Pathology

Doctor 2017 | Medicine | JU | GI

Number >>	2
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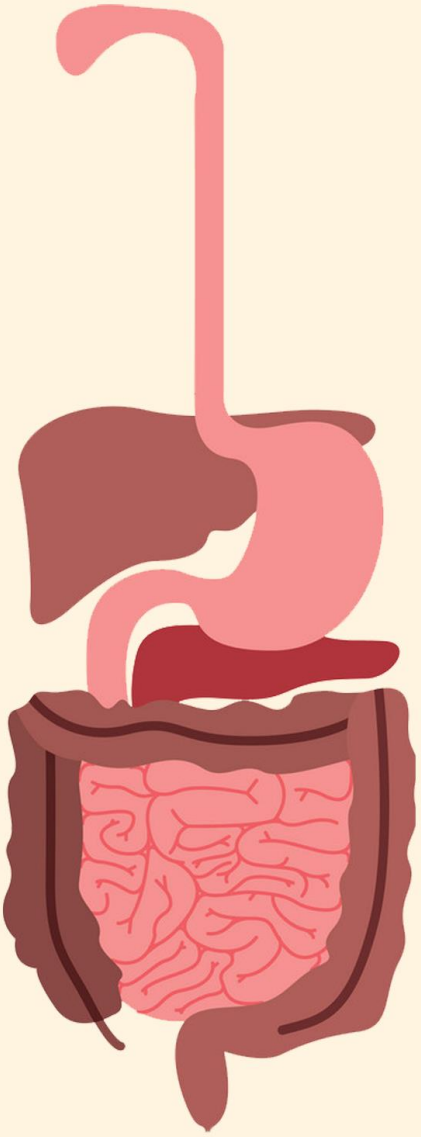
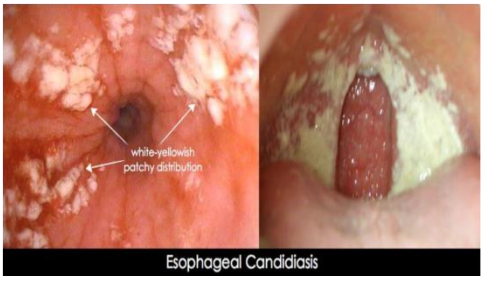


2nd system - GI

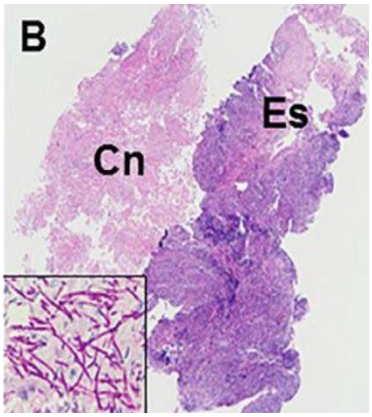
Infectious esophagitis

Infections are considered the most common causes of **esophagitis**. These infections can be **viral** (HSV or CMV), **fungal** (Candida; mucormycosis & aspergillosis) or even **bacterial** which count for 10%. Further, we should realize that, most importantly, the patient is usually immunosuppressed (i.e. old people, HIV syndrome, DM).

1) Candidiasis



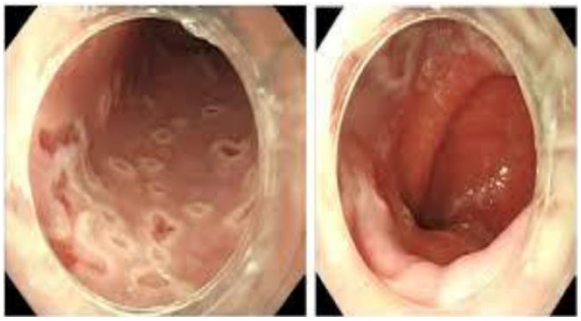
It is characterized by its **adherent** pattern to the mucosa as it looks like gray-**whitish pseudo-membranes** and sometimes presented with **oral thrush**.



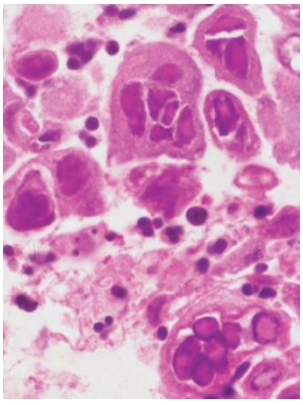
- **Microscopically:** it appears as fungal pseudo hyphae

Management: Anti-fungal medications. -

2) HSV



The cases of esophagitis caused by HSV can be endoscopically characterized by **multiple ulcers** as they are **punched out** with **sharp edges** or borders. Also, they may be deep to the surface. Undoubtedly, the histo-pathologic features of the biopsy help us recognize if it is caused by HSV specifically or even CMV (as they both cause viral esophagitis!).

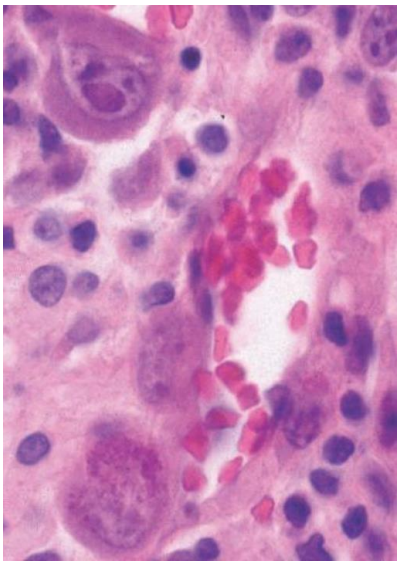


Histopathology: the epithelial cells (squamous cells) are multi-nucleated with nuclear inclusion.

Diagnosis: could have many approaches such as taking biopsy from the site of infection or even by doing PCR test for the patient.

- **Management**: Anti-viral medications.

3) CMV



Cytomegalovirus >>> **Cyto**= cell, Megalo= large. So it makes the cells look big and large once infecting them.

- **Unlike** the HSV, this virus (CMV) affects the endothelial cells that line the blood vessels as well as stromal cells.

- **Histopathology:** the ulcerations look **shallower (unlike HSV esophagitis) as they appear with** both **inclusion + multinucleated stromal cells**

Reflux esophagitis

- This is the **most common** type (cause) of **esophagitis**, most patient complain about this type of esophagitis.

- Usually, Gastroesophageal reflux diseases (**GERD**) is **linked with it**.

- The **tissue** type that is most **sensitive** to this type of esophagitis is **squamous epithelium**, because it is highly sensitive to **acids**.

- **However**, there is a protective mechanism done by the **muscular sphincter** which has a high muscular contraction tone **in addition to mucosal glands** that secrete mucin and bicarbonate (it neutralizes the medium as long as it is alkaline). NOW you may ask, why does the mucosal surface get affected if it has these glands?! >> because simply the frequent reflux (GERD) overt the time causes the mucosal lining to be less protective and less efficient.

- Pathogenesis:

1) Decreased lower sphincter tone (alcohol, tobacco, CNS depressants)

2) Increased abdominal pressure (obesity, pregnancy, hiatal hernia, delayed gastric emptying, increased gastric volume)

3) Could be idiopathic!!! (the reason in unknown)

- **Morphology: can be either (Macroscopic; seen by endoscopy) or (Microscopic)**

1) Macroscopic (endoscopy):

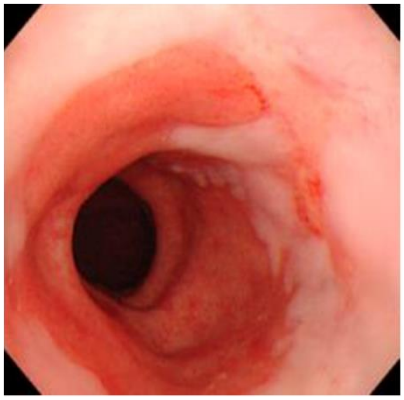
It depends on the severity of the case as it may be unremarkable or simple **hyperemia**; meaning the mucosa looks **red** ***(normally mucosal lining appears pale-pink colored)***

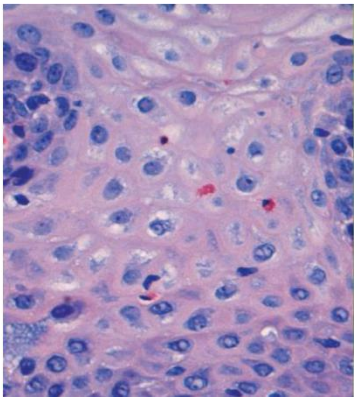
2) Microscopic:

A) Eosinophils infiltration followed by neutrophils (if more severe)

B) Basal zone hyperplasia (must be more than 20% normal epithelium to say that we have reflux esophagitis

C) Elongation of lamina propria papillae (looks like finger projection extensions)





- **Clinical Features:**

A) Commonly over 40 years

B) May occur in infant & children

C) Heartburn and dysphasia (difficulty of swallowing)

D) Regurgitation of sour-tasting gastric contents

IMPORTNANT NOTE: it may, rarely, cause severe chest pain that is mistaken for heart disease (Angina) . Clinically, one of the most differential diagnosis of this diseases (reflux esophagitis) is the presence of (GERD)!

- **Management: Proton Pump Inhibitors (PPIs)**

- Complications:

A) Esophageal ulcerations

B) Hematemesis (vomiting with blood)

C) Melena (dark black feces associated with upper GI bleeding)

D) Strictures (stenosis caused by GERD)

E) Barret esophagus (Metaplasia; it is a precursor of **adenocarcinoma!**)

Eosinophilic esophagitis

- This type of diseases is slightly different because it is considered as an **allergic** disorder (**chronic immune mediated disorder**)

- Symptoms:

> Somehow are similar to GERD. That's why it is sometimes difficult to differentiate between **Eosinophilic esophagitis & GERD**

> **Adults**: come with dysphagia and food impaction

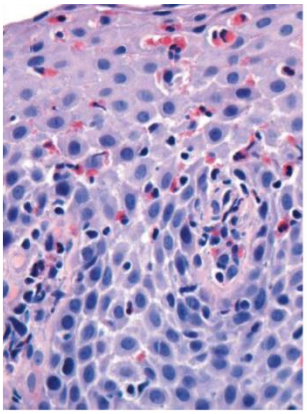
> **Children**: feeding intolerance or GERD-like symptoms.

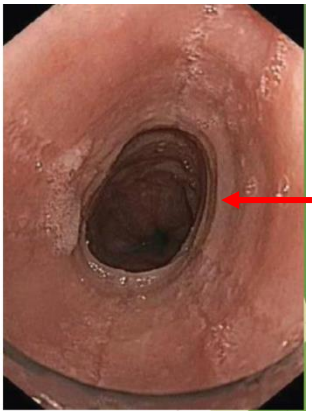
- Endoscopy:

> The changes, in Eosinophilic esophagitis, can been at either the **mid** or **upper part**. **However**, in GERD, changes are observed at the region of the **lower part** of esophagus.

> So, the doctor in endoscopy has to look for the **rings**. If the rings are seen as if they were **above each other**, then it is a typical feature of **Eosinophilic esophagitis.**

> Its examination show that location is **far** from gastro-esophageal junction (GEJ).





Notice, how the rings are localized above each other. As if they were forming a chain of rings. Remember, in Eosinophilic esophagitis, it is at the mid & upper part of esophagus.

-Under the microscope:

> **Numerous eosinophils** within the epithelium. (compared to GERD, eosinophilic esophagitis has MANY more eosinophils that you see in micrography)

> Most patients with this disease are usually atopic (allergic): i.e. atopic dermatitis, allergic rhinitis, asthma or modest peripheral eosinophilia.

-Treatment: **Dietary restrictions** (soy and cow milk products) **/** Topical or systemic **corticosteroid**s >>> (**Unlike GERD disease, patients do NOT respond to protein pump inhibitors -PPIs)**

Barrett Esophagus

> The first thing you should recall is that this disease in linked to **metaplasia**.

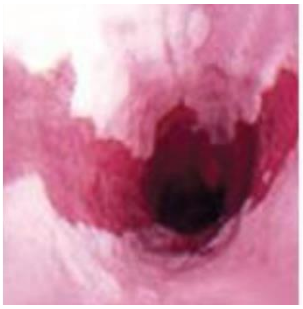
> It is a **complication** of **chronic GERD**. (10% of individuals and M>F, 40-60 yrs.)

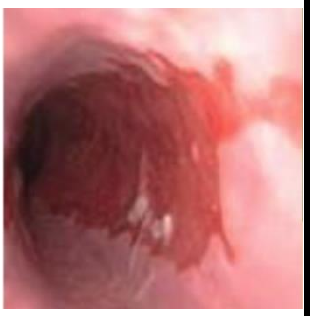
> The **intestinal metaplasia** happens within the esophageal squamous mucosa. Namely, we would see **goblet cells** and **columnar epithelial** cells during the histological observation.

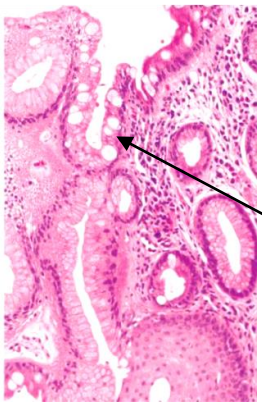
> REMEMBER, it is a **direct precursor of esophageal adenocarcinoma.**

> It develops as follows: Metaplasia >> dysplasia >> adenocarcinoma.

- Endoscopy: **Red tongues** extending upward from gastro-esophageal junction (GEJ).





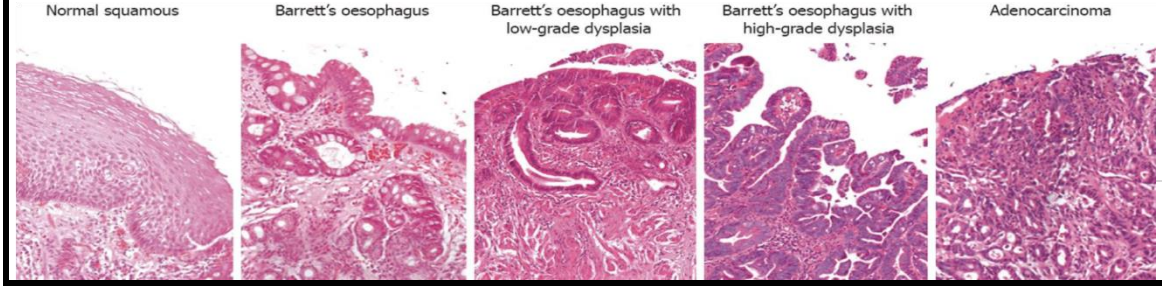


Notice the tongue-like morphology as they extend upward; towards the surface of the mucosa + the goblet cells.

- Histology: Gastric or intestinal metaplasia /presence of **goblet cells** / dysplasia might occur within low or high grade/ **intramucosal carcinoma** could also happen and invade the lamina propria where it must be treated by **surgical** involvement.

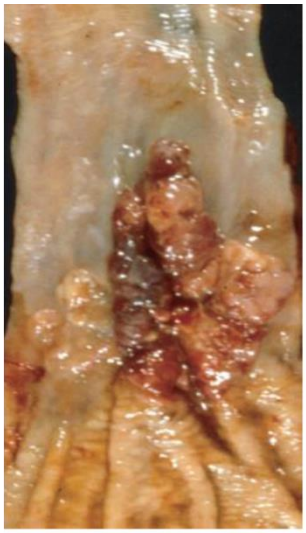
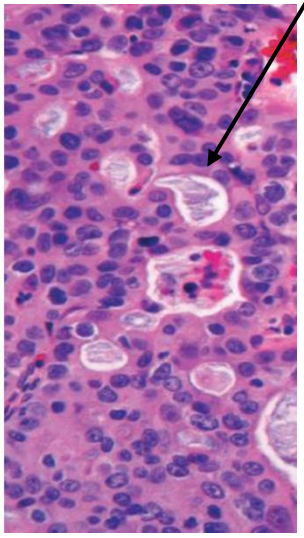
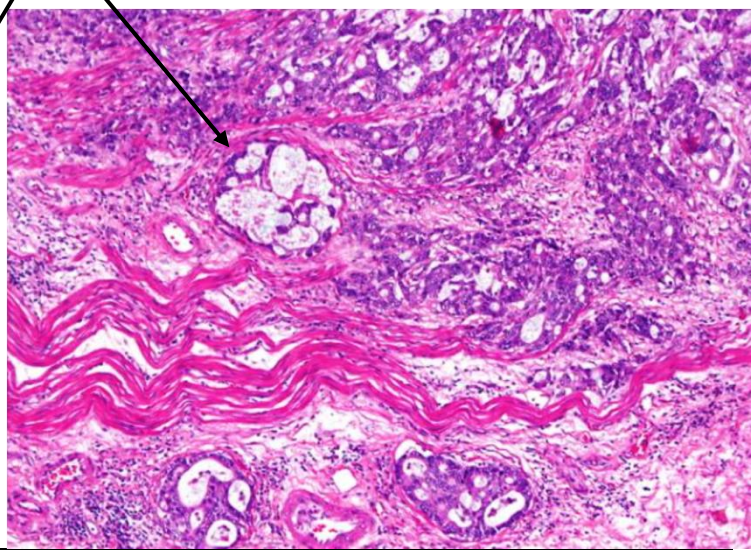
> As long as Barrett esophagus is caused by longstanding GERD, then patients with GERD, mostly, need to be checked and followed-up by their doctors over the time through endoscopy. If the doctor noticed the **red** tongue **extensions** from the GEJ reaching the **esophagus** as its color (esophagus color) changed **from pale-pink to red**, he should decide then it is a Barrett esophagus and must be treated.

- Management: periodic endoscopy with biopsy to screen for any dysplasia + high grade dysplasia & intramucosal carcinoma need interventions (i.e. surgery).



	Adenocarcinoma	Squamous cell carcinoma
NOTES	Background of Barrett esophagus and long-standing GERD. M:F = (7:1) Developed countries	M:F = (4:1) Developing countries
Risk Factors	Dysplasia with Barrett , smoking, obesity, radio treatments.	Alcohol, Tobacco use , caustics injury, Achalasia (*disease of lower esophageal body and sphincter*) , Plummer-Vinson syndrome
Pathogenesis	- Barrett >> Dysplasia >> adenocarcinoma (goblet cells) - **Mutations (TP53 gene)**	**HPV infection** , nitrosamines, fungus-contaminated food
Morphology	Distal 1/3 of esophagus - Early stage: flat or raised patches. - Late: exophytic infiltrative masses	Middle 1/3 (50% cases) - Polypoid, ulcerated or infiltrative. - lumen narrowing + wall thickening - Invading surrounding structures *(bronchi, mediastinum, aorta, pericardium)*
Clinical Features	Dysphagia, weight loss, chest pain, vomiting. - Early diagnosis = 5 yrs. survival (80%) - Late diagnosis = 5 yrs. survival (<25%)	- 5 yrs. survival (<9%) Dysphagia, obstruction, odynophagia, weight loss, hemorrhage and sepsis (if ulcerated), aspiration via tracheoesophageal fistula, tumor with cachexia
Microscopy	Glands (goblet cells) and mucin	Pre-invasive: squamous dysplasia + carcinoma in situ - Well to moderate **differentiated** invasive **SCC**. - Intramural tumor nodules lymph nodes metastasis: **Upper 1/3:** Cervical LN. **Middle 1/3:** mediastinal-paratracheal & tracheobronchial LN. **Lower 1/3:** Gastric and celiac LN.

Adenocarcinoma: Look at the formed glands (**Goblet cells**) in the histological view.

Squamous cell carcinoma: Notice how the cells are similar to squamous epithelium.