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Esophageal Diseases

“Approach to Dysphagia”



★ Objectives:

1. Know the definition of dysphagia.
2. Recognize the causes and types of dysphagia.
3. Diagnose the important esophageal diseases like GERD, Achalasia & its major clinical presentations and complications.
4. Understand the pathway of investigating patients with dysphagia.
5. List the management outline for achalasia, GERD and Ca esophagus .

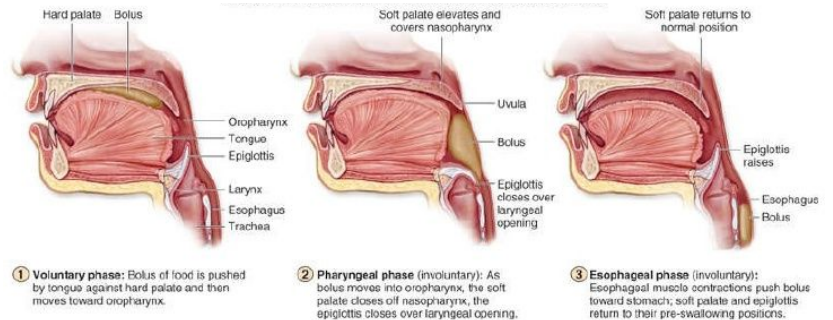
★ Resources Used in This lecture:

Slides, Step-up, Master the boards, Kaplan lectures notes

Histology of the Esophagus :

Esophagus is a muscular tube, the muscle coat has 2 layers outer longitudinal and inner circular layer. They gradually change to smooth muscles in the lower esophagus, where they're continuous with muscle layers of the stomach. It's important to understand **swallowing phases** in order to understand Esophageal diseases

1. **Oral phase** chewing with teeth & saliva
2. **Pharyngeal phase** pharyngeal muscles push food to stomach
3. **Esophageal phase** it push the food bolus to stomach



Dysphagia :Difficulty in swallowing due to either local lesion or generalized disease.The patient will complain of Sensation of obstruction of food passage. It is an essential feature of the majority of esophageal diseases.

Odynophagia: Painful swallowing.

Both dysphagia and odynophagia can lead to weight loss!



Dysphagia is considered an alarming symptom, requiring immediate evaluation!

*In History: Questions to Ask Patients With Dysphagia:

1. Do you have problems *initiating* a swallow or do you feel food getting stuck a few seconds after swallowing?
2. Do you *cough* or is food coming back through your nose after swallowing?
3. Do you have problem swallowing solids, liquids, or both?
4. How long have you had problems swallowing and have your symptoms progressed, remained stable, or are they intermittent?
5. Could you point to where you feel food is getting stuck?
6. Do you have other symptoms such as loss of appetite, weight loss, nausea, vomiting, regurgitation of food particles, heartburn, vomiting fresh or old blood, pain during swallowing, or chest pain?
7. Do you have medical problems such as diabetes mellitus, scleroderma, Sjorgen syndrome¹, overlap syndrome², AIDS, neuromuscular disorders (stroke, Parkinson's, myasthenia gravis, muscular dystrophy, multiple sclerosis), cancer, Chagas' disease³ or others?
8. Have you had surgery on your larynx, esophagus, stomach, or spine?
9. Have you received radiation therapy in the past?
10. What medications are you using now (ask specifically about potassium chloride, alendronate, ferrous sulfate, quinidine, ascorbic acid, tetracycline, aspirin and NSAIDs)? (Pill esophagitis can cause dysphagia)

*4 Cardinal Questions:

- 1-Oropharyngeal or esophageal ?
- 2-Solid or solid and liquid?
- 3-Intermittent or progressive?
- 4-Associated symptoms ?

(Some patients – no cause can be identified functional dysphagia)

***On Physical Examination Look for:** Sign of bulbar paralysis¹, Dysarthria²,

Ptosis,CVA-cerebrovascular accident-, Goitre, Changes in skin as CTD “connective tissue disease ”

¹ Palsy refers to impairment of function of the cranial nerves IX, X, XI and XII, which occurs due to a lower motor neuron lesion either at nuclear or fascicular.

²Difficult articulation of speech.

Dysphagia Classifications

1- Oropharyngeal Dysphagia also called Transfer Dysphagia	2- Esophageal Dysphagia
<p><u>Arises from:</u></p> <ul style="list-style-type: none"> ● Upper esophagus ● Pharynx ● Upper esophageal sphincter <p>Striated muscle disease :</p> <ul style="list-style-type: none"> ● Motor neuron disease ● CVA "Cerebrovascular accident-stroke-" ● Myasthenia gravis ● Polymyositis 	<p><u>Arises From:</u></p> <ul style="list-style-type: none"> ● Esophageal body ● Lower esophageal sphincter ● Cardia "upper opening of stomach where esophagus enter
	<p>2.A- Mechanical dysphagia:</p>
	<p><u>Maybe due to:</u></p> <ul style="list-style-type: none"> ○ <i>Large food bolus.</i> ○ <i>ntrinsic narrowing:</i> <ul style="list-style-type: none"> ✓ Esophagitis (viral/ fungal) -pain with swallowing , common in HIV patients , Dx & Tx is by fluconazole, then endoscopy should be done - ✓ Stricture (benign) ✓ Tumor ✓ Web/ rings³ -Intermittent dysphagia, may respond to Iron supplement - ○ Extrinsic compression as Enlarged thyroid, Diverticulum, Left atrial enlargement.
	<p>2.B-Motor dysphagia:</p>
	<p>Due to smooth muscles disorders:</p> <ul style="list-style-type: none"> ✓ Scleroderma⁴ ✓ Achalasia ✓ Esophageal spasm

³ Upper esophageal web : is a constriction near upper esophageal sphincter in the plummer-Vinson syndrome(Paterson-Brown-Kelly syndrome) .Web is associated with iron deficiency Anemia. Lower esophageal or Schatzki ring : is a narrowing of the lower end of the esophagus due to ridge mucosa or a fibrous membrane.

⁴ esophagus neither contract nor relax it's just as immobile open tube.

★ **Achalasia:** A motor disorder of esophageal *smooth muscle*.

It's the inability of the lower esophageal sphincter (LES) to relax due to a loss of the nerve plexus within the lower esophagus "high LES pressure". There is aperistalsis of the esophageal body "absent distal peristalsis."

■ **Pathophysiology/Pathogenesis:**

- "Loss of intramural neurons of esophageal body & LES."
 - a. Degenerative lesions are found on the vagus & decrease ganglion cells in the myenteric plexus.
 - b. Nitric oxide containing neurons are affected more than the cholinergic nerves thus relaxation of the LES impaired in its absence.



Look for:

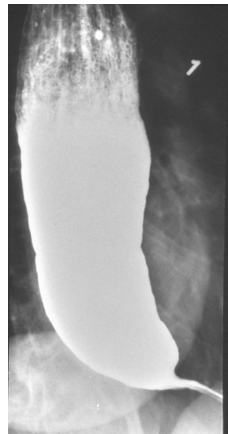
- Young patients (under 50)
- Progressive dysphagia to BOTH solids and liquids at the SAME TIME.
- No association with alcohol and tobacco use.

■ **Clinical Features:**

- **Dysphagia** – with both liquid and solid at the same time.
 - Patients tend to eat slowly and drink lots of water to wash down food. Also, they may twist their body, extend their neck, or walk about the room in an effort to force food into the stomach.
 - It is exacerbated by fast eating and by emotional stress.
- **Regurgitation** and pulmonary aspiration-aspiration pneumonia may result-
 - Food get "stuck" in the esophagus and then comes back.
- **Chest pain.**
- Weight loss.
- Recurrent pulmonary complication secondary to aspiration.
 - May cause lung abscess, bronchiectasis or hemoptysis.

■ **Diagnosis:**

- **Chest X-ray:**
 - ✓ Absent of gastric bubble.
 - ✓ Wide mediastinum/**esophagus**.
 - ✓ Fluid level.
- **Barium Swallow:** -acceptable to *do first* in most patients-
 - ✓ Esophageal dilatation.
 - ✓ Terminal part of the esophagus show "bird's beak" beak-like.
- **Manometry** -is the most *accurate* diagnostic test-
 - ✓ Elevated LES Pressure with *no or partial relaxation* amplitude contraction, no propagating (simultaneous).
- **Upper endoscopy**
 - ✓ Will show normal mucosa; useful in some patients to exclude malignancy.



■ **Treatment:** THERE'S NO CURE, treatment based on simple *mechanical dilation of the esophagus:*

- **Drugs:** Antimuscarinic agents / Nitroglycerin / Calcium channel blockers.
- Pneumatic dilatation -effective in 80-85% of patients thus *the treatment of choice-*
- **Botulinum toxin injection**
- **Surgical:** Surgical sectioning / Heller myotomy

★ Esophageal Cancer

There are two pathologic types. In the past, squamous cell carcinoma (SCC) accounted for up to 90% of cases. However, the incidence of adenocarcinoma has increased dramatically in the United States, and it now accounts for up to 50% of new cases.

TYPE	Squamous cell carcinoma (SCC)	Adenocarcinoma
EPIDIMOLOG Y	Incidence is higher in African-American men than in other groups. "is common worldwide"	More common in Caucasians and men (5:1 over women) "is common in USA"
LOCATION	Upper-thoracic and mid-thoracic esophagus.	Distal third of the esophagus/gastroesophageal junction (in 80% of cases)
RISK FACTORS	GERD and Barrett's esophagus are main risk factors; alcohol and tobacco may not be as important as in SCC.	Alcohol and tobacco use, diet (nitrosamines, betel nuts, chronic ingestion of hot foods and beverages such as tea), human papilloma- virus, achalasia, Plummer-Vinson syndrome, caustic ingestion, and nasopharyngeal carcinoma.

generally in both types of Esophageal cancer..



Look for:

- Age 50 or older.
- Dysphagia **first for solids**, followed **later for liquids** (progressive).
- Association with prolonged alcohol, tobacco use and fungal toxin.
- More than 5-10 years of GERD symptoms.

- **Clinical Features:** ◦ Weight loss ◦ Odynophagia ◦ Regurgitation ◦ T-E Fistula⁵
- **Diagnosis:**
 - **Barium Swallow:** -best *initial test*-
 - **Upper endoscopy with biopsy** -required for *confirmation*-
- **Staging:**
 1. **Stage I:** tumor invades lamina propria or submucosa; nodes negative
 2. **Stage IIa:** tumor invades muscularis propria or adventitia; nodes negative
 3. **Stage IIb:** tumor invades up to muscularis propria; positive regional nodes
 4. **Stage III:** tumor invades adventitia (positive regional nodes) or tumor invades adjacent structures (positive or negative nodes)
 5. **Stage IV:** distant metastasis

- **Post-esophagectomy** overall 5 year survival ⇒ 18%
 - At presentation, 57% patients are Stage 3 ⇒ with a 10% post-esophagectomy survival.
 - At presentation, 24% patients are Stage 2 ⇒ with a 35% post-esophagectomy survival.
 - At presentation, patients who are Stage 1 ⇒ have an 80% post-esophagectomy survival.

⁵ Tracheoesophageal fistula

★ **Esophageal Diverticula** Outpouchings of the wall of the esophagus.

Most esophageal diverticula are caused by an underlying motility disorder of the esophagus.

TYPE	Zenker	Traction	Epiphrenic
LOCATION	Upper third	Midpoint	Lower third
PHATHO-PHYSIOLOGY	Failure of the cricopharyngeal muscle to relax during swallowing leads to increased intraluminal pressure → this causes outpouching of mucosa through an area of weakness in the pharyngeal constrictors.	It is due to traction from contiguous mediastinal inflammation and adenopathy (pulmonary tuberculosis). Tuberculosis causes hilar node scarring, which causes retraction of esophagus.	Associated with spastic esophageal dysmotility or achalasia.
CLINICAL FEATURES	Dysphagia, Regurgitation, Halitosis (bad breath), weight loss, and Chronic cough.	Asymptomatic	Symptoms of dysphagia are more often related to the underlying motility disorder, unless the diverticulum is very large.
DIAGNOSIS	<ul style="list-style-type: none"> ○ Barium swallow -is the best diagnostic for diverticula- <p><i>Note: Endoscopy Should be avoided</i></p>		
NOTES	<ul style="list-style-type: none"> ● Most common type ● Seen in patients > 50 yr 	-	
TREATMENT	Surgery: Cricopharyngeal myotomy/ Diverticulectomy is of secondary importance.	Doesn't require treatment	Surgery: Esophagomyotomy / Diverticulectomy is of secondary importance.

★ **Infectious Esophagitis** refers to infection of esophagus. Either by:

- Viral esophagitis: Herpes simplex **OR** Varicella Zoster **OR** friable mucosa.
- Bacterial
- Fungal: Candida Albicans; almost with HIV positive with a CD4 count <200 **OR** diabetes.

■ **Clinical Features:**

- Dysphagia / Odynophagia “pain is mainly due to mechanical rubbing of food against an inflamed esophagus as it passes by”
- Bleeding.

■ **Diagnosis:**

- Barium swallow
- Endoscopy with biopsy

Note: If patient is HIV+, the diagnosis is confirmed simply by seeing a response to fluconazole if doesn't work then endoscopy should be performed.

★ **GastroEsophageal Reflux Disease (GERD):** is a multifactorial problem. In appropriate relaxation of the lower esophageal sphincter (decrease its tone) is the primary mechanism, leading to retrograde flow of stomach contents into esophagus ⇒ Damaged* esophageal mucosa by reflux of gastric content “Reflux esophagitis”.

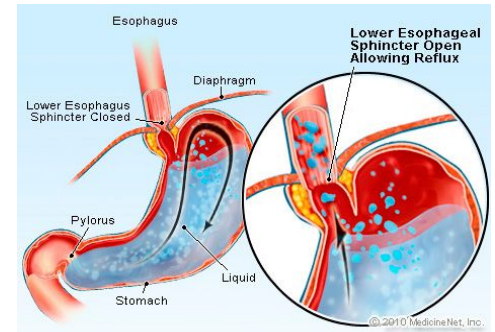
*Damage will depend on: refluxed *material*, the *duration* of reflux and *frequency*.



Normally we have **antireflux** mechanism such as: LES, Esophageal peristalsis, Resistant of esophageal mucosa, Saliva “contain HCO₃ neutralize the food” and Gastric peristalsis.

■ **Major factor involved in GERD:**

- Loss of LES pressure:
 - ✓ TLESR⁶
 - ✓ Relaxation will be sustained.
 - ✓ Increased Intra gastric pressure⁷.
 - ✓ Scleroderma.
 - ✓ Surgical resection.
- Hiatus hernia
- Aperistalsis
- Reduce saliva
- Delayed gastric emptying : Mechanical obstruction or Motor.
- Other factors: Fat, chocolate, coffee, alcohol, smoking , drugs (eg: Anticholinergics, Calcium Channel blockers &Nitrates), also GERD could occur after treatment of Achalasia.



■ **Clinical Features:**

- Heartburn- very common-
- Chest pain
- Dysphagia
- Regurgitation -especially when patient is lying-, nocturnal asthma and cough could occur from regurgitation and aspiration.



■ **Diagnosis:** “GERD is a clinical Diagnosis”

- **Endoscopy** -only in refractory cases- biopsy to assess mucosal changes.
- **Barium swallow** -helpful in identifying complication (strictures/ulcerations)-
- **24 Hours pH monitoring** -most accurate “sensitive and specific”-
- **Manometry** -if a motility disorder is suspected-

■ **Complications:**

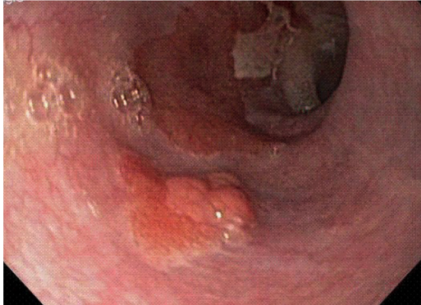
- Bleeding
- Stricture formation
- Barrett’s esophagus⁸
- Adenocarcinoma ∞

⁶ Transient lower esophageal sphincter

⁷ That’s why pregnant ladies have GURD

⁸ Premalignant for adenocarcinoma consists of columnar epithelium with intestinal metaplasia with goblet cells extending into lower esophagus replacing the Normal Squamous epithelium , seen as a finger projections by endoscopy, gross appearance : tongue like salmon color,.

∞ **Risk Factors for Adenocarcinoma:** Age>50, GERD >5 years, Central obesity, Male, 1st degree relative with Barrettes, Smoker Caucasian race, Hiatus hernia.

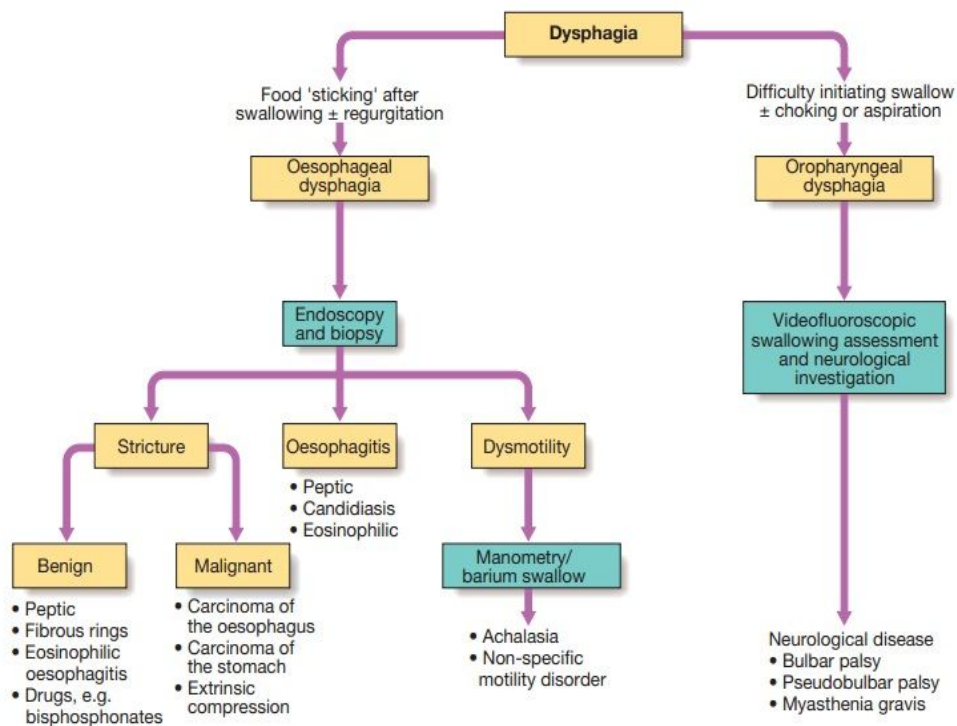


Barrett Esophagus: tongue like Salmon color. Pre-cancer lesion. In biopsy the epithelium becomes columnar with Goblet cell

- **Surveillance** (close observation): will be for those with *high risk*
 - Male.
 - Female with short history of GERD didn't need it as they are low risk (unless if elderly or family history).
 - Progression to cancer is low 0.5 annually
 - OGD(Oesophago-gastro-duodenoscopy) every 3 years then based on biopsy .

■ **Treatment:**

- Antireflux measure
- Acid suppressing agents
- Surgery.



MCQs

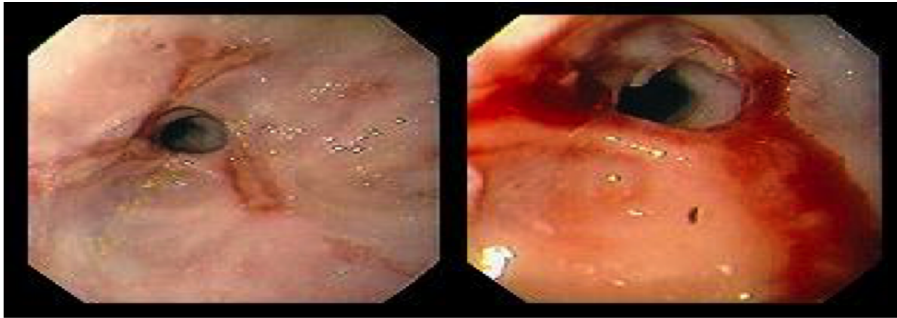
1. Based on latest epidemiological data of cancer esophagus. Which one of the following is true?

- a. Esophageal adenocarcinoma is now the predominant type of esophageal carcinoma in the United States.
- b. Squamous cell carcinoma is now the predominant type of esophageal carcinoma in the United States.
- c. Esophageal adenocarcinoma is now the predominant type of esophageal carcinoma worldwide.
- d. Both type of esophageal carcinoma is equally increasing in the United States.

2. A 50-year-old black male with a history of alcohol and tobacco abuse has complained of difficulty swallowing solid food for the past two months. More recently, swallowing fluids has also become a problem. He has noted black, tarry stools on occasion. The patient has lost 10 pounds. Which of the following statements is correct?

- a. The patient's prognosis is good
- b. Barium contrast study is indicated
- c. The most likely tumor is an adenocarcinoma
- d. The patient has achalasia

3. Young lady with intermittent solid dysphagia. The best treatment option is:



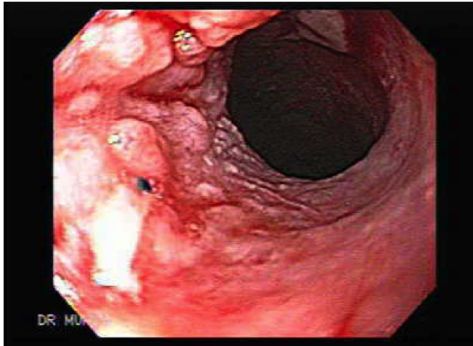
- a. Surgical
- b. Endoscopic
- c. PPI
- d. Observation

4. Young lady with progressive dysphagia to solid and liquid ,weight loss. The next step in the management of this patient is:

- a. Dilatation
- b. Manometry
- c. Myotomy
- d. PPI



5. Old man with progressive dysphagia to solid only with weight loss



The above patient his 5 years survival is ?

- a. 5 %
- b. 10 %
- c. 15 %
- d. 20 %

Ans: 1.a 2.b 3.b 4.a 5.b
-WE ARE NOT SURE-