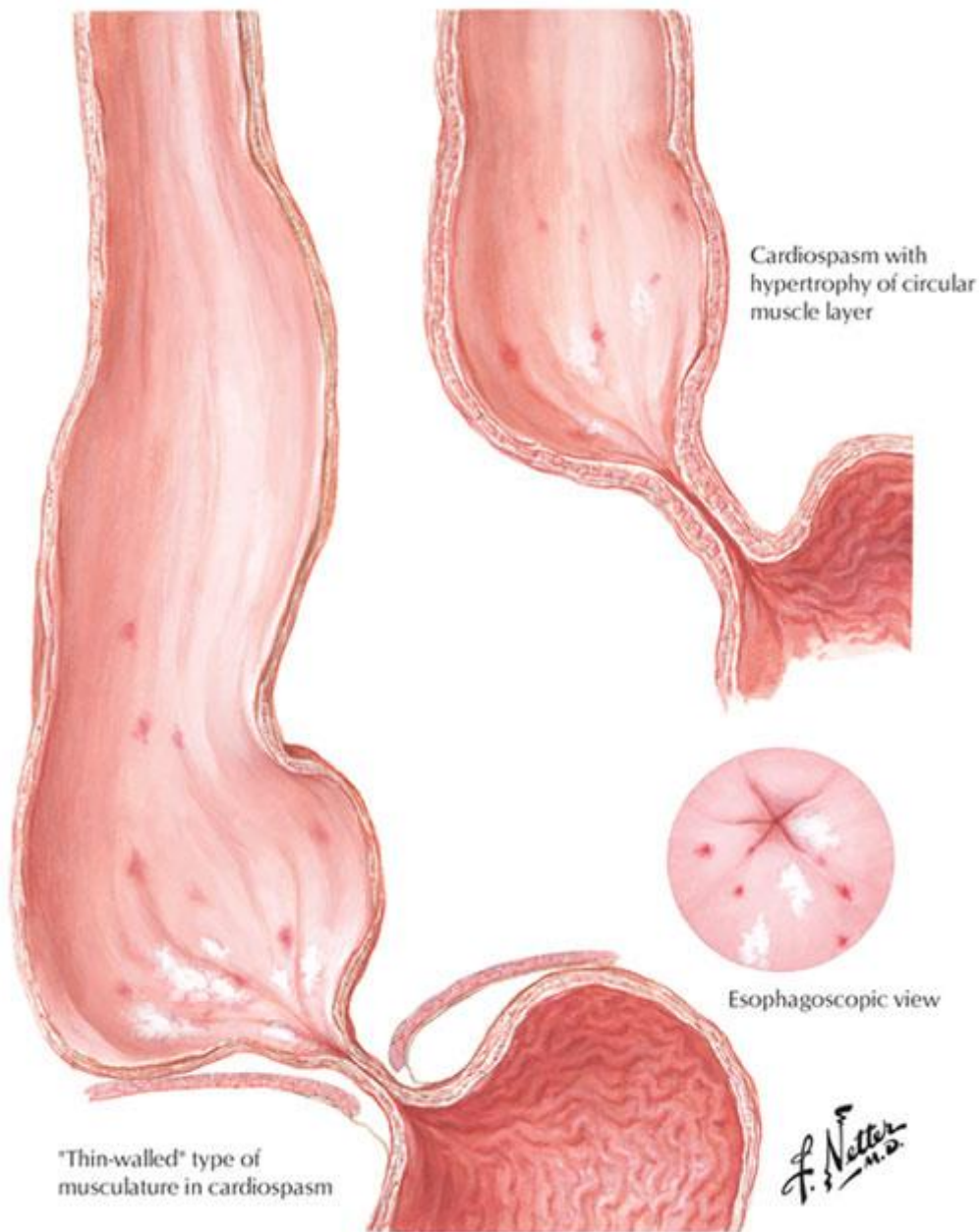
Functional:

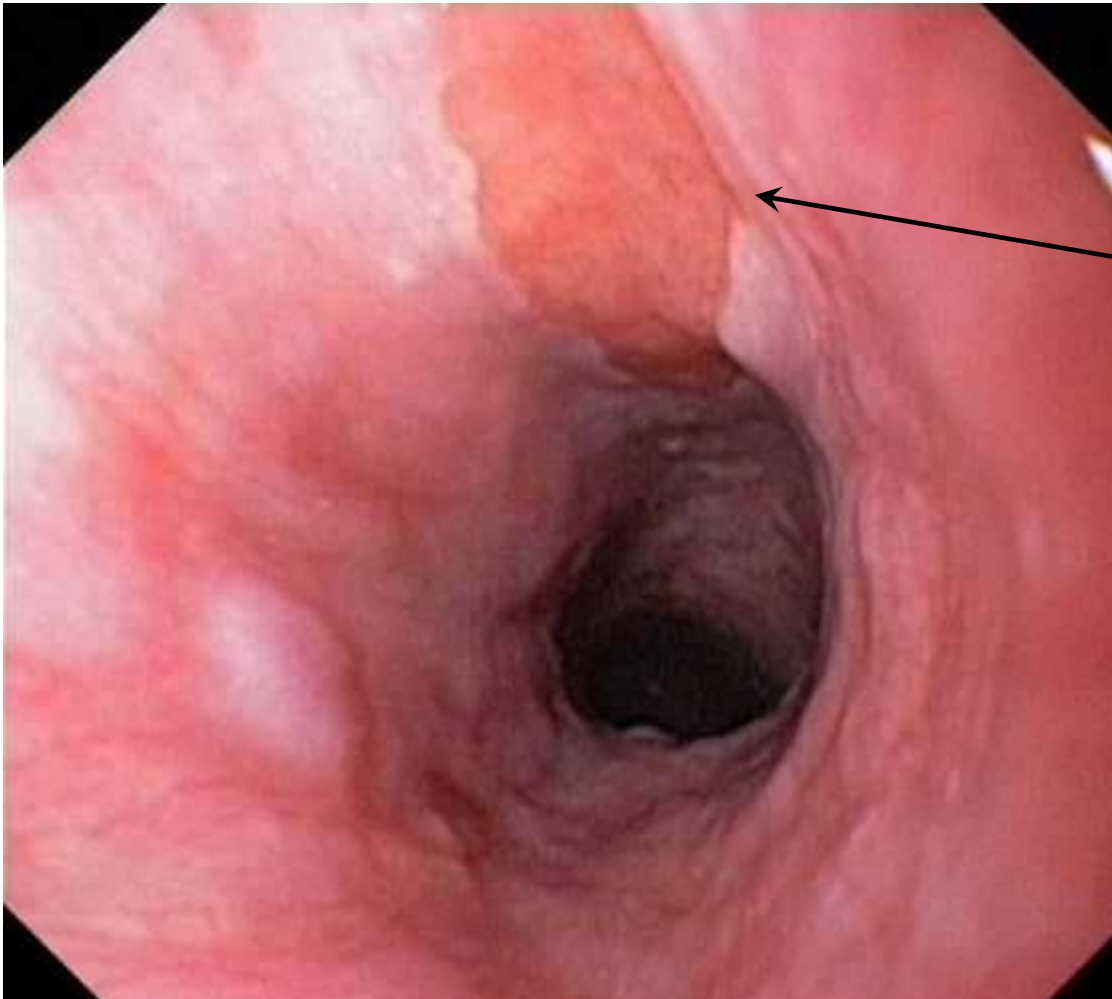
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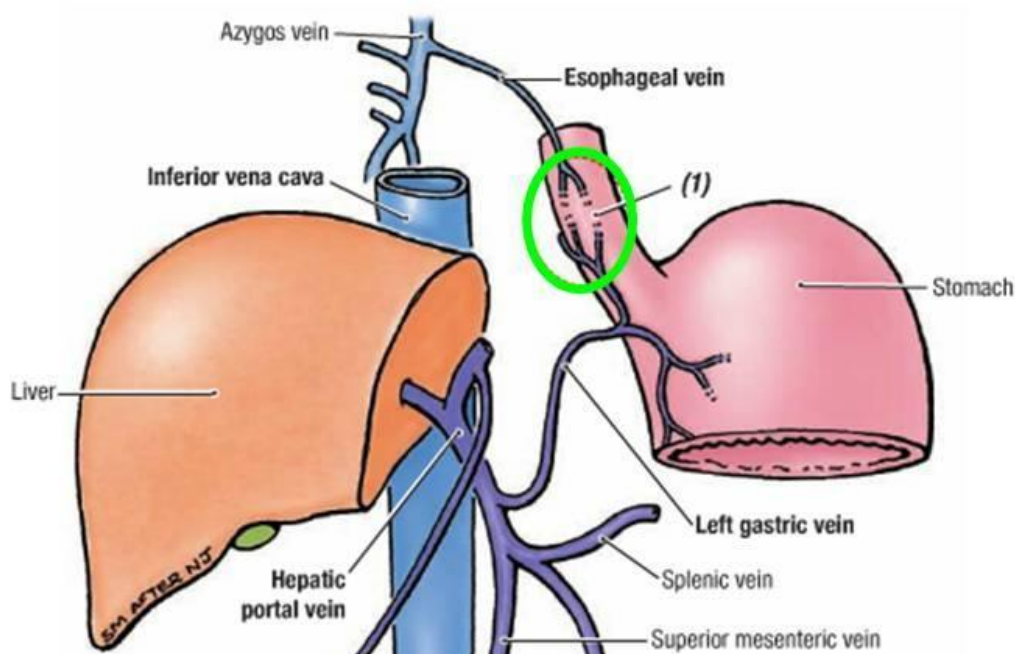
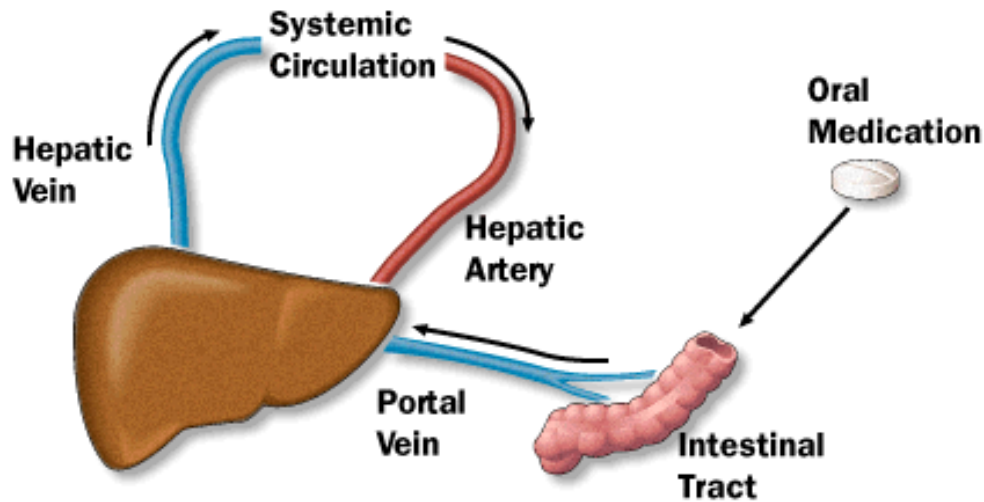
Ectopia

Developmental rests

Inlet patch:
ectopic gastric mucosa
upper 1/3 of esophagus

Typically asymptomatic,
gastric acid can result in
dysphagia, esophagitis,
Barrett esophagus, or,
rarely, adenocarcinoma.

Gastric heterotopia:
ectopic gastric mucosa in
small bowel or colon



Esophageal Varices

First pass effect

Portal Hypertension

Portosystemic shunt

Collateral veins enlarge the venous plexi within the distal esophagus

Causes:

- Liver cirrhosis
- Hepatic schistosomiasis

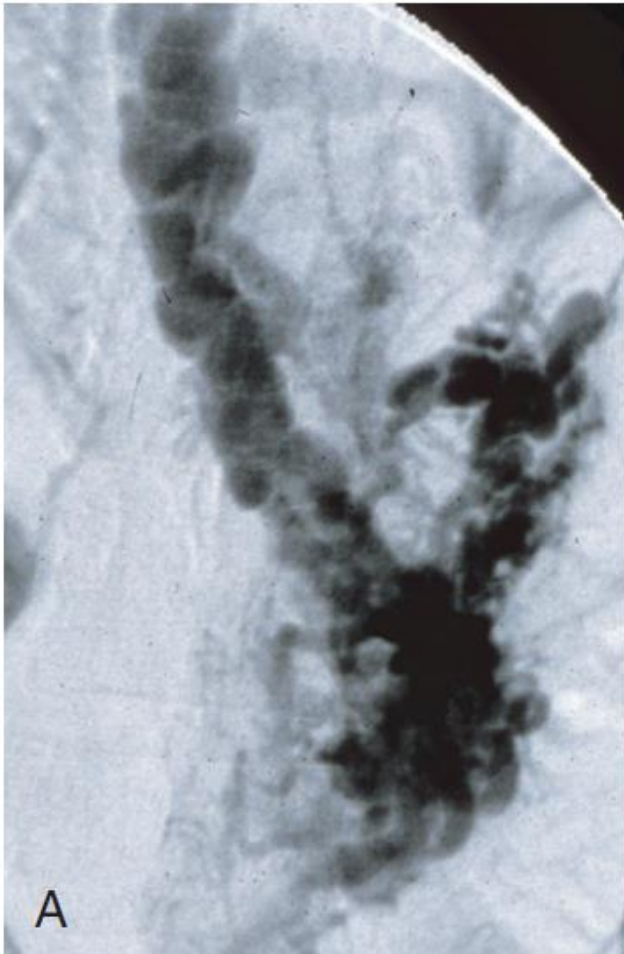
Often asymptomatic
Bleeding (Emergency)

Esophageal Varices

Can be detected by angiography (A)

Tortuous dilated veins within the submucosa (B)

Mucosa can be intact (C) or ulcerated and necrotic if rupture has occurred

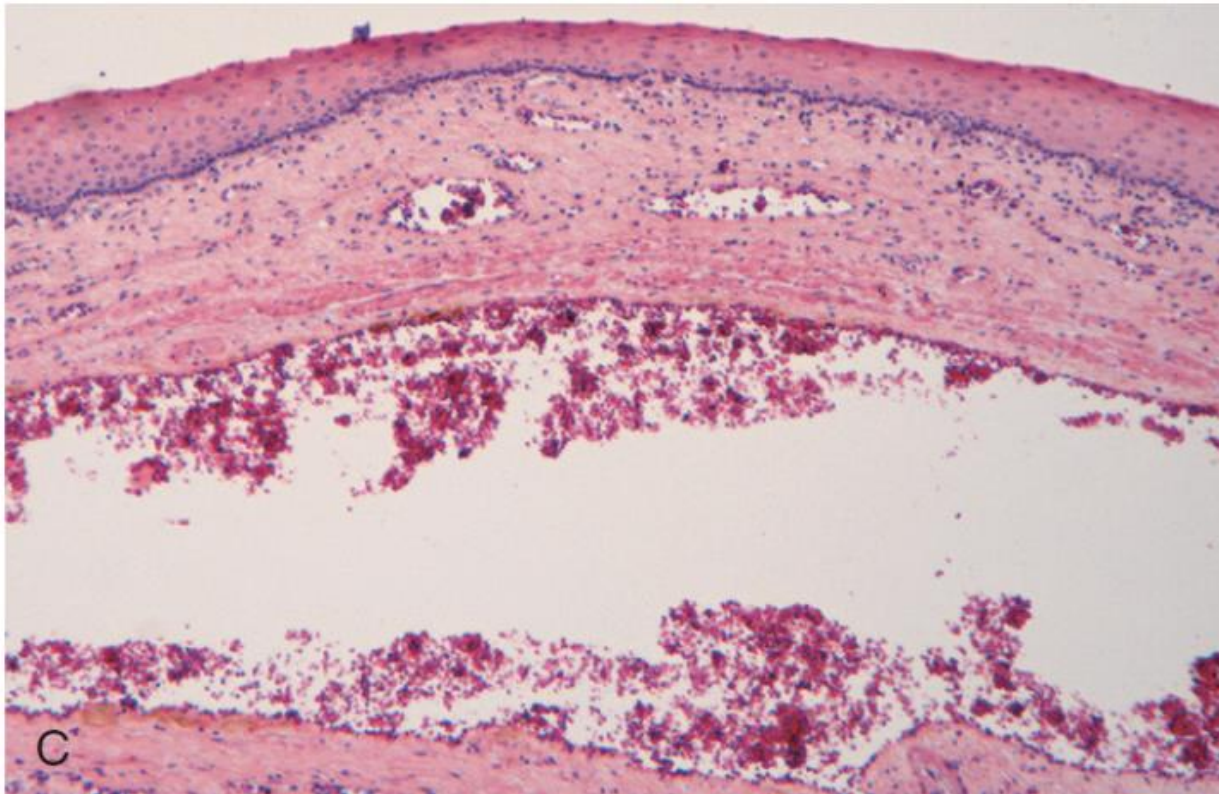


Esophageal Varices

Can be detected by
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Tortuous dilated veins
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Mucosa can be intact (C)
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if rupture has occurred





Esophagitis

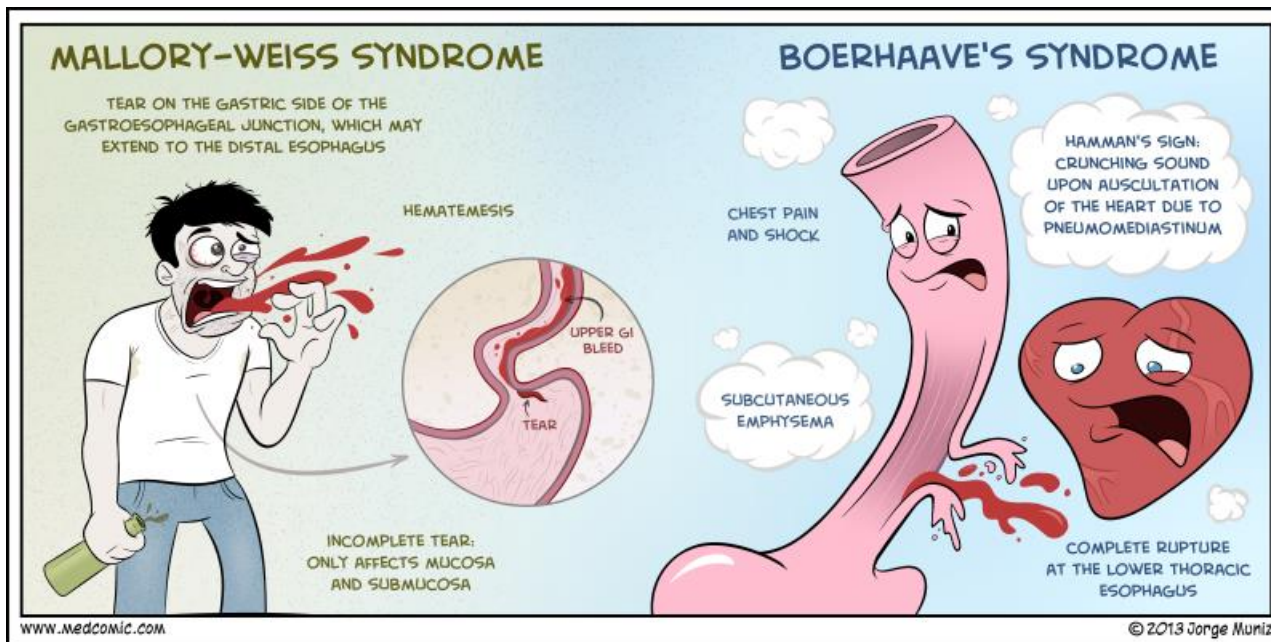
Lacerations:

Mallory-Weiss syndrome

- Severe vomiting/retching
- Failure of relaxation
- Hematemesis
- Linear/superficial
- Rapid complete healing

Boerhaave syndrome

- More severe
- Transmural
- Mediastinitis (rare)
- ME





Esophagitis

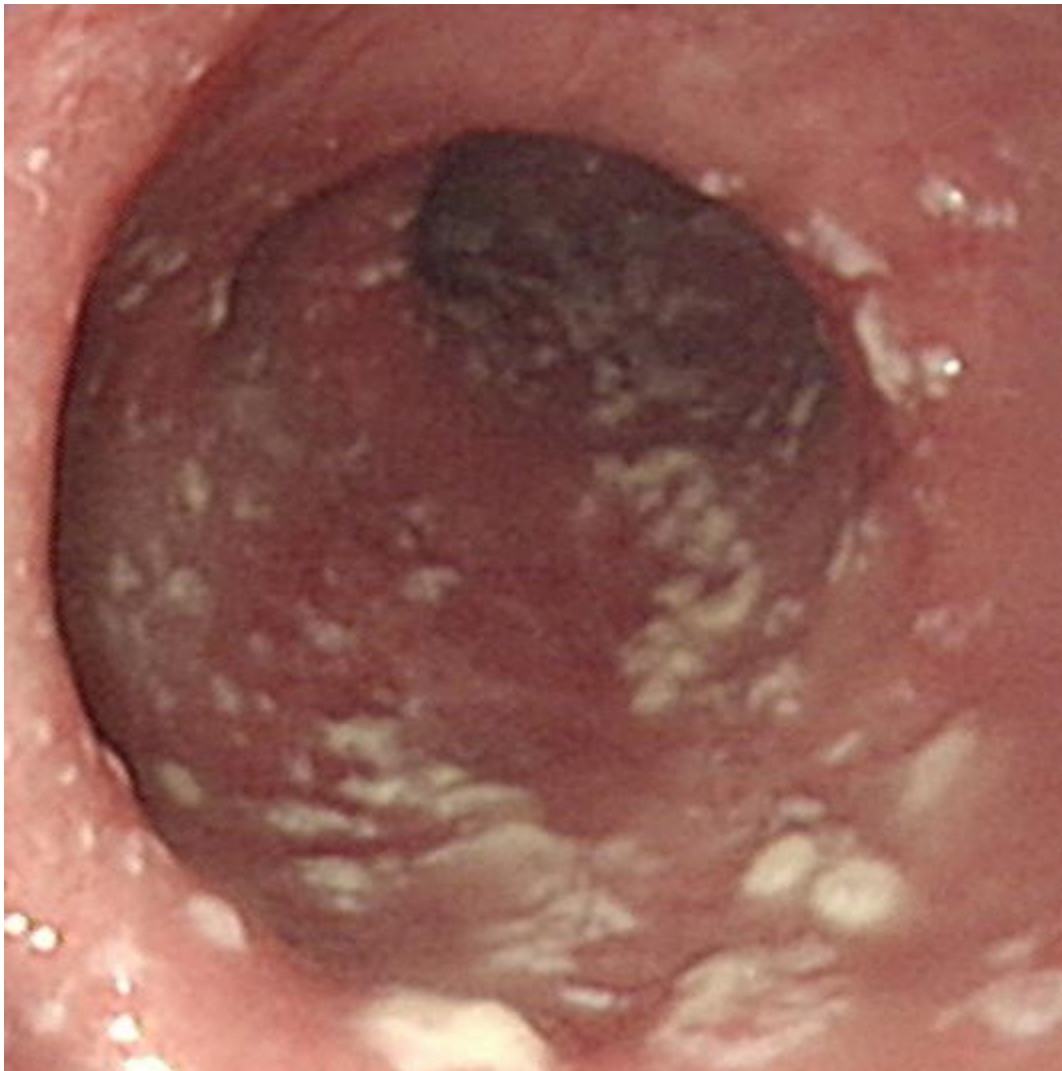
Chemical:

Alcohol, pH & temp. extremes, iatrogenic (pill-induced, chemo/radioTx, GVHD), heavy smoking

Usually self limiting odynophagia to bleeding, stricture, or perforation

Non-specific morphologic changes:

- Neutrophils
- Ulceration



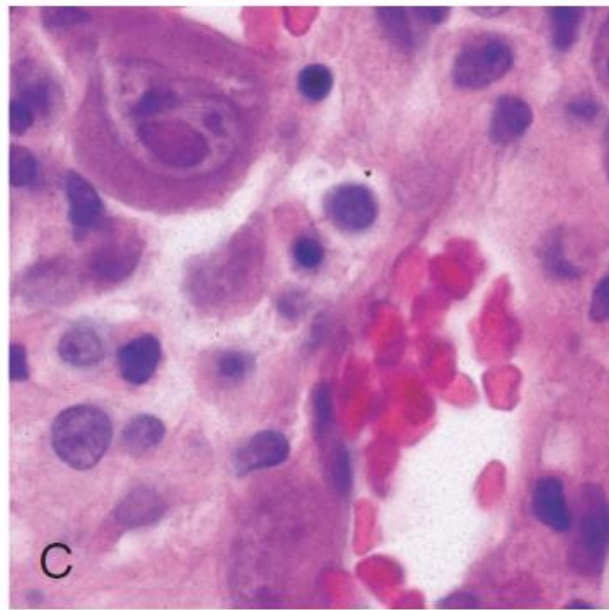
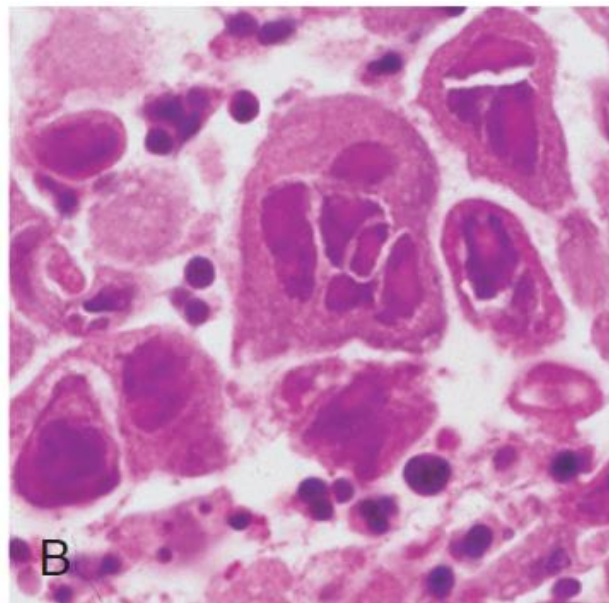
Candida
Gray-white pseudomembranes

Esophagitis

Infectious:

Immunocompromised
HSV, CMV, Fungal

Bacterial/fungal infections
can be 1ry or complicate
an ulcer



Esophagitis

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an ulcer

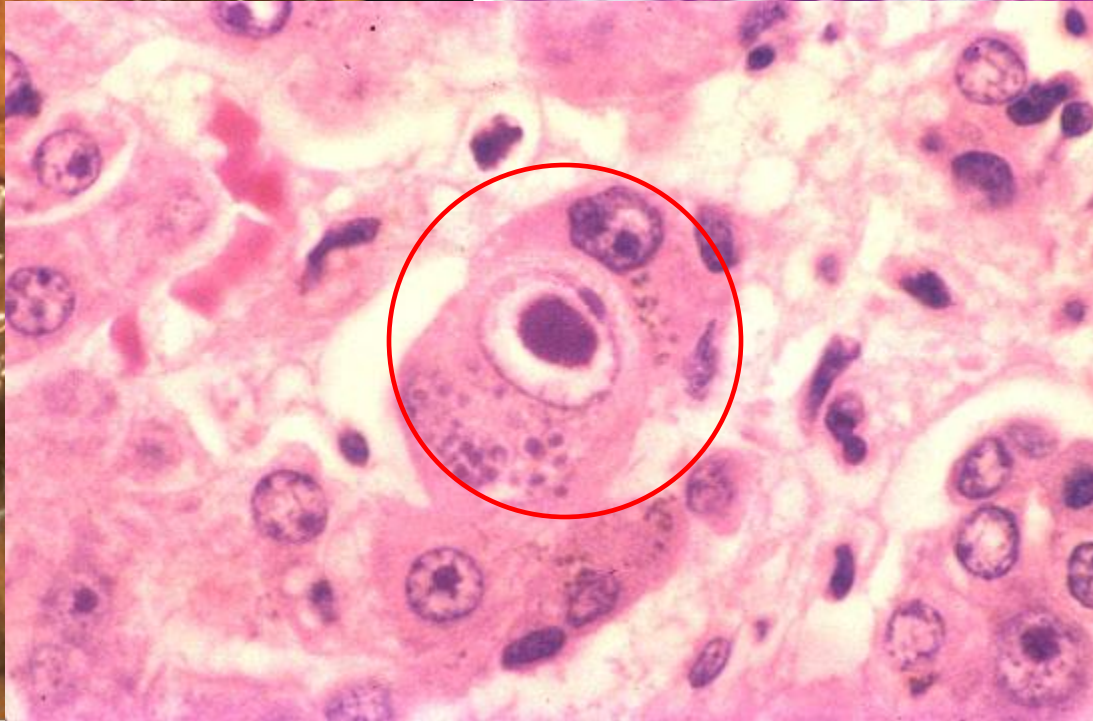
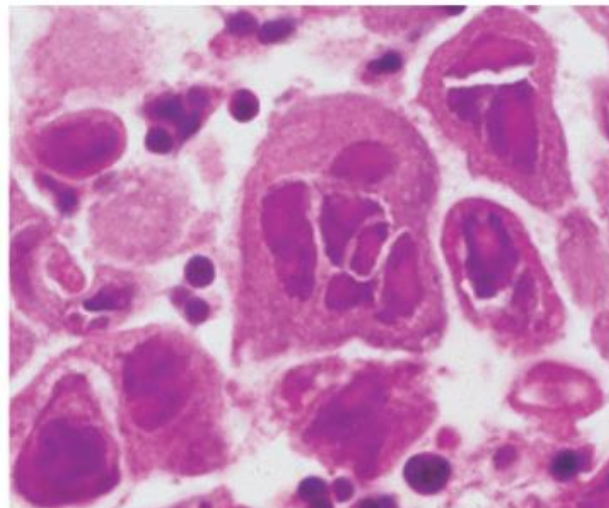
Herpetic punched out
ulcers A

Multinucleation and
inclusions B

CMV inclusions C

Viral





Viral

Esophagitis

Infectious:

Immunocompromised
HSV, CMV, Fungal

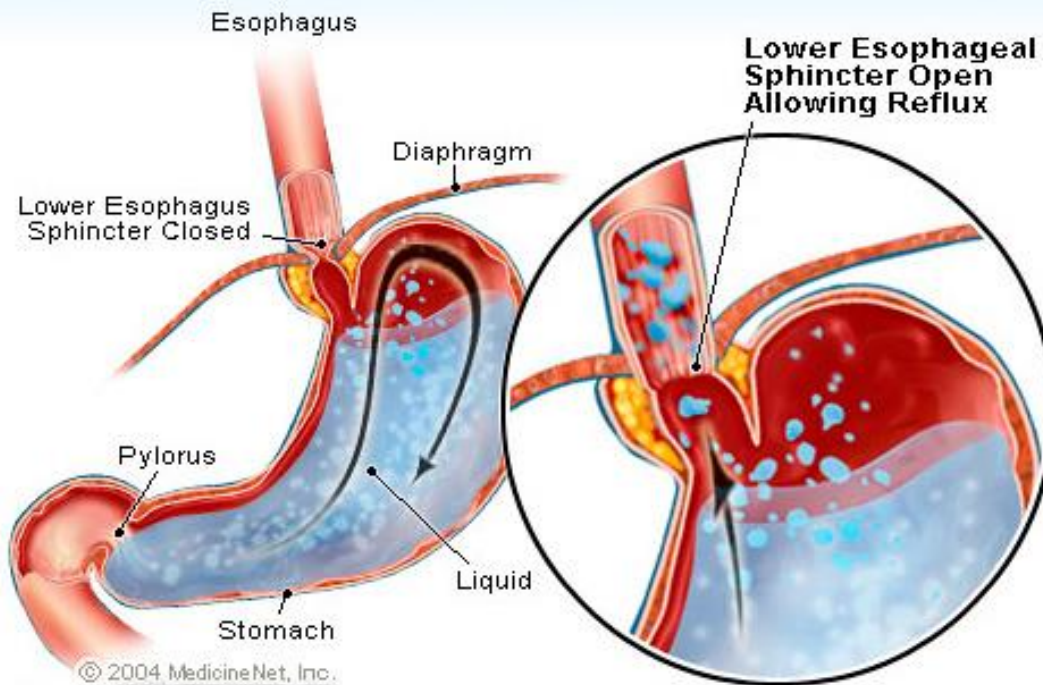
Bacterial/fungal infections
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Herpetic punched out
ulcers A

Multinucleation and
inclusions B

CMV inclusions C

Gastroesophageal Reflux



Esophagitis

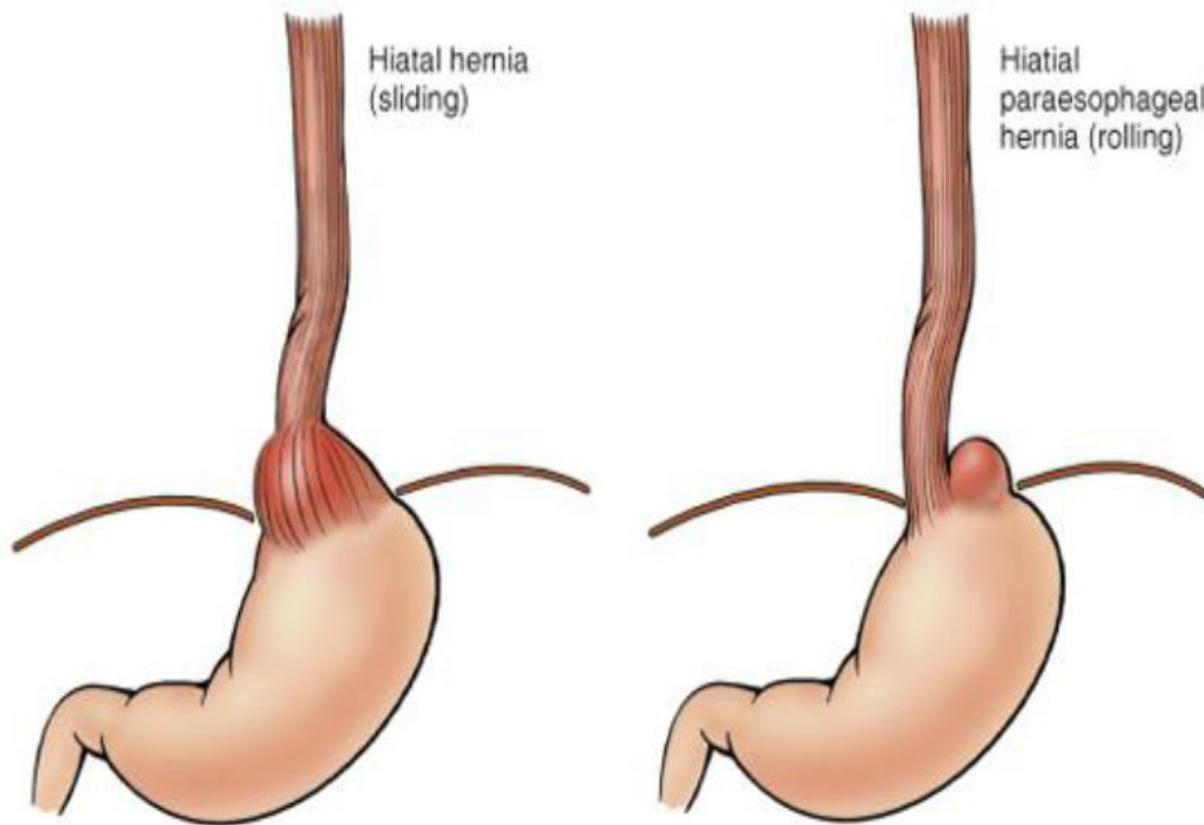
Reflux:

GERD

↓ LES tone
↑ abdominal pressure

- Alcohol & tobacco
- Obesity
- CNS depressants
- Pregnancy
- Hiatal hernia
- Gastric dynamics

Duodenal bile reflux can occur in severe cases



Esophagitis

Reflux:

GERD

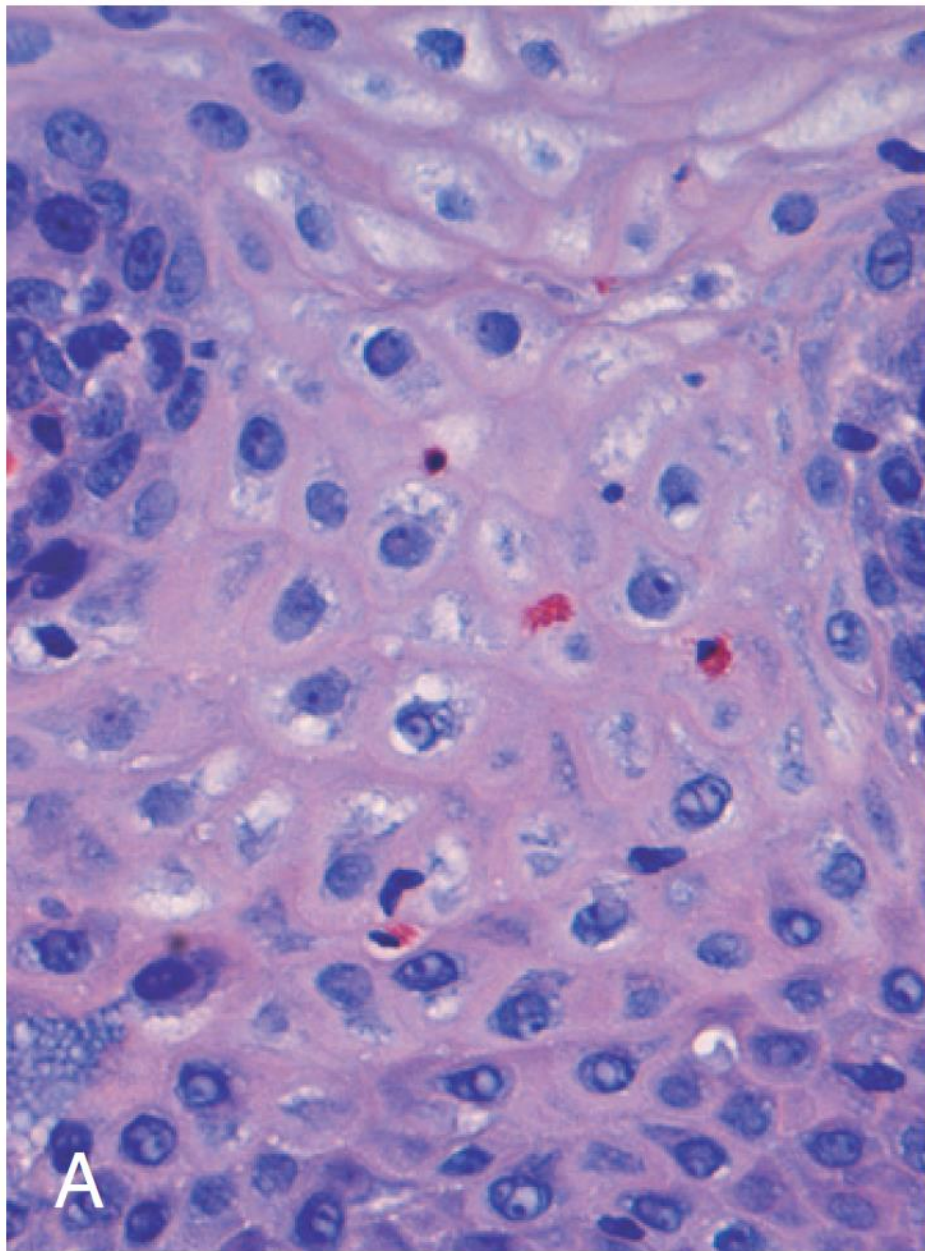
↓ LES tone
↑ abdominal pressure

- Alcohol & tobacco
- Obesity
- CNS depressants
- Pregnancy
- Hiatal hernia
- Gastric dynamics

Duodenal bile reflux can occur in severe cases



Eosinophil recruitment



Esophagitis

Reflux:

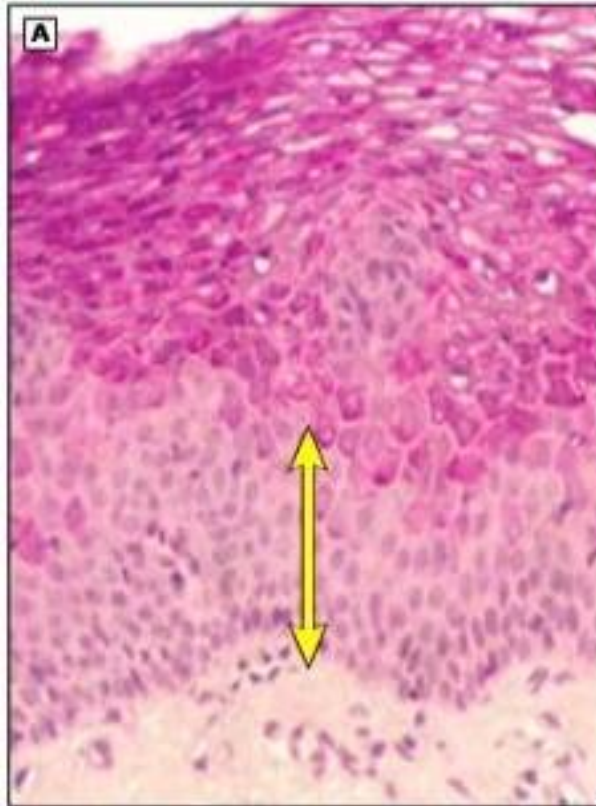
Symptoms

- Heartburn
- Dysphagia
- Regurgitation (sour)
- Chest pain (DDx)

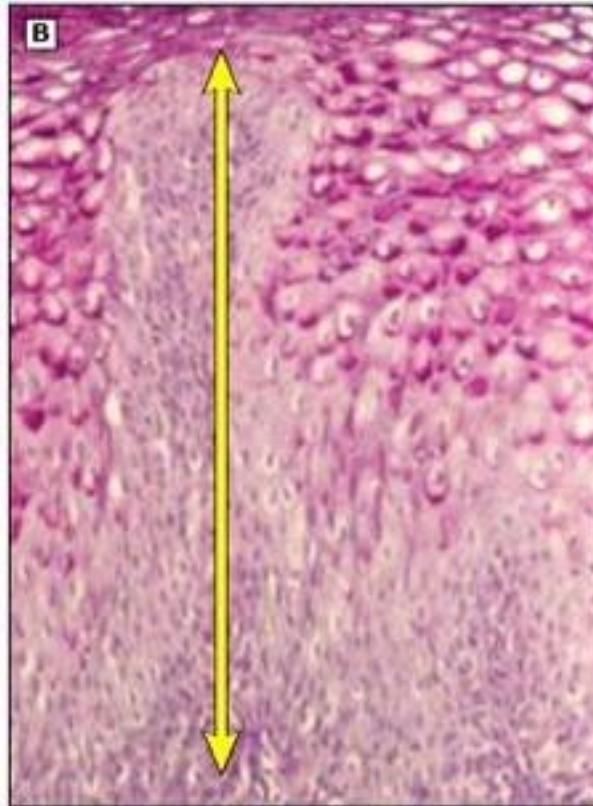
Complications

- Ulceration
- Hematemesis
- Melena
- Stricture
- Barrett esophagus

Tx: PPI (symptomatic)



Basal zone hyperplasia



**Elongation of
lamina propria papillae**

Esophagitis

Reflux:

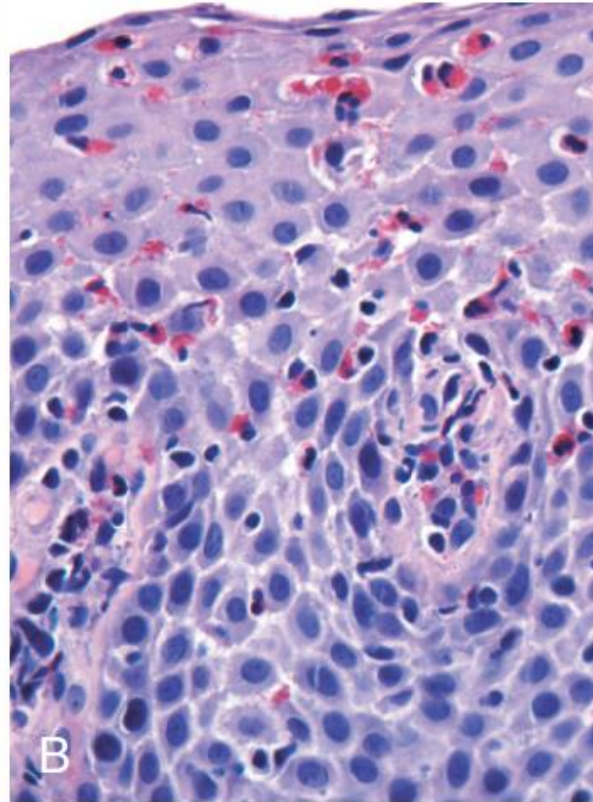
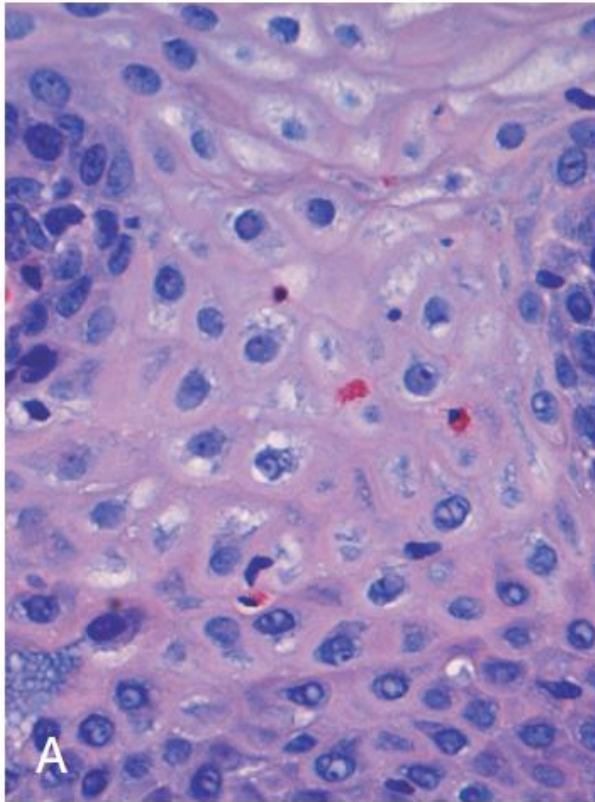
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- Ulceration
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- Stricture
- Barrett esophagus

Tx: PPI (symptomatic)



Esophagitis

Eosinophilic:

GERD DDx

PPI fail

Patients usually atopic:

- atopic dermatitis
- allergic rhinitis
- asthma
- eosinophilia (modest)

Tx: Food restriction

Corticosteroids

Barrett Esophagus

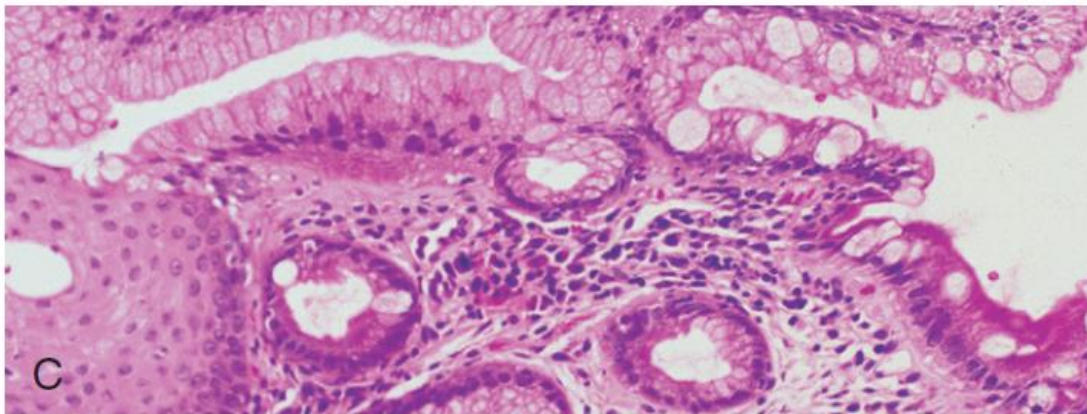
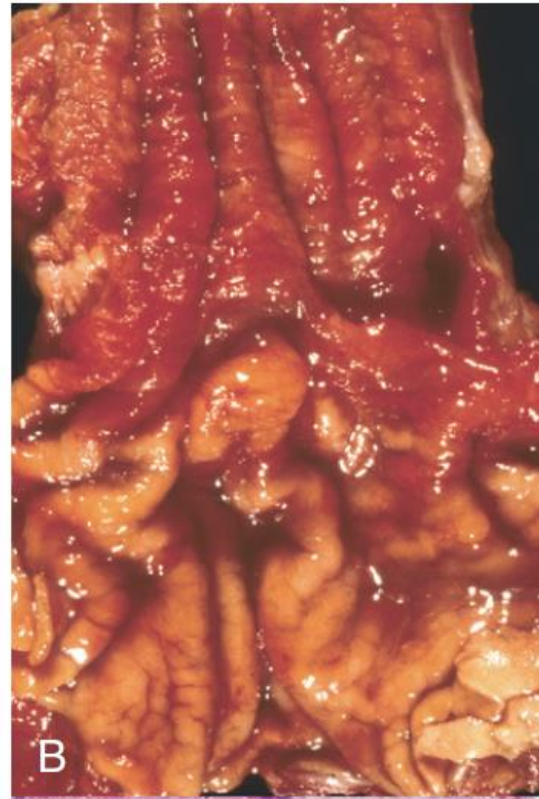
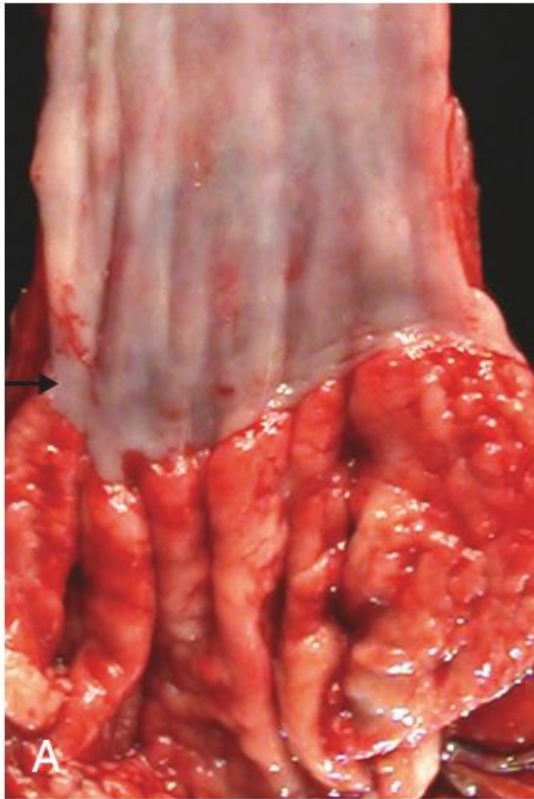
GERD complication 10%

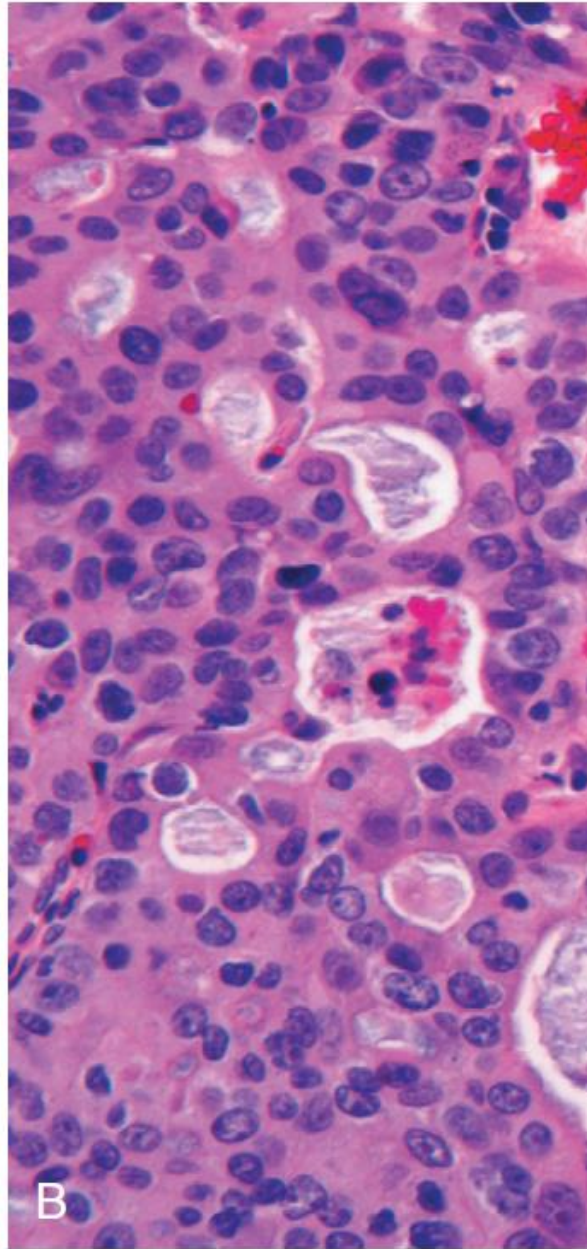
Intestinal metaplasia
within the esophageal
squamous mucosa

Increased risk of
esophageal
adenocarcinoma

Metaplasia-dysplasia-
cancer

Dx requires endoscopy &
biopsy



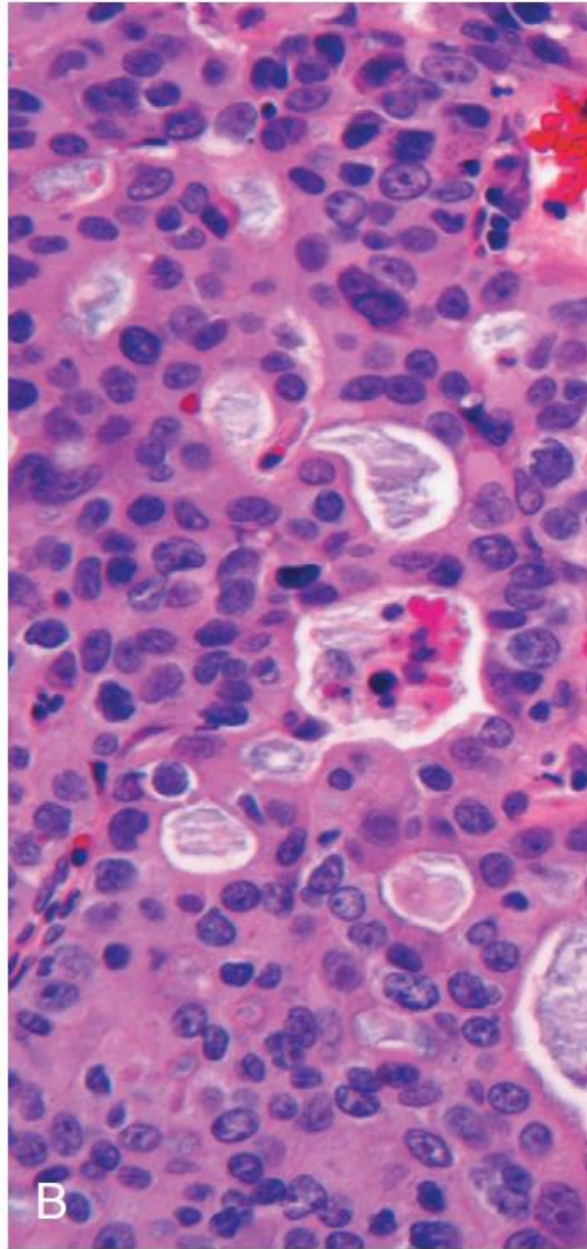


Esophageal Tumors

Adenocarcinoma:

- GERD/Barrett related
- Increased risk with:
dysplasia tobacco
obesity radiation
white ♂
- Developed countries
- Incidence increasing

Chromosomal abnormalities and *TP53* mutation are present early



Esophageal Tumors

Adenocarcinoma:

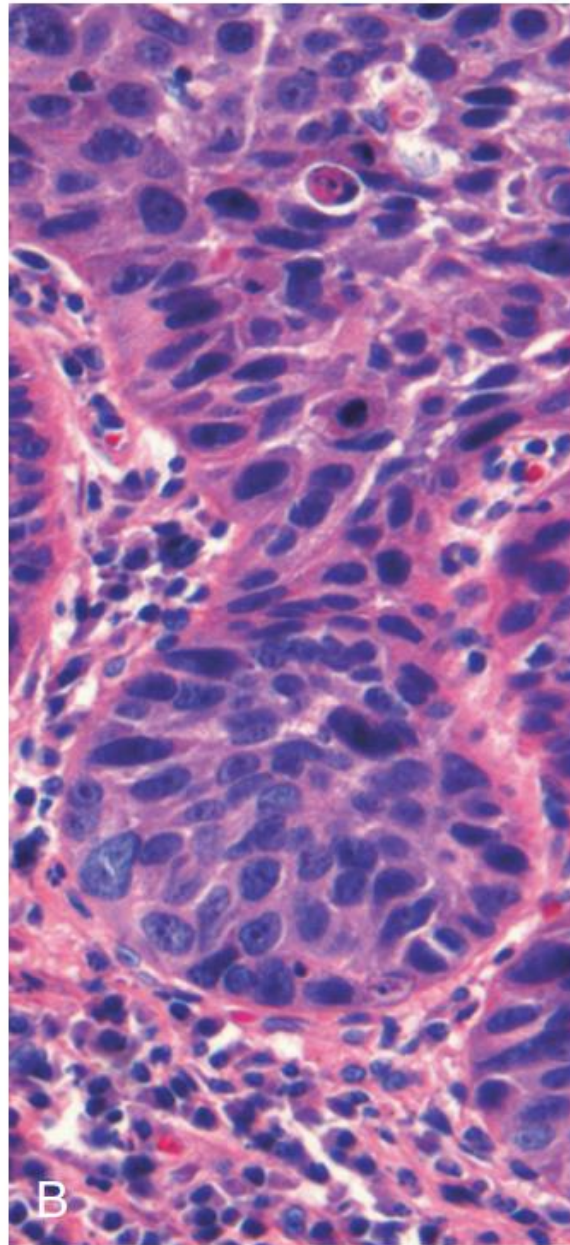
Distal 1/3 (A)

Barrett esophagus
adjacent to the tumor

Tumors typically produce
mucin and form glands
(B)

Symptoms

- Pain/dysphagia
- Weight loss
- Vomiting



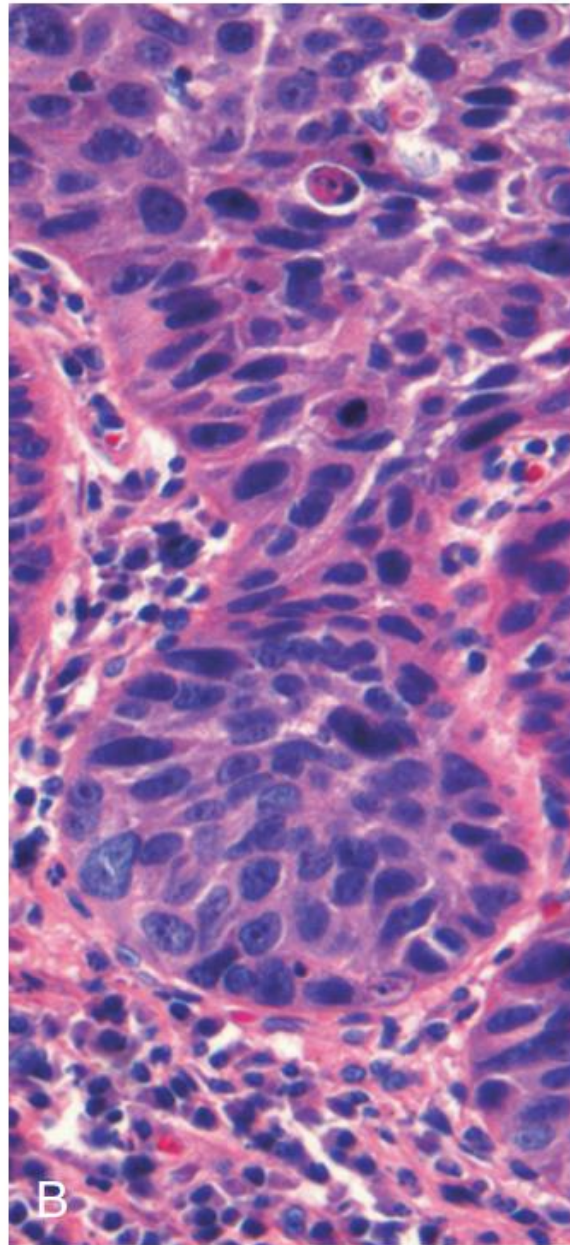
Esophageal Tumors

SCC:

- Increased risk with:
alcohol tobacco
heat/caustic injury
PVS achalasia
Radiation black ♂
- Underdeveloped areas

Pathogenesis not
completely understood

HPV?



Esophageal Tumors

SCC:

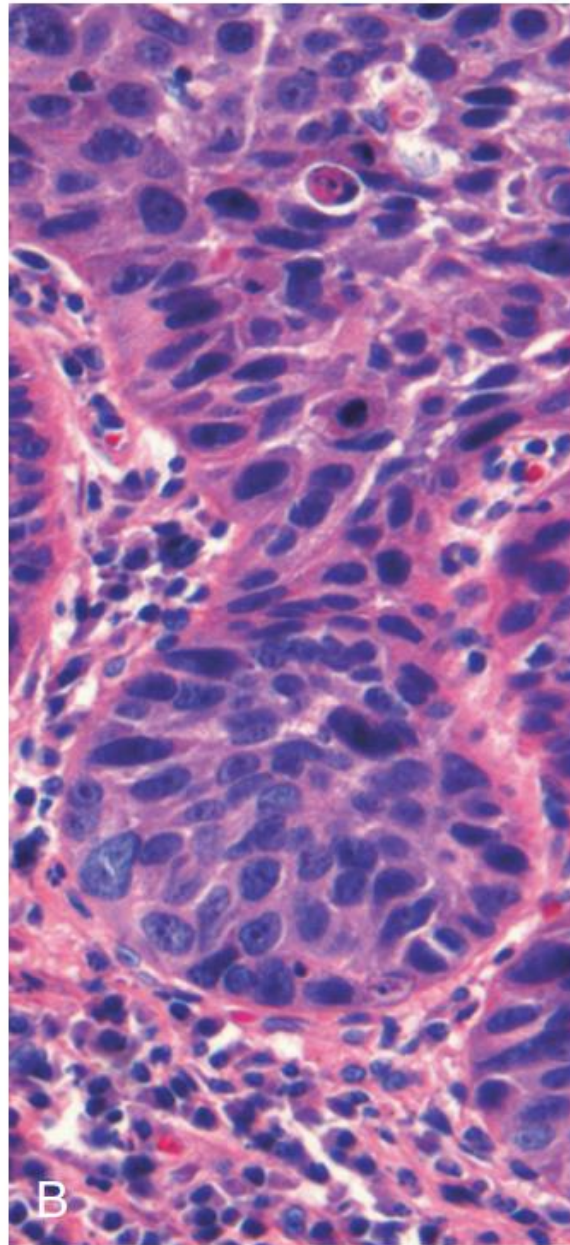
Middle 1/3 (A)

Early squamous dysplasia

Local invasion:

- Pneumonia
- Catastrophic bleeding
- Pericardial/mediastinal invasion

Mostly moderate to well differentiated (B)



Esophageal Tumors

SCC:

Symptoms

- Dysphagia
- Odynophagia
- Obstruction
- Weight loss
- Bleeding & sepsis with tumor ulceration
- Aspiration/fistula