Diseases of the esophagus-2

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Diseases that affect the esophagus

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

Reflux Esophagitis
Gastroesophageal reflux disease, GERD

- Reflux of gastric contents into the lower esophagus
- Most frequent cause of esophagitis
- Most common complaint by patients — visiting outpatient clinics

- Squamous epithelium is sensitive to acids — that are carried in the gastric juices to lower part of esophagus upon reccurent reflux of these contents
- Protective forces: mucin and bicarbonate from submucosal glands, high LES tone
  - protect esophagus
  - Contraction lead to prevention of reflux of gastric acidic content

Pathogenesis

- **Decreased lower esophageal sphincter tone**

  (alcohol, tobacco, hiatal hernia, CNS depressants)

  ↳ part of stomach herniates through the diaphragm and becomes part of the thoracic cavity this will lead to decrease in the tone of LES and reflux of content to lower esophagus

- **Increase abdominal pressure**

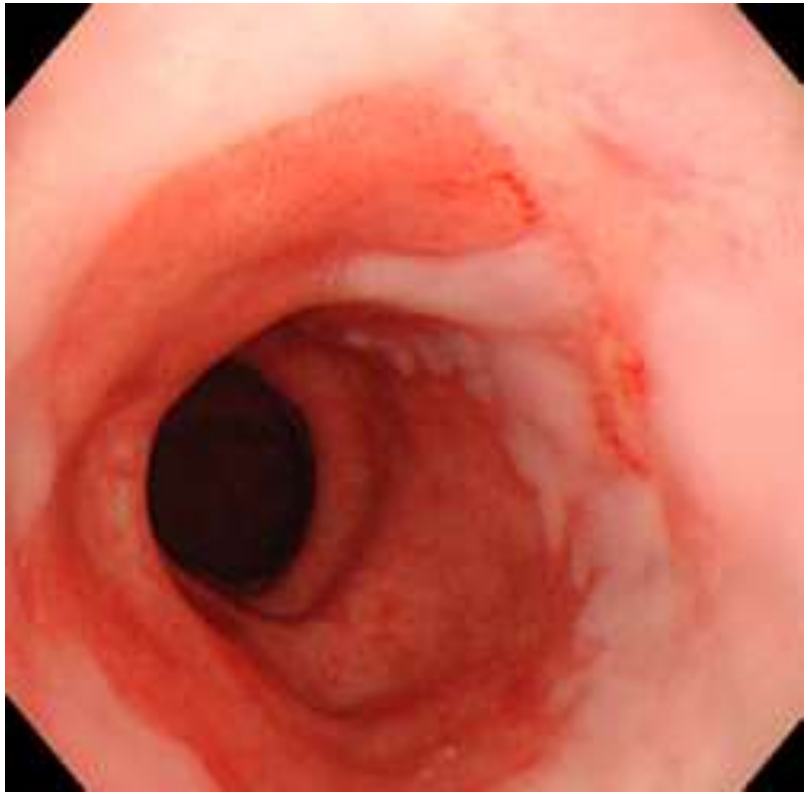
  (obesity,, pregnancy, delayed gastric emptying, and increased gastric volume)

- **Idiopathic!!**

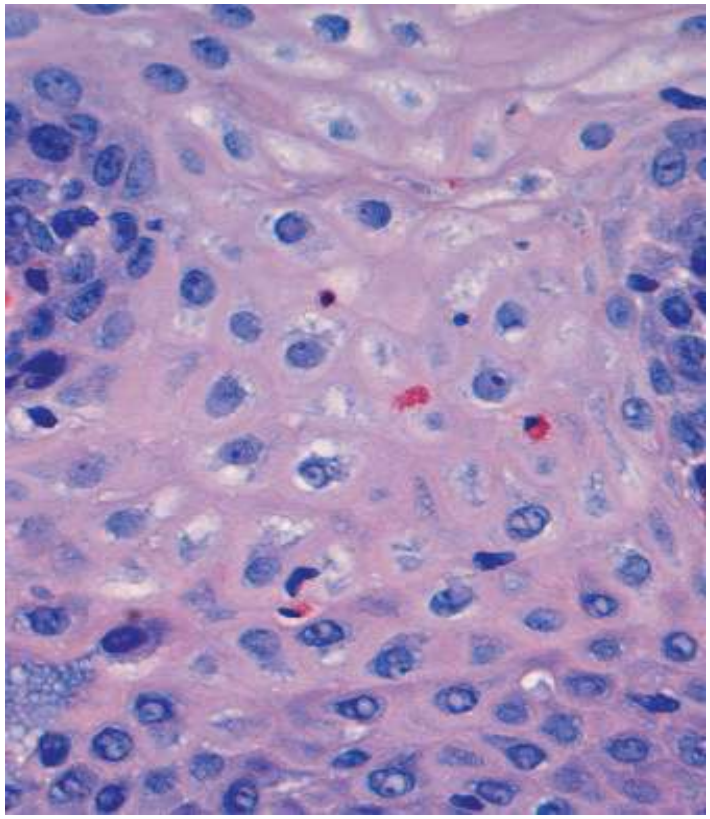
MORPHOLOGY

- **Macroscopy (endoscopy)** Mucosa
- Depends on severity (Unremarkable, Simple erythema) no changes; due to inflammation

- **Microscopic:**
- Eosinophils infiltration (early) earliest
- Neutrophils later (more severe).
- Basal zone hyperplasia (in accompany with) → Basal layer hyperplasia of basal SQ epithelial cells
- Elongation of lamina propria papillae



erythema



granular eosinophilic cytoplasm (eosinophils)

nature.com

Robbins Basic Pathology 10th edition

Clinical Features

- Most common over 40 years.
- May occur in infants and children
- Heartburn. Burning sensation in epigastric area
- Dysphagia.
- Regurgitation of sour-tasting gastric contents even to mouth in severe cases
- Rarely: Severe chest pain, mistaken for heart disease symptoms similar to heart disease or acute MI bcz patient comes with chest pain so it's mistaken for cardiac problem
- Tx: proton pump inhibitors
  to decrease acid secretion

Complications

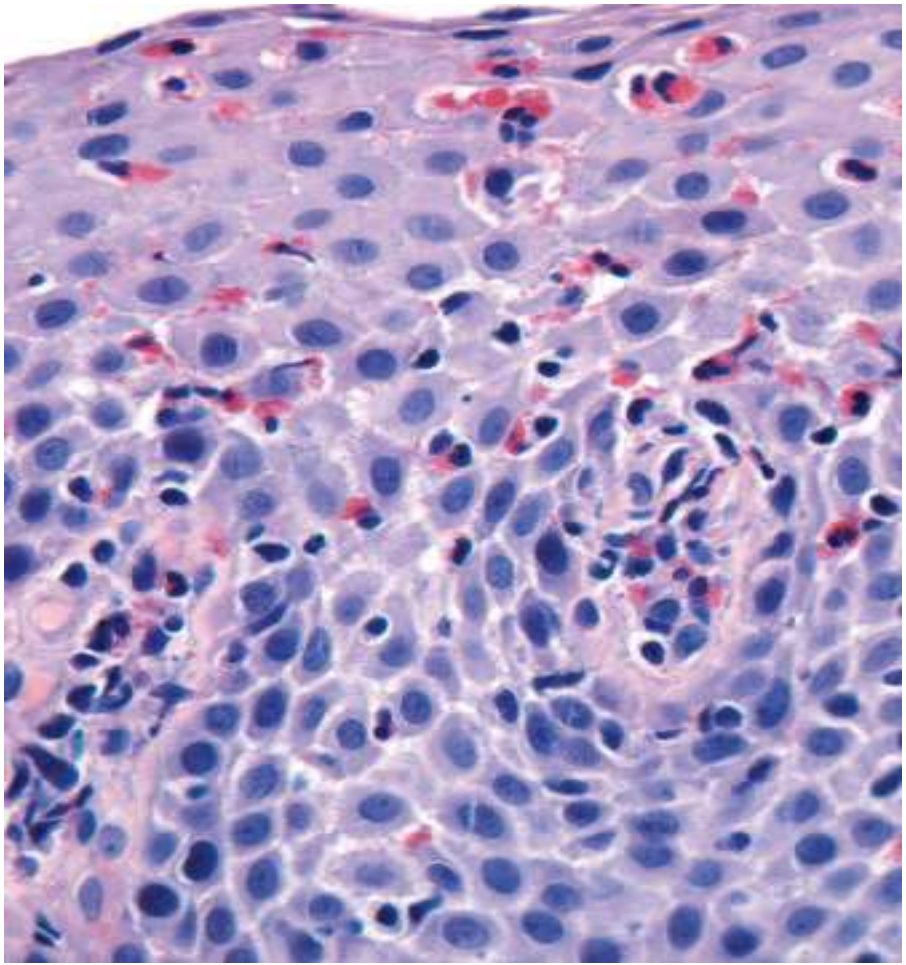
- Esophageal ulceration — Peptic ulceration
- Hematemesis
- Melena — in cases of bleeding that passes through stomach and altered with the acidity of stomach so it'll pass in the stool as black colored stool
- Strictures
- Barrett esophagus (precursor of Ca.)
  - ↳ intestinal metaplasia in esophagus — esophageal adenocarcinoma

Stenosis in patient with Recurrent and longstanding Reflux esophagitis Bcz Repair could be by fibrosis narrowing of lumen of esophagus

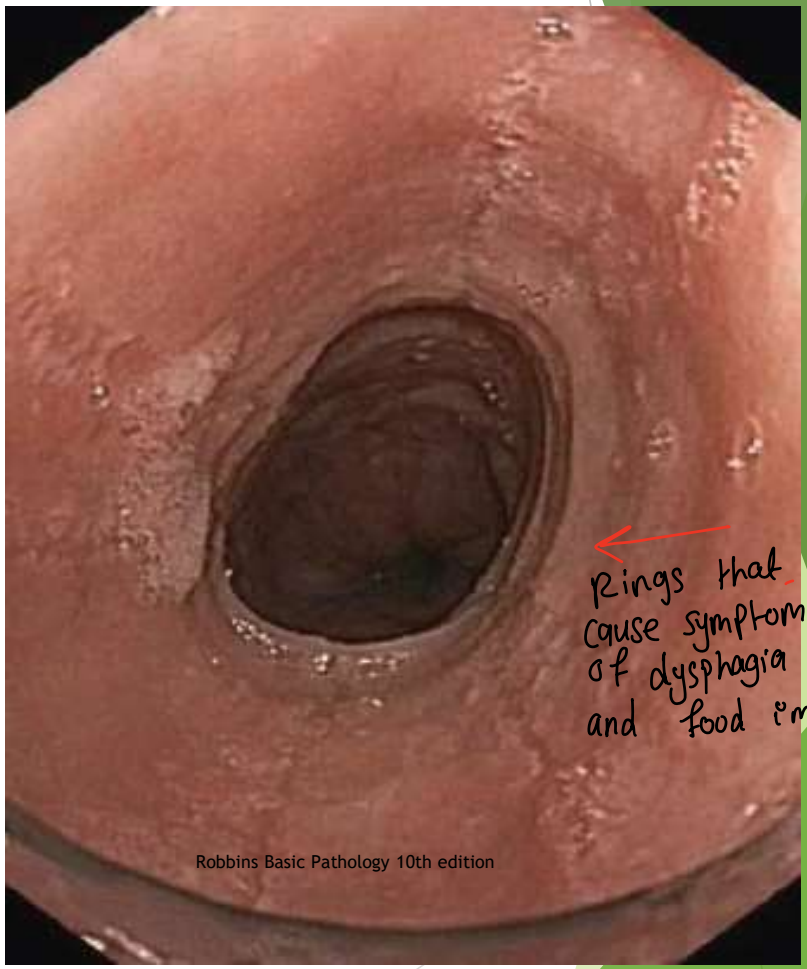
Eosinophilic Esophagitis

- Chronic immune mediated disorder
- **Symptoms:** variable
- Food impaction and dysphagia in adults
- Feeding intolerance or GERD-like symptoms in children [allergy of certain type of food]
- **Morphology:**
- Rings in the upper and mid esophagus. while Reflux esophagitis affect lower part
- Numerous eosinophils in epithelium (SQ) we can see eosinophils in Reflux esophagitis but much less
- Far from the GEJ.

- child comes to the outpatient clinics as irritable + recurrent vomiting we should differentiate between GERD and eosinophilic esophagitis



eosinophilic granules



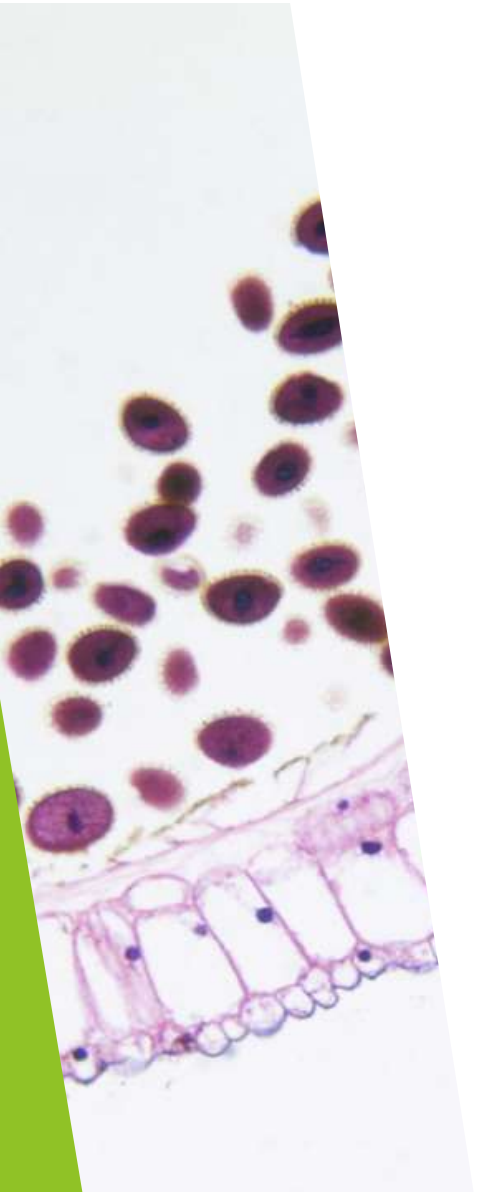
This is why we not to differentiate between them however Differentiation is not always straigh forward

Management:

eczema

- Most patients are atopic (atopic dermatitis, allergic rhinitis, asthma) or modest peripheral eosinophilia.
  - ↑ eosinophils in peripheral blood examination
- Refractory to PPIs.
  - will not respond and symptoms will not be alleviated
- **Treatment:**
  - ↓ mainly in childern
- Dietary restrictions(cow milk and soy products)
- Topical or systemic corticosteroids.

5-Barrett Esophagus



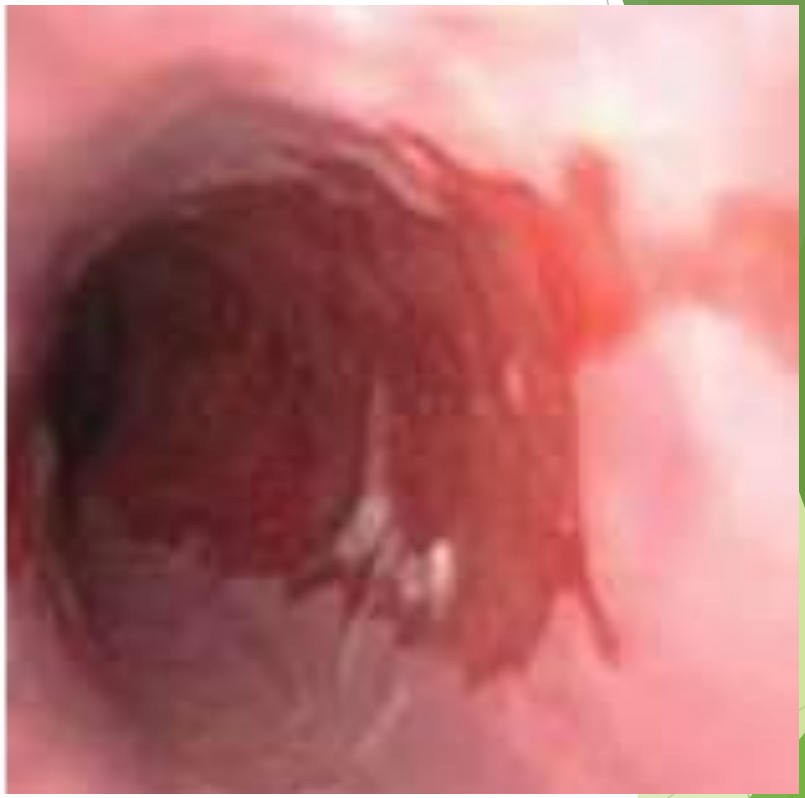
Longstanding

- Complication of chronic GERD
- Intestinal metaplasia. in esophagus which is the presence of goblet cells
- 10% of individuals with symptomatic GERD
- Males>>females, 40-60 yrs
- **Direct precursor of esophageal adenocarcinoma** very imp to diagnose it
- **0.2-1% /year develop dysplasia (precursor of adenocarcinoma)**
  - ↳ can be graded (low - High)

MORPHOLOGY

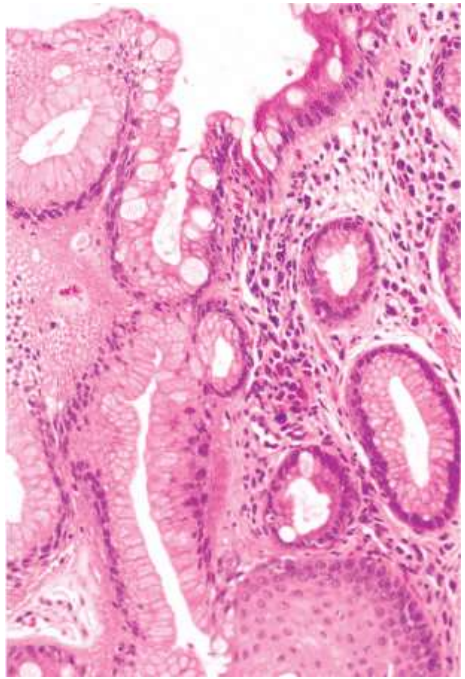
- Endoscopy:
- Red tongues extending upward from the GEJ.

- Histology: we cannot diagnose Barrett esophagus without presence of intestinal metaplasia [Biopsy is Mandatory]
- **Intestinal metaplasia (defined by** Presence of goblet cells)
- +-Dysplasia : low-grade or high-grade
- Intramucosal carcinoma: invasion into the lamina propria.
  or early carcinoma



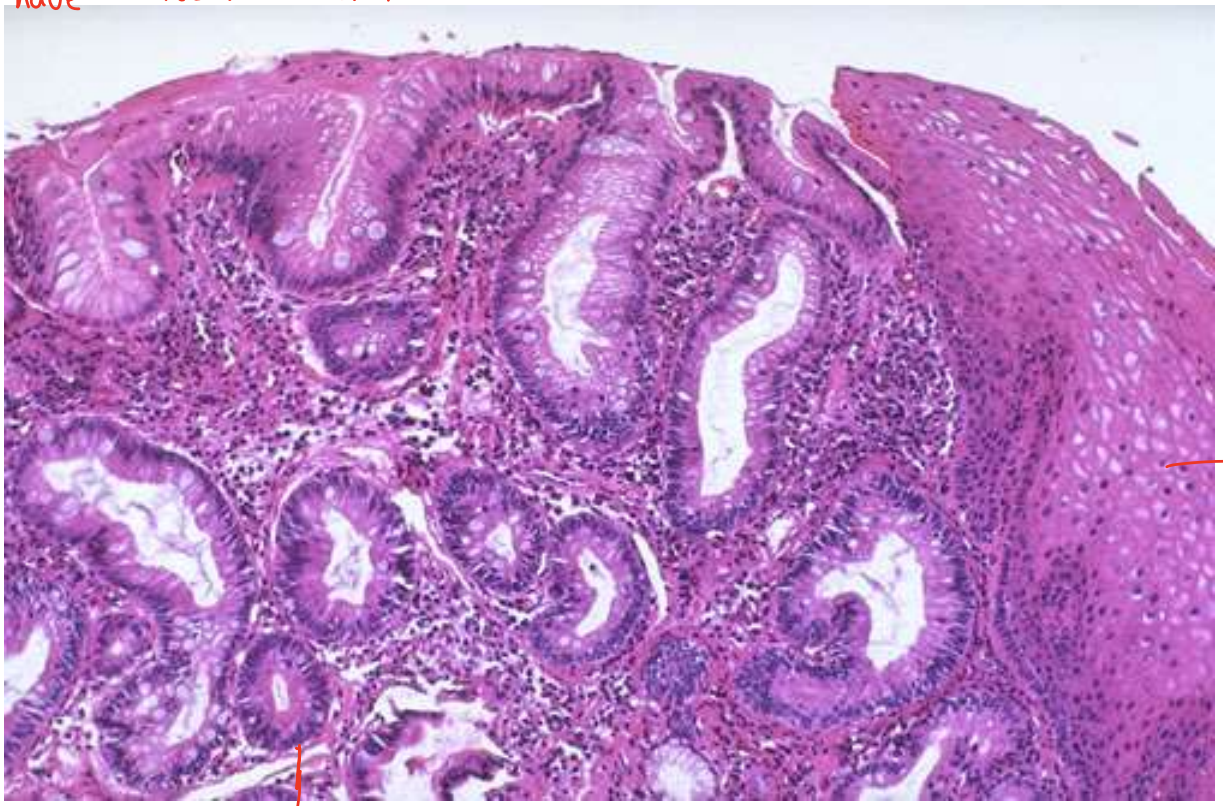
► Gastroenterology Consultants of San Antonio

normally esophagus tan-colored or light pink but here it's red and erythematous



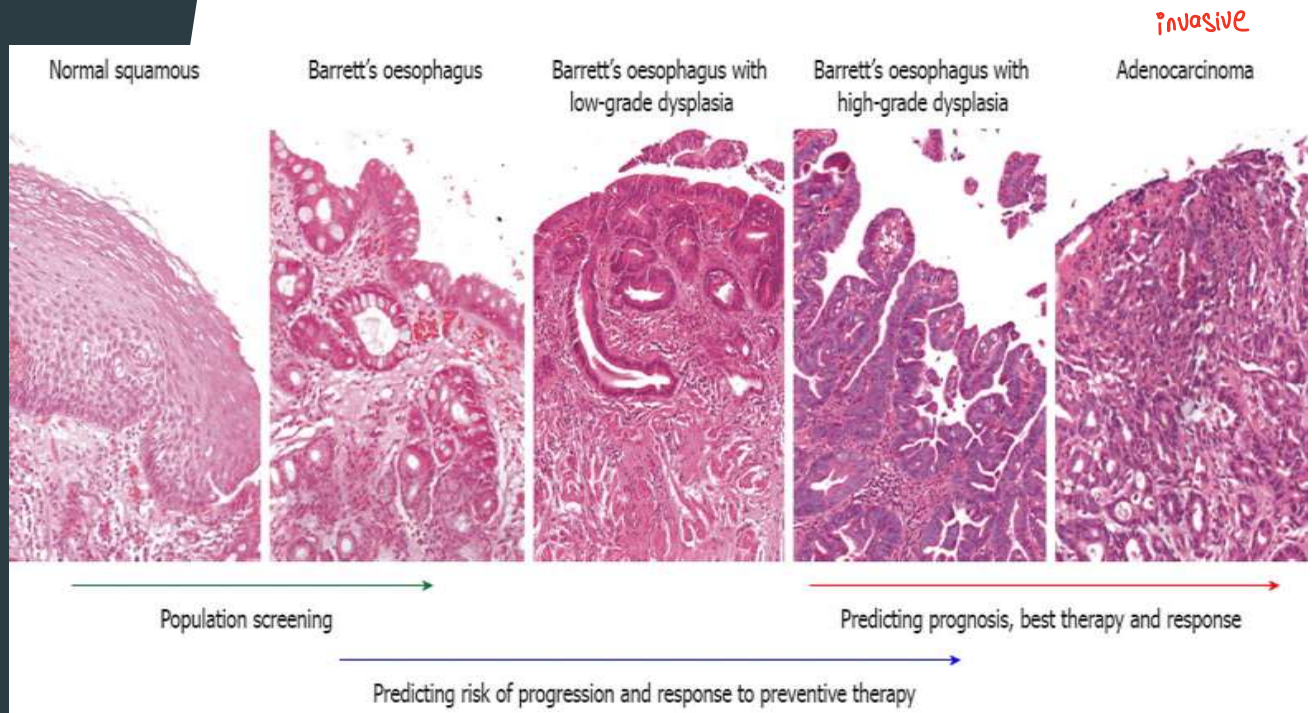
- Robbins Basic Pathology 11th edition

Goblet cells must be found in intestine but when we find them in esophagus
This means we have intestinal meta plasia



→ SQ epithelium normally found in the esophagus

→ goblet cells [distended with bluish Mucin with H and E stain]



- Baishideng Publishing Group

Management of Barrett

Periodic surveillance endoscopy with biopsy to screen for dysplasia.

High grade dysplasia & intramucosal carcinoma needs interventions.

6-ESOPHAGEAL TUMORS

Squamous cell carcinoma (most common worldwide)

Adenocarcinoma (on the rise, ½ of cases in developed countries)

and the other 1/2 due to SQ cell carcinoma

Adenocarcinoma

- Background of Barrett esophagus and long-standing GERD.
- Risk is greater if: documented dysplasia, smoking, obesity, radioTx.
- Male : female (7:1)
- Geographic & racial variation (developed countries)

Bcz incidence of obesity is High and associated with GERD which in turn leads to barrett esophagus and then adenocarcinoma

Pathogenesis

- From Barrett>>dysplasia>>adenocarcinoma.
- Acquisition of genetic and epigenetic changes.
- Chromosomal abnormalities and TP53 mutation.

Multistep process affected by many enviromental factors

MORPHOLOGY

- Distal third. of esophagus which is site for GERD and Reflux esophagitis
- Early: flat or raised patches
- Later: exophytic infiltrative masses
  forming a tumor [mass] projecting to the lumen of esophagus causing obstruction of lumen and infiltrate wall of esophagus upward and downward
- Microscopy:
- Forms glands and mucin.
  BC2 they are adenocarcinoma

exophytic mass at GEJ

esophagus

stomach

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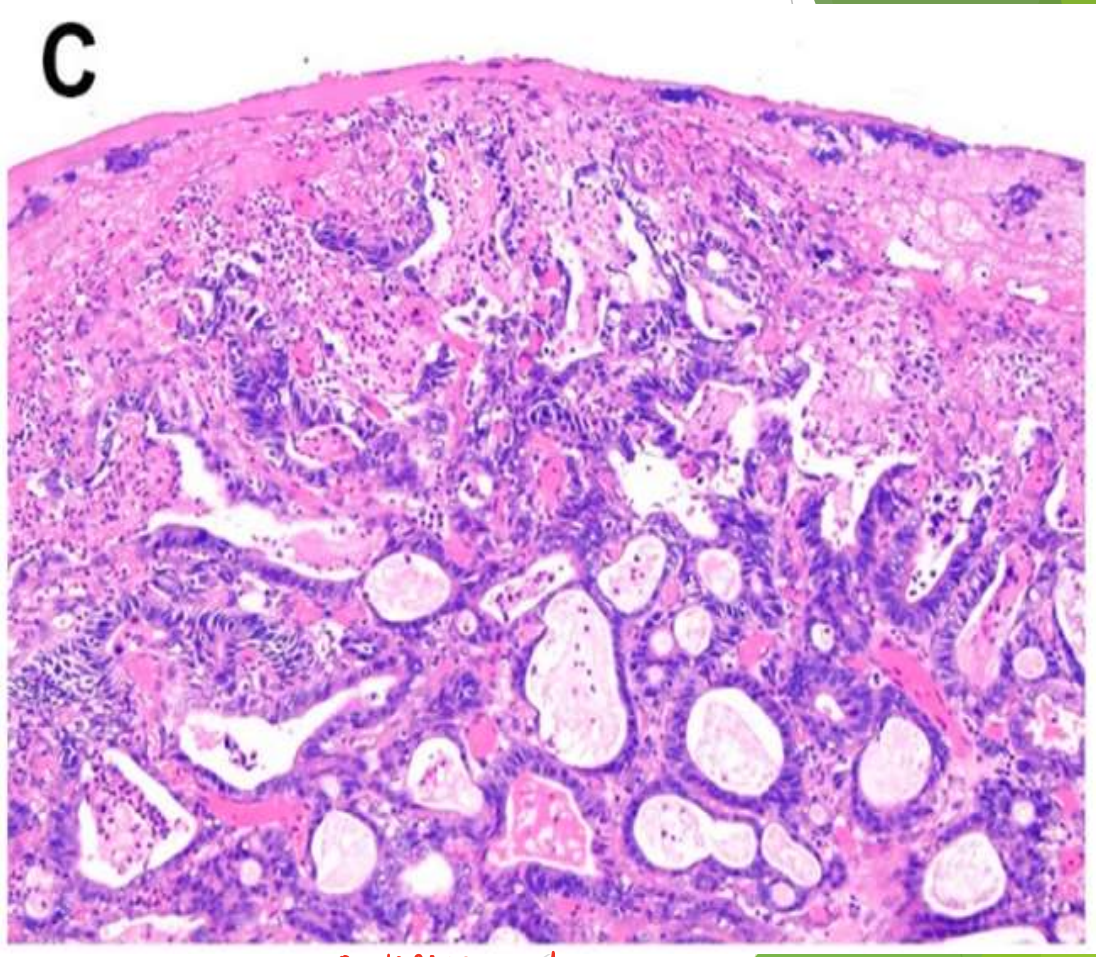


invasive adenocarcinoma

Clinical Features

- Pain or difficulty swallowing bcz obstruction
- Progressive weight loss bcz of tumor itself [tumor cachexia] and bcz difficulty of swallowing
- Chest pain
- Vomiting.
- Advanced stage at diagnosis: 5-year survival <25%. → Most unfortunate feature bcz patients present late thinking these symptoms from Reflux
- Early stage: 5-year survival 80%
  - ↳ through follow up of Barrett esophagus or dysplasia

So time of diagnosis is very imp

Squamous Cell Carcinoma

Maybe one or multiple Risk factors with enviromental factors may cause SQ cell carcinoma.

- Male : female (4:1)
- More in rural, low resource countries.
  under developed country
- **Risk factors:** are not Related to reflux esophagitis
- Alcohol
- Tobacco use
- Poverty
- Caustic injury
- Achalasia .
- Plummer-Vinson syndrome (iron deff.anemia, dysphagia,webs)
- Frequent consumption of very hot beverages
- Previous radiation Tx .

Pathogenesis

- In western : alcohol and tobacco use.
- Other areas: nutritional deficiency, polycyclic hydrocarbons, nitrosamines, fungus-contaminated foods
- HPV infection implemented in high-risk regions.

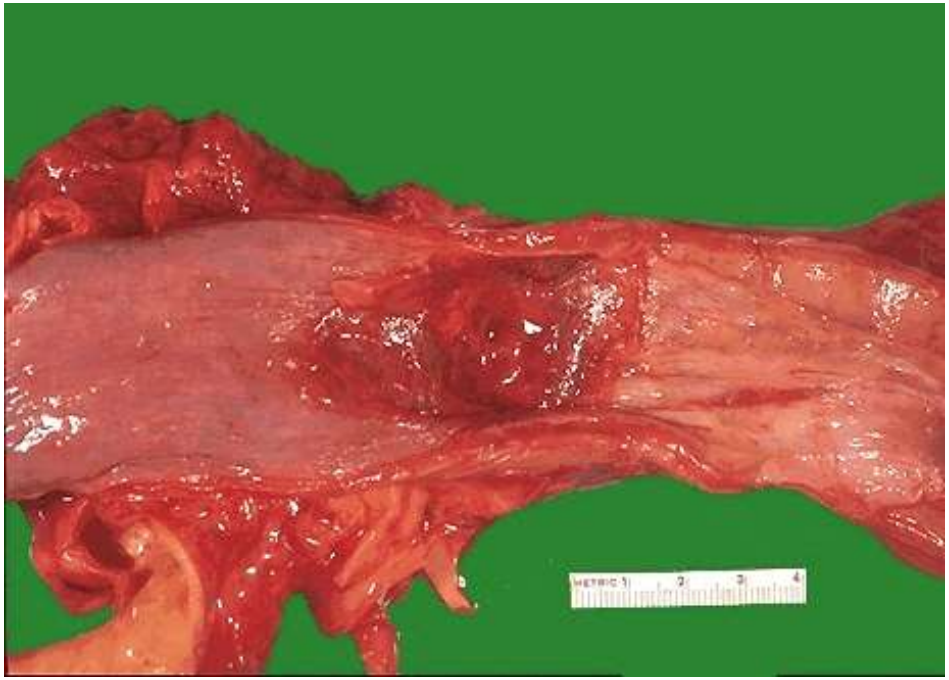
Huma papilloma virus
as part of upper aerodigestive
tract malignancies

MORPHOLOGY

- Middle third (50% of cases)
- Polypoid, ulcerated, or infiltrative. masses
- Wall thickening, lumen narrowing so difficulty in swallowing and dysphagia
- Invade surrounding structures (bronchi, mediastinum, pericardium, aorta).

Mid esophagus

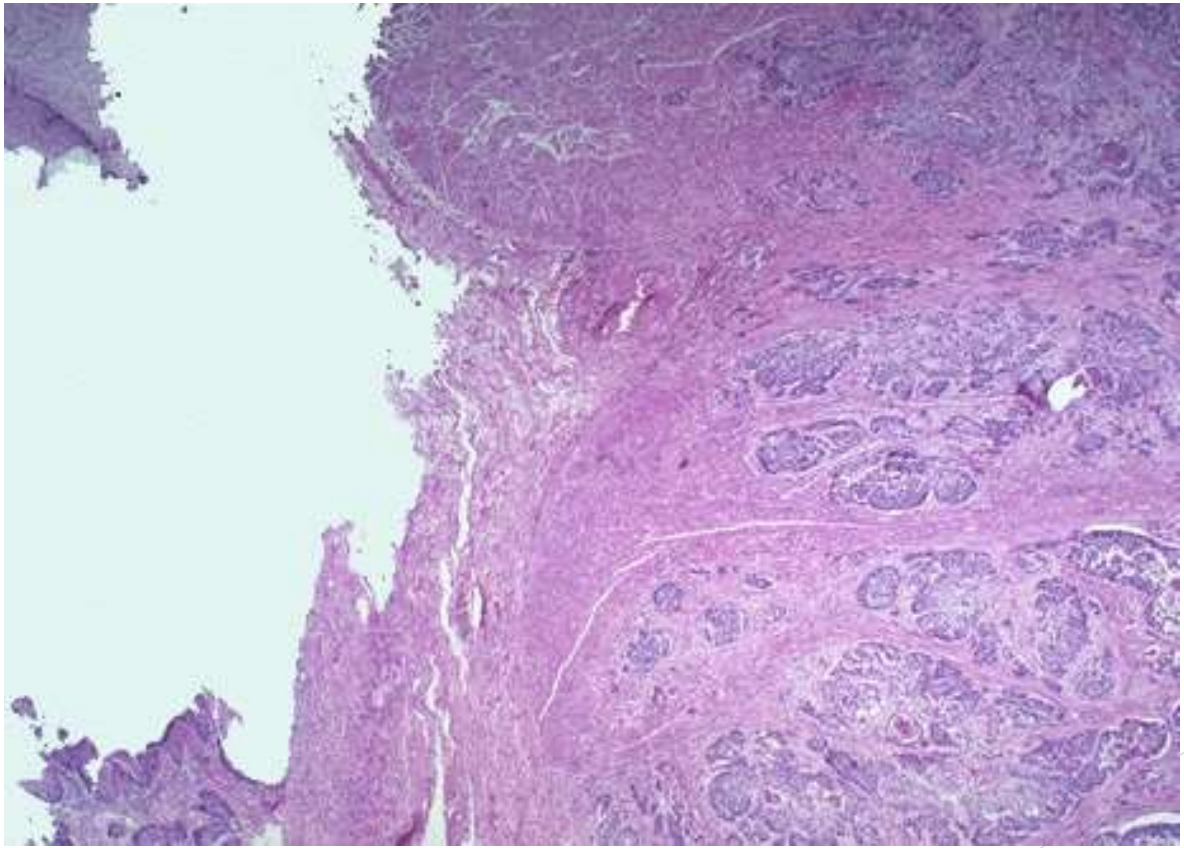
bulging mass



Microscopy:

- Pre-invasive: Squamous dysplasia & CIS. (carcinoma in situ)
- Well to moderately differentiated invasive SCC. (Invasive & squamous cell carcinoma)
- Intramural tumor nodules away from main tumor. (tumor may be carried by lymphatics to other lymphatic rich supply of esophagus forming intramural tumor nodules)
- Lymph node metastases :
- Upper 1/3: cervical LNs
- Middle 1/3: mediastinalparatracheal, and tracheobronchial LNs.
- Lower 1/3: gastric and celiac LNs.

Invasive SCC : cells of SQ origin similar to the normal lining of esophagus



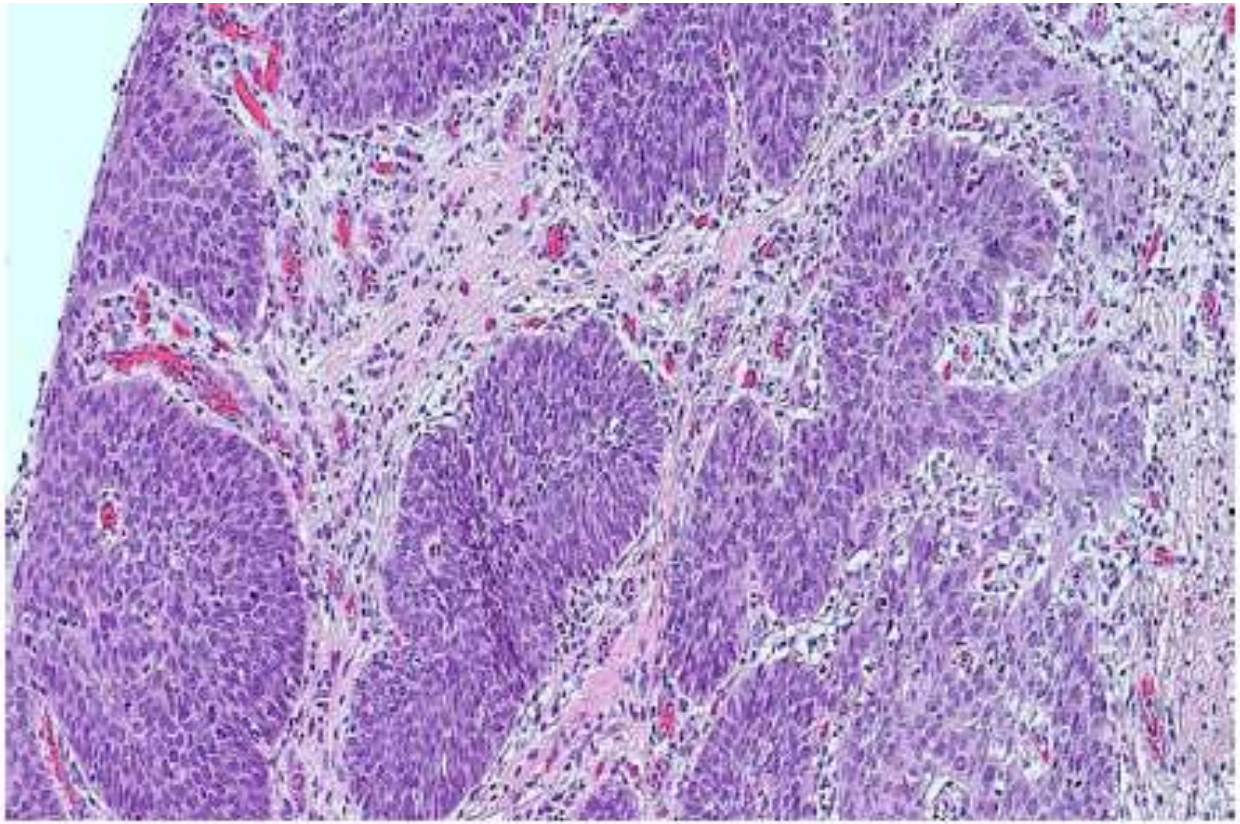


Figure 4: Squamous cell carcinoma of the esophagus with focal invasion into the muscularis mucosa and associated desmoplastic response.

Invading underlying tissue

fibrotic

Clinical Features

- Dysphagia
- Odynophagia
- Obstruction
- Weight loss and debilitation
- Impaired nutrition & tumor associated cachexia
- Hemorrhage and sepsis if ulcerated.
- Aspiration via a tracheoesophageal fistula (or tracheobronchial) Between Tumor and Trachea or bronchus
- Dismal Px: 5-year survival 10%

Usually present late.