

L26: Esophageal disease



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 Caesophagus.

Definition & classification of dysphagia

Dysphagia:

Sensation of obstruction of food passage (Difficulty in swallowing).

Dysphagia is considered an alarming symptom, requiring immediate evaluation



Other alarm features:
Hematemesis and/or melena ,
vomiting, PR bleeding, melena,
diarrhea, weight loss, anemia and
palpable abd. Mass.

Types of dysphagia	1- Oropharyngeal dysphagia (transfer dysphagia)	2- Esophageal dysphagia
Arise from	<ul style="list-style-type: none"> Pharynx upper esophagus upper esophageal sphincter 	<ul style="list-style-type: none"> Esophageal body lower esophageal sphincter cardiac

It is classified into : Mechanical dysphagia and motor dysphagia

Mechanical dysphagia			Motor dysphagia
1-Large food bolous.	2-Intrinsic narrowing. e.g: i)Esophagitis (viral/fungal) ii)Stricture (benign) iii)Tumor iv)Web/ rings	3-Extrinsic compression. e.g: i)Enlarge thyroid. ii)Diverticulum. iii)Left atrial enlargement.	Smooth muscles disorder: i)Scleroderma ii)Achalasia iii)Esophageal spasm

Functional dysphagia

No cause can be identified.


GERD

1. GERD is a multifactorial problem. Inappropriate relaxation of the LES (**decreased LES tone**) is the primary mechanism, it causes reflux because the pressure gradient between the abdominal and thoracic cavities, which normally pinches the hiatus, is lost. leading to retrograde flow of stomach contents into the esophagus.

Other factors that may contribute include:

- i. Decreased esophageal motility to clear refluxed fluid
- ii. A gastric outlet obstruction
- iii. **A hiatal hernia (common finding in patients with GERD)**
- iv. Dietary factors (e.g., alcohol, tobacco, chocolate, high-fat foods, coffee)—may decrease LES pressure and exacerbate the condition.
- v. Gastric content : there is close relationship between acid exposure and symptoms. pepsin and bile causes mucosal injury
- vi. Delayed gastric emptying : is common in patients with GERD.
- vii. increased intra-abdominal pressure as in pregnancy & obesity.
- viii. Patient factors: visceral sensitivity and patient vigilance play a role in determining symptom severity.

1. GERD is a very common condition. Its prevalence increases with age.

 If GERD is associated with dysphagia, this suggests the development of **peptic stricture**. Alternatively, a motility disorder or cancer may be present.



GERD is a chronic disorder. Regular follow-up is recommended to identify any complications (e.g., Barrett's esophagus, stricture, esophagitis).


GERD

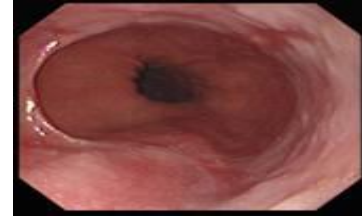
Clinical features

1. **Heartburn, dyspepsia** :
 - A. Retrosternal pain/burning shortly after eating (especially after large meals).
 - B. Exacerbated by lying down after meals, bending and straining.
 - C. **May mimic cardiac chest pain** (which may lead to unnecessary workup for ischemic heart disease. **But, cardiac causes need to be ruled out**).
2. **Regurgitation.**
3. Waterbrash—reflex salivary hypersecretion.
4. Cough—due to either aspiration of refluxed material or a reflex triggered by acid reflux into the lower esophagus.
5. Hoarseness, sore throat, feeling a lump in the throat.
6. Early satiety, postprandial nausea/vomiting.

Diagnosis

- 1) **Endoscopy with biopsy**: the test of choice but not necessary for typical uncomplicated cases.
 - A. Indicated if heartburn is refractory to treatment, or is accompanied by dysphagia, odynophagia, or GI bleeding.
 - B. A biopsy should also be performed to assess changes in esophageal mucosa.
- 2) Upper GI series (**barium contrast study**): This is only helpful in identifying complications of GERD (strictures/ulcerations), but cannot diagnose GERD itself.
- 3) **24-hour pH monitoring in the lower esophagus**: This is **the most sensitive and specific test for GERD**. It is the gold standard, but is usually unnecessary. (**esophageal PH should not be less than 4**).
- 4) Esophageal manometry: Use if a motility disorder is suspected.

 Diagnostic tests are usually not necessary for typical, uncomplicated cases of GERD, and therapy can be initiated. Tests are indicated in atypical, complicated, or persistent cases (despite treatment). Endoscopy should be performed if worrisome symptoms (anemia, weight loss, or dysphagia) are present.



Complications

- 1) Erosive esophagitis: These patients are at high risk of developing complications such as stricture, ulcer, or Barrett's esophagus. These patients are candidates for long-term PPI therapy.
- 2) Peptic stricture (benign esophageal stricture) :
 - A. Consists of fibrotic rings that narrow the lumen and obstruct the passage of food. can develop from long standing esophagitis.
 - B. Presents with dysphagia; may mimic esophageal cancer.
 - C. EGD(esophagogastroduodenoscopy) can confirm the diagnosis. Dilation should be performed.
- 3) Esophageal ulcer: possible cause of upper GI bleeding
- 4) Barrett's esophagus: occurs in 10% of patients with chronic reflux
 - A. The normal, stratified, squamous epithelium of the distal esophagus is replaced by columnar epithelium. Dysplastic changes may occur, with risk of adenocarcinoma.
 - B. Patients who have had symptomatic GERD for at least 5 years (and can undergo surgery if cancer is found) should be screened for the possibility of Barrett's esophagus.
 - C. Endoscopy with biopsy is required. If the patient has documented Barrett's esophagus without any dysplastic changes, periodic surveillance is appropriate (every 3 years or so).
 - D. Medical treatment: long-term PPIs
- 5) Recurrent pneumonia (due to recurrent pulmonary aspiration):The cytologic aspirate finding on bronchoscopy that can diagnose aspiration of gastric contents is **lipid-laden macrophages** (from phagocytosis of fat).
- 6) Pitting of dental enamel (dental erosion); gingivitis
- 7) Laryngitis, pharyngitis.
- 8) Anemia as consequence of long standing esophagitis.



- I. If a patient with **GERD** also has a **hiatal hernia**, the hernia often worsens the symptoms of GERD.
- II. **Barrett's esophagus** is a complication of **longstanding acid reflux disease** in which there is columnar metaplasia of the squamous epithelium.
- III. Patients with barrett's esophagus are at increased risk of **developing adenocarcinoma of the esophagus**.

Management

- 1) Initial treatment (phase I): treatment indicated only for symptoms or complications.
 - Behavior modification—diet (avoid fatty foods, coffee, smoking, alcohol, orange juice, chocolate); avoid large meals before bedtime; sleep with trunk of body elevated; stop smoking.
 - Antacids—after meals and at bedtime.
- 2) Phase II—add an H₂ blocker: can be used instead of or in addition to antacids
- 3) Phase III—switch to a PPI: use if above treatments fail to resolve symptoms or in patients with erosive esophagitis
- 4) Phase IV—Add a promotility agent, such as metoclopramide (a dopamine blocker), which is most commonly used, or bethanechol (a cholinergic agonist).
- 5) Phase V:
 - a. Combination therapy : H₂ blocker plus promotility agent + PPI plus promotility agent.
 - b. Increased dose of H₂ blocker or PPI.
- 6) Phase VI—antireflux surgery for severe or resistant cases
 - a. Indications for surgery:
 - Intractability (failure of medical treatment)
 - Respiratory problems due to reflux and aspiration of gastric contents
 - Severe esophageal injury (ulcer, hemorrhage, stricture, Barrett's esophagus)
 - b. Types of surgery
 - Nissen fundoplication (may be done open or laparoscopically)—procedure of choice for a patient with normal esophageal motility
 - Partial fundoplication—when esophageal motility is poor
 - c. Outcome of surgery—Excellent results have been reported.

Achalasia

Acquired motor disorder of esophageal smooth muscle in which the **lower esophageal sphincter (LES) fails to completely relax with swallowing**, and **abnormal peristalsis of esophageal body**. Failure of propagated esophageal contraction, leading to progressive dilatation of the gullet (esophagus or larynx).

Clinical presentation

- 1-**Dysphagia** (odynophagia is less common) : develop slowly, is initially intermittent.
- Equal difficulty swallowing **solids and liquids** (in contrast to esophageal cancer, in which dysphagia for solids is greater than for liquids)
 - Then worse for solids and eases by drinking liquids. 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.

2-Regurgitation:

- a.Food gets “stuck” in the esophagus and then comes back up.
- b.Regurgitation may lead to aspiration.

3- Chest pain

4- Weight loss

5- Recurrent pulmonary complications secondary to aspiration, which may cause

lung abscess, bronchiectasis, or hemoptysis

6- Usually occur in young.

Diagnosis

- 1)Barium swallow:'**bird's beak**’ beak-like narrowing of distal esophagus and a large dilated esophagus proximal to the narrowing.
- 2-Upper GI endoscopy:to rule out secondary causes of achalasia (gastric carcinoma) and retention esophagitis or esophageal cancer.
- 3- **Manometry: to confirm the diagnosis**; reveals failure of LES relaxation and aperistalsis of esophageal body.
- 4- **Chest X-ray -**
 - Absent of gastric bubble.
 - Wide mediastinum.
 - Fluid level.



Barium swallow (Bird beak)

Achalasia

! There is no cure for achalasia. Treatment modalities (including surgery) are only palliative.

Management

1- Instruct patient on adaptive measures: chew food to consistency of pea soup before swallowing; sleep with trunk elevated; avoid eating before sleep.

2- Medical therapy (in not surgical fit patients or elderly with increased risk for perforation)

a. Antimuscarinic agents (dicyclomine)—usually unsatisfactory

b. Sublingual **nitroglycerin, long-acting nitrates, and calcium channel blockers:**

- May improve swallowing in early stages of achalasia (before esophageal dilatation occurs)

- Most useful in the short-term treatment of achalasia (before more definitive therapy)

3-Injection of botulinum toxin into the LES during endoscopy

a. Blocks cholinergic activity in the LES

b. Can be effective in up to 65 % of cases; however, repeat procedure needs to be performed every 2 years.

4-Forceful dilatation -

a. Pneumatic balloon dilatation is most effective.

b. Lowers basal LES tone by disrupting the muscular ring (patients end up with reflux).

c. Can be effective, but there is a 5 % risk of perforation

5- Surgical

a. “Heller myotomy”—circular muscle layer of LES is incised

b. Usually reserved for patients who do not respond to dilation therapy

6- Early results are promising (80% to 90% of patients experience good to excellent palliation of dysphagia at 1 year)

7-Long-term data are needed.

- !**
1. Patients with achalasia have a seven fold increase in the risk of esophageal cancer (usually squamous cell)—it occurs in 10% of patients 15 to 25 years after the initial achalasia diagnosis. Often tumors go unnoticed (even when large) due to a dilated esophagus and chronic dysphagia. Therefore, perform surveillance esophagoscopy to detect the tumor at an early stage.

Infectious Esophagitis

Causes :

- 1-Viral esophagitis (Herpes simplex, Varicella Zoster, Cytomegalovirus)
- 2-Bacterial
- 3-Fungal

Clinical presentation :

- 1-Dysphagia
- 2-Odynophagia
- 3-Bleeding

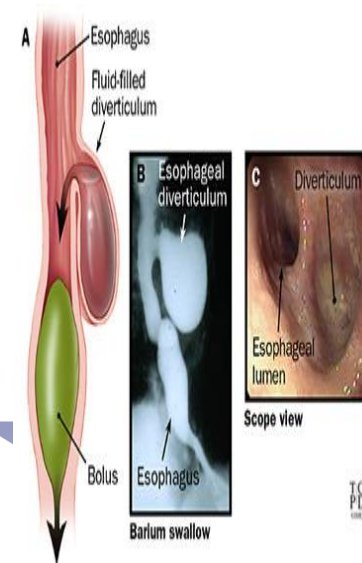
Diagnosis:

- 1-Barium swallow
- 2-Endoscopy
- 3-Biopsy.

Esophageal Diverticula

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

Types	Clinical presentation	Diagnosis	Management
<p>1) Zenker's diverticulum (most common type) is found in <u>upper third</u> of the esophagus.</p> <p>2) Epiphrenic diverticula is found in <u>lower third</u> of esophagus.</p>	<p>1) Usually asymptomatic.</p> <p>2) dysphagia, regurgitation, halitosis (bad breath), weight loss, and chronic cough.</p> <p>3) It is typically seen in patients >50 years old.</p>	<p>1) Barium swallow is the best diagnostic test for diverticula.</p>	<p>1) Treatment of Zenker's diverticula is surgery. Cricopharyngeal myotomy has excellent results.</p> <p>2) Treatment of epiphrenic diverticula is esophagomyotomy. Note: Diverticulectomy is of secondary importance in both cases.</p>



- i. An underlying motility disorder is the cause of both proximal (**Zenker's**) and distal (**epiphrenic**) esophageal diverticula.
- ii. Surgical treatment is aimed at correcting the motility disorder (i.e., myotomy).

Esophageal Cancer

There are two pathologic types:

- 1) In the past, 1-squamous cell carcinoma (SCC) accounted for up to 90 % of cases .
- 2) However, the **incidence of 2-adenocarcinoma has increased dramatically in the United States**, and it now accounts for up to 50% of new cases.
- 3) **CA esophagus most important cause of dysphagia that need to be ruled out.**

1-SCC	2-Adenocarcinoma	Staging
<ul style="list-style-type: none"> • Incidence is higher in African-American men than in other groups. • Most common locations are the upper-thoracic and mid-thoracic esophagus. About one-third may be in distal 10 cm of esophagus. • Risk factors are alcohol and tobacco use, diet (nitrosamines, betel nuts, chronic ingestion of hot foods and beverages such as tea), human papillomavirus, achalasia, Plummer–Vinson syndrome, caustic ingestion, and nasopharyngeal carcinoma. 	<ul style="list-style-type: none"> • More common in Caucasians and men (5:1 over women) • Most common in 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. 	<p>Stage I—tumor invades lamina propria or submucosa; nodes negative</p> <p>b. Stage IIa—tumor invades muscularis propria or adventitia; nodes negative</p> <p>c. Stage IIb—tumor invades up to muscularis propria; positive regional nodes</p> <p>d. Stage III—tumor invades adventitia (positive regional nodes) or tumor invades adjacent structures (positive or negative nodes)</p> <p>e. Stage IV—distant metastasis</p>

! Squamous cell carcinoma of the esophagus

- Twenty percent survival rate at 1 year
- Five percent to ten percent survival rate at 5 years

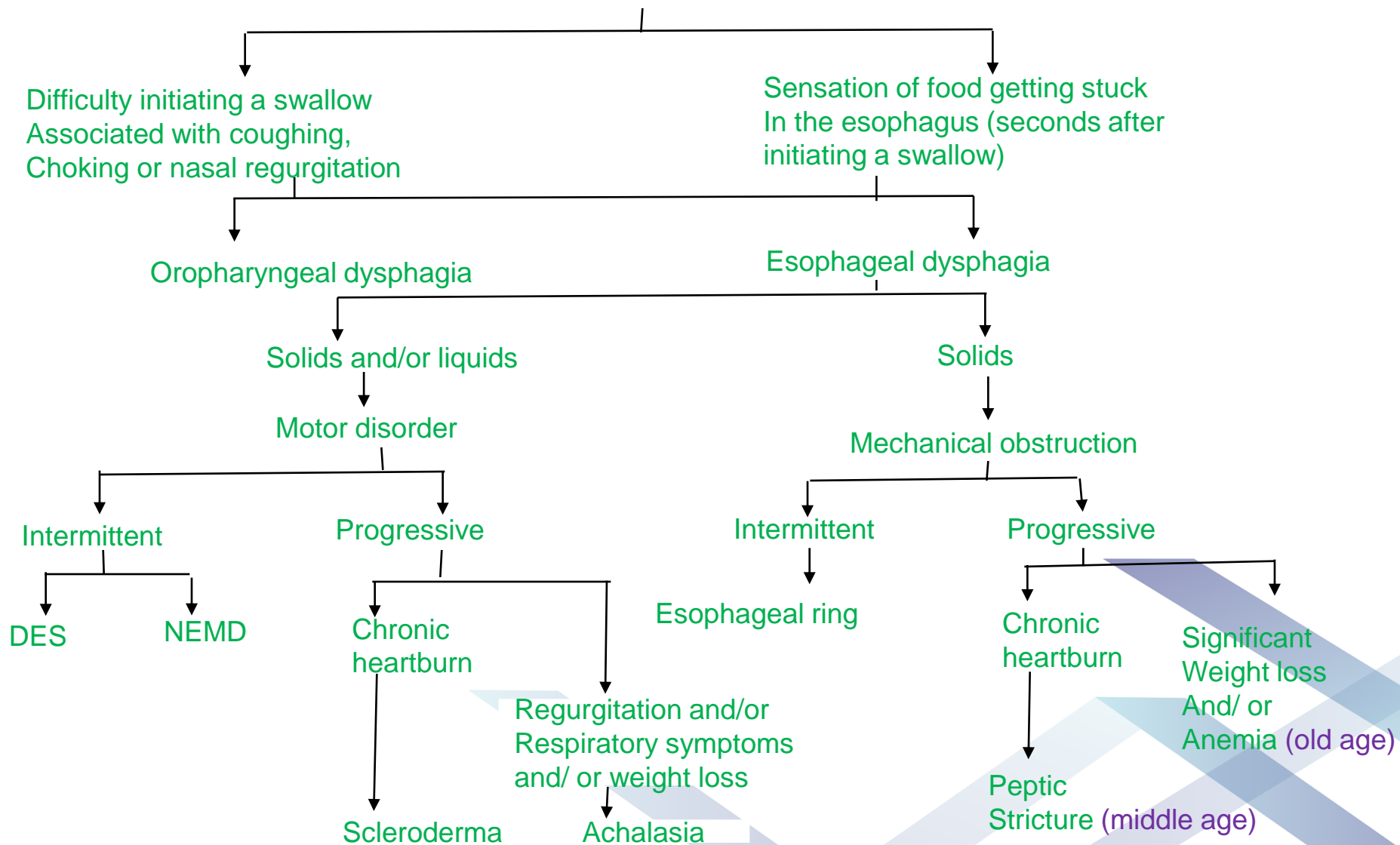


The prognosis is very poor: 5-year survival rate is about 5% to 15% for both types.

Esophageal Cancer

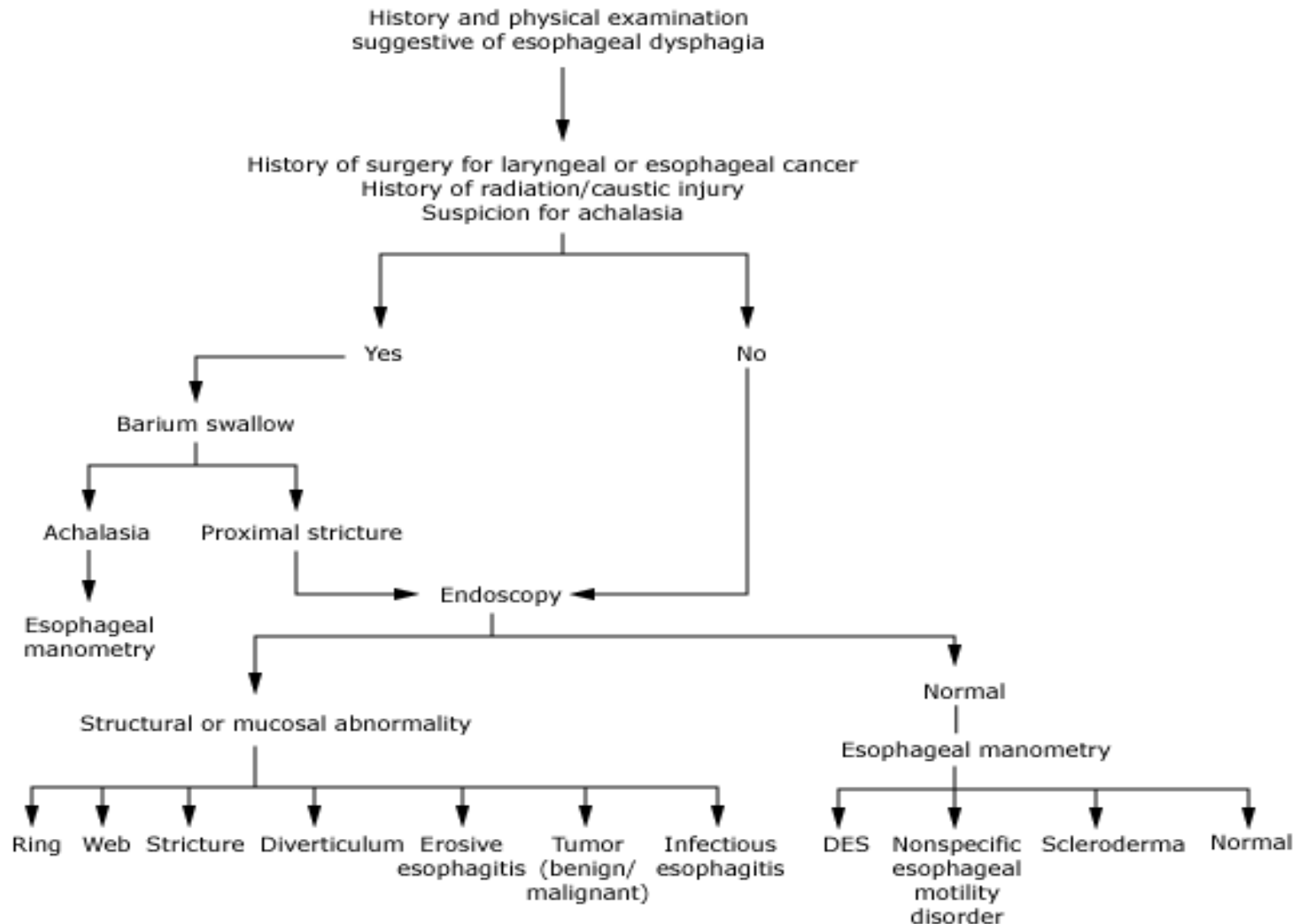
Clinical presentation	Diagnosis	Management
<ol style="list-style-type: none"> 1. Dysphagia—most common symptom (initially solids only, then progression to liquids) 2. Weight loss—second most common symptom 3. Anorexia 4. Odynophagia (pain with swallowing)—a late finding that suggests extraesophageal involvement (mediastinal invasion) 5. Hematemesis, hoarseness of voice (recurrent laryngeal nerve involvement) 6. Aspiration pneumonia, respiratory symptoms due to involvement of tracheobronchial tree 7. Tracheoesophageal or bronchoesophageal fistula leads to coughing after swallowing , pneumonia and pleural effusion. 8. Chest pain (or hoarseness suggest mediastinal invasion). 9. Physical signs is may be absent but, even at initial presentation, cachexia, cervical lymphadenopathy and evidence of metastatic spread is common. 	<ol style="list-style-type: none"> 1- Barium swallow useful in evaluation of dysphagia. A presumptive diagnosis can be made. 2- Upper endoscopy with biopsy and brush cytology is required for definitive diagnosis. It confirms the diagnosis in 95 %of cases. 3- Transesophageal ultrasound helps determine the depth of penetration of the tumor and is the most reliable test for staging local cancer. 4- Full metastatic workup (e.g., CT scan of chest/abdomen, CXR, bone scan). 	<ol style="list-style-type: none"> 1- Palliation is the goal in most patients because the disease is usually advanced at presentation. 2- Surgery (esophagectomy) may be curative for patients with disease in stage 0,1 or 2A. 3- Chemotherapy plus radiation before surgery has been shown to prolong survival more than surgery alone

Diagnosis of dysphagia



DES: diffuse esophageal spasm; NEMD: nonspecific esophageal motility disorder.

Investigation of dysphagia



MCQs

1. 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?
 2. The patient's prognosis is good
 3. Barium contrast study is indicated
 4. The most likely tumor is an adenocarcinoma
 5. The patient has achalasia
2. A 40-year-old cigarette smoker complains of epigastric pain, localized, non-radiating, and described as burning. The pain is partially relieved by eating. There is no weight loss. There has been no use of nonsteroidal anti-inflammatory agents. The pain has been worsening over several months. The most sensitive way to make a specific diagnosis is
 1. Barium x-ray
 2. Endoscopy
 3. Serologic test for *Helicobacter pylori*
 4. Serum gastrin

MCQs

3. A 65 year old woman with a complex medical history(including diabetes, hypertension, CAD, GERD, and ongoing use of alcohol and tobacco) present with increasing midsternal chest discomfort predominantly when swallowing solid food. recently, even liquids are becoming problematic. she has not noted blood in her stool, weight loss, or change in her energy level. what is the most likely cause of her dysphagia?
- A. Esophageal cancer.
 - B. Peptic esophageal stricture.
 - C. Achalasia
 - D. Zenker diverticulum.
4. Young lady presents with progressive dysphagia to solid and liquid, weight loss. What is the most likely diagnosis?
- A. a tumor in the lower esophagus
 - B. Achalasia
 - C. GERD



! Answers : 1-B 2-B 3-B 4-B



Medicine433



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*Medicine is a science of uncertainty
and an art of probability*



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