

ESOPHAGEAL DISORDERS

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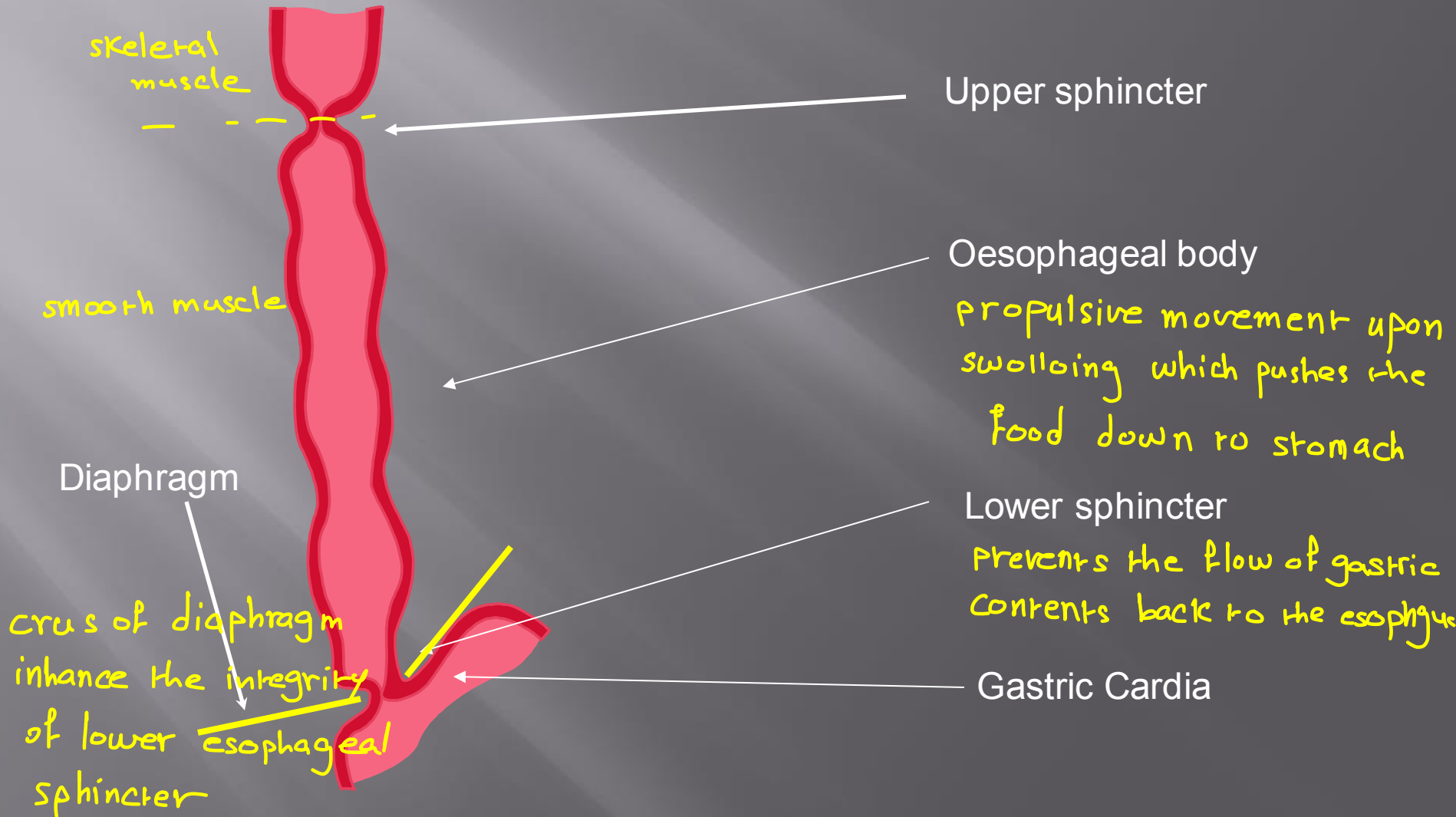
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Anatomy

muscular tube



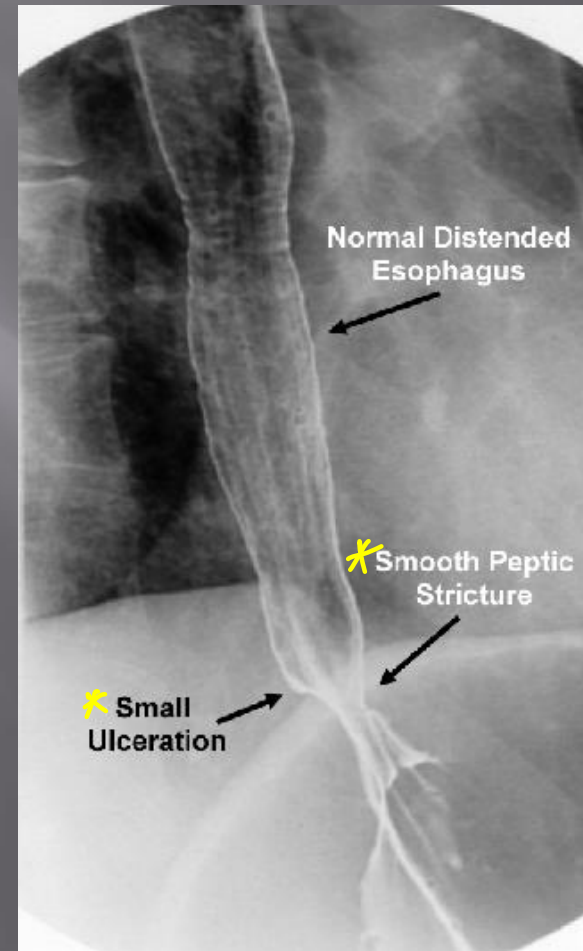
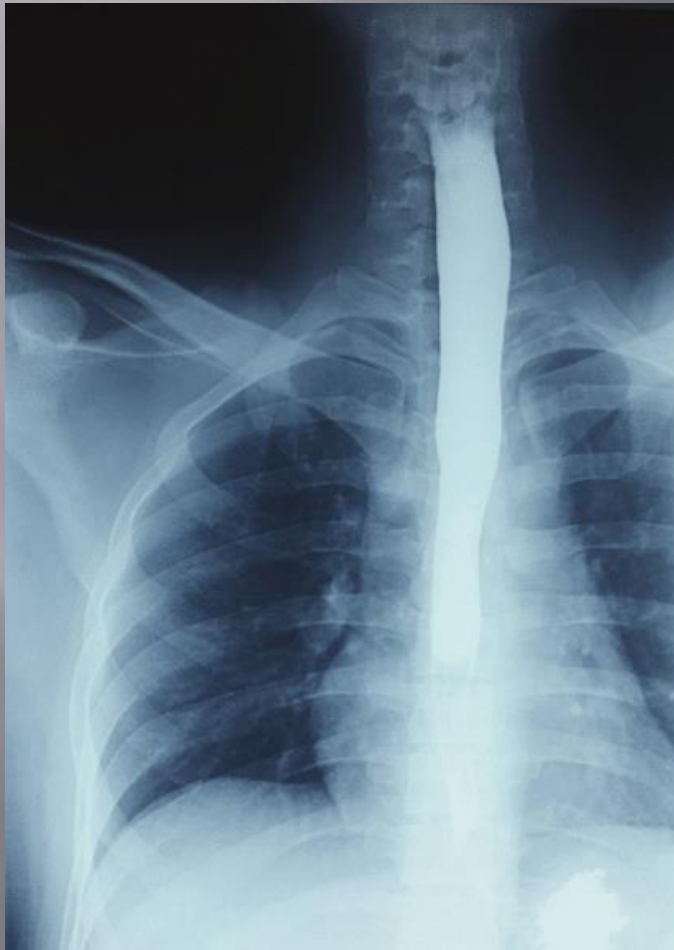
Symptoms of esophageal disorders

- ▣ Dysphagia *difficulty*
- ▣ Odynophagia *pain*
- ▣ Non cardiac chest pain
- cardinal symptoms related to the reflux*
 - ▣ Heartburn
 - ▣ Regurgitation

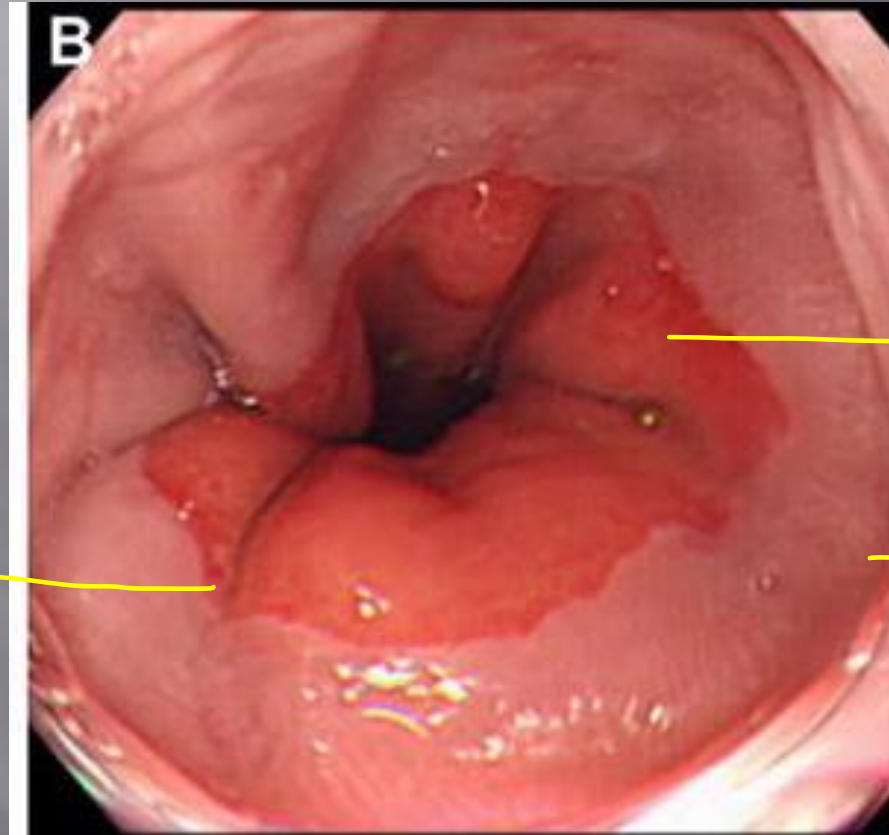
Diagnostic Tools

- ▣ Barium Swallow *imaging*
- ▣ Endoscopy
- ▣ Esophageal manometry
- ▣ 24 hr esophageal pH monitoring
- ▣ Impedence *the consistency & direction movement of bolus*
- ▣ CT *with oral contrast*

Barium Swallow



Endoscopy



Z-line

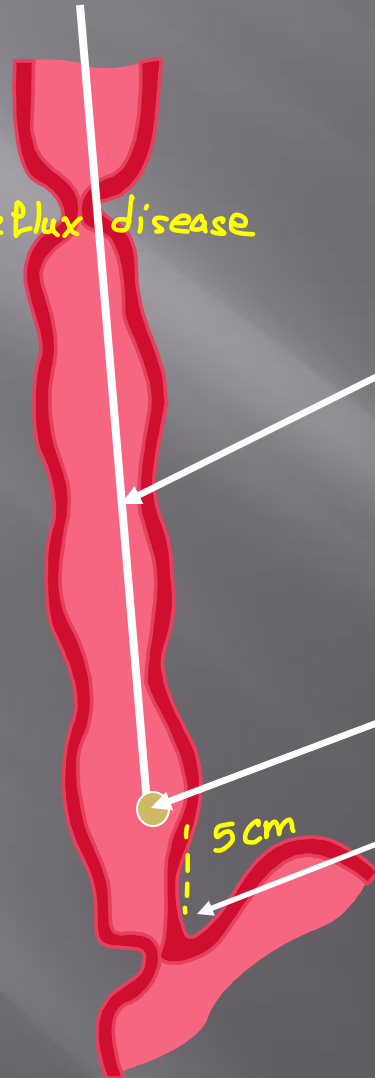
specialized gastric
type lining

stratified squamous
epithelial lining of
esophagus

gastroesophageal junction

24 hrs esophageal PH monitoring

If level of acidic exposure is above the physiological one = reflux disease



pH probe

Sensor

Lower Oesophageal sphincter

5 cm

Gastro-esophageal Reflux disease

GERD

- ▣ The flow back of the gastric content into the esophagus at a rate more than the physiological one .
- ▣ Physiologic reflux episodes typically occur ^{if eat a lot} postprandially, are short-lived, asymptomatic, and rarely occur during sleep.
- ▣ High prevalence in the general population.
- ▣ There is failure of anti-reflux mechanism.

GERD pathophysiology

- ▣ Reflects an imbalance between injurious and defensive factors.
- ❖ GEJ incompetence:
 - Transient LES relaxations (TLESRs)
 - * A hypotensive LES [fat, chocolate, caffeine, alcohol, smoking, and several drugs (eg, anticholinergics, nitrates, calcium channel blockers, tricyclic antidepressants, opioids, diazepam)] → decrease the pressure in the lower esophageal sphincter
 - * Anatomic disruption of the GEJ, often associated with a hiatal hernia or increased intra-abdominal pressure. → in pregnancy

GERD pathophysiology

- ❖ Characteristics of the refluxate
- ❖ Impaired esophageal acid clearance (impaired motility, diminished salivation).
- ❖ Impaired defense against epithelial injury
- ❖ Esophageal hypersensitivity

Clinical Features

- ▣ Regurgitation.
 - ▣ Heart burn.
 - ▣ Chest pain.
 - ▣ Dysphagia
 - ▣ Nausea
 - ▣ Hoarseness, cough, wheezes
- } Main symptoms

Complications

- ▣ Esophageal stricture acid cause, ulcer heal → stenosis cause, stricture
- ▣ Barrett's esophagus change in type of epithelium in lower part of esophagus
- ▣ Esophageal adenocarcinoma
- ▣ Chronic laryngitis
- ▣ Exacerbation of asthma
- ▣ Decrease quality of life

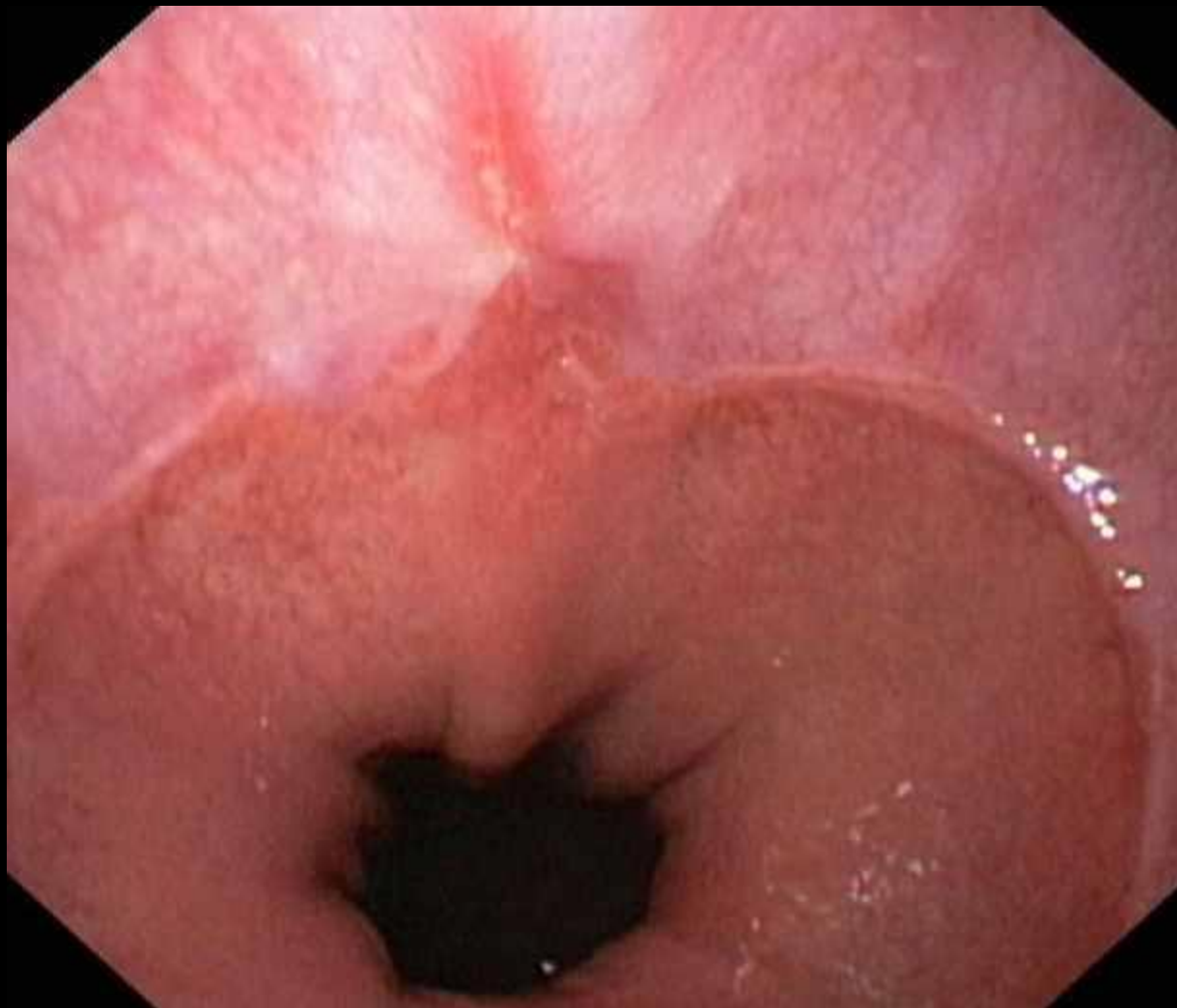
Diagnosis

↳ if young pt. with typical symptoms & short presentation → may treat the pt. without any investigation

- ▣ Barium Swallow. → see: back flow from stomach to esophagus
- ▣ Endoscopy. → see: inflammation, ulceration (not seeing it does not exclude reflux disease)
- ▣ 24 hrs PH monitoring. → if $> 50\%$ of the time less than the pH of the lower esophageal sphincter: positive for reflux
- ▣ Laryngoscopy. → see → inflammation in the upper part of the larynx
- ▣ High resolution Manometry & Impedence.
↳ show the direction of food flow inside the esophagus

Treatment

- ▣ Life style modification *weight reduction , smoking cessation*
- ▣ H2 receptors blockers
- ▣ PPI. *Best one*
- ▣ Fundoplication.

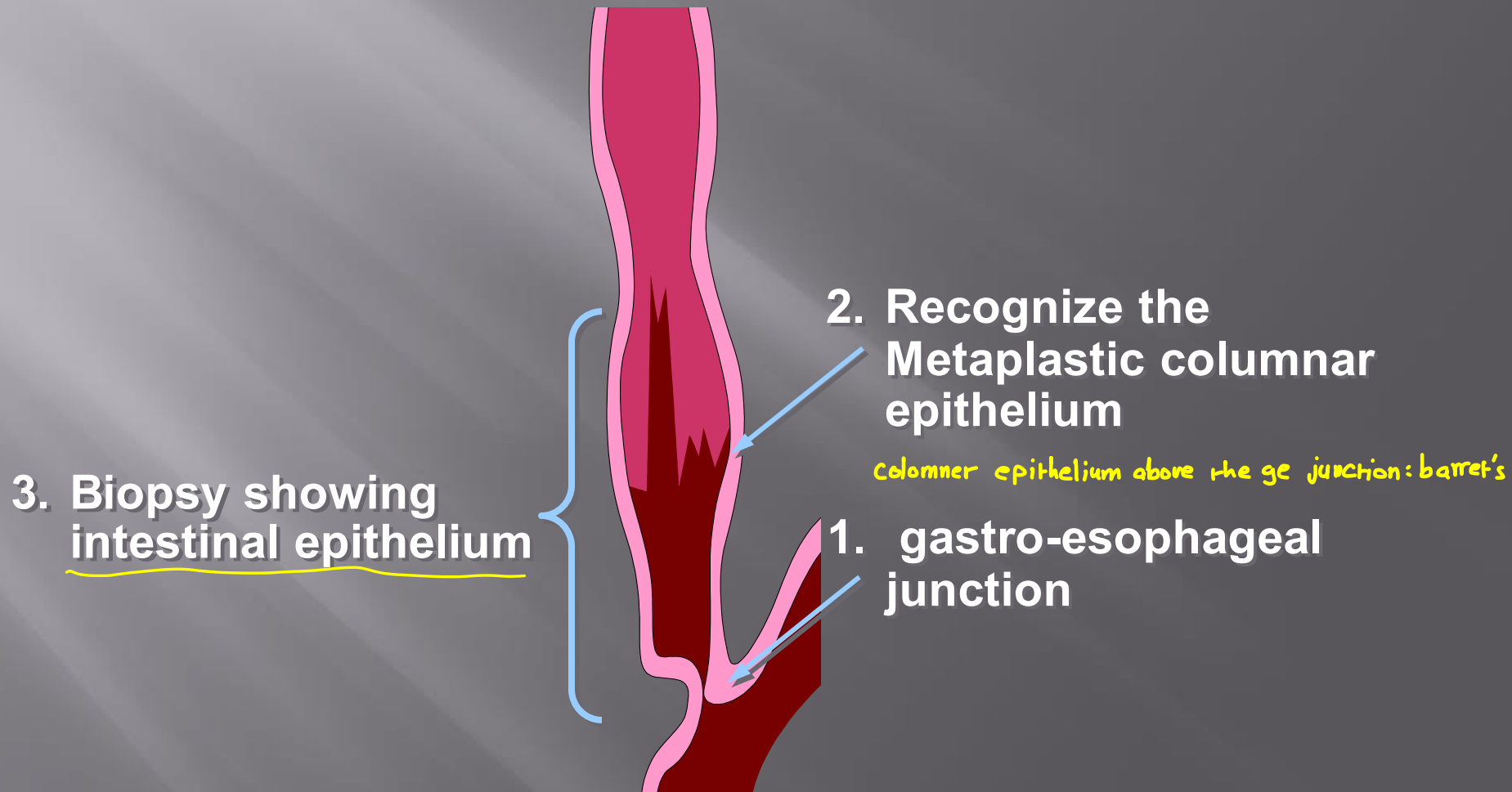


endoscopy

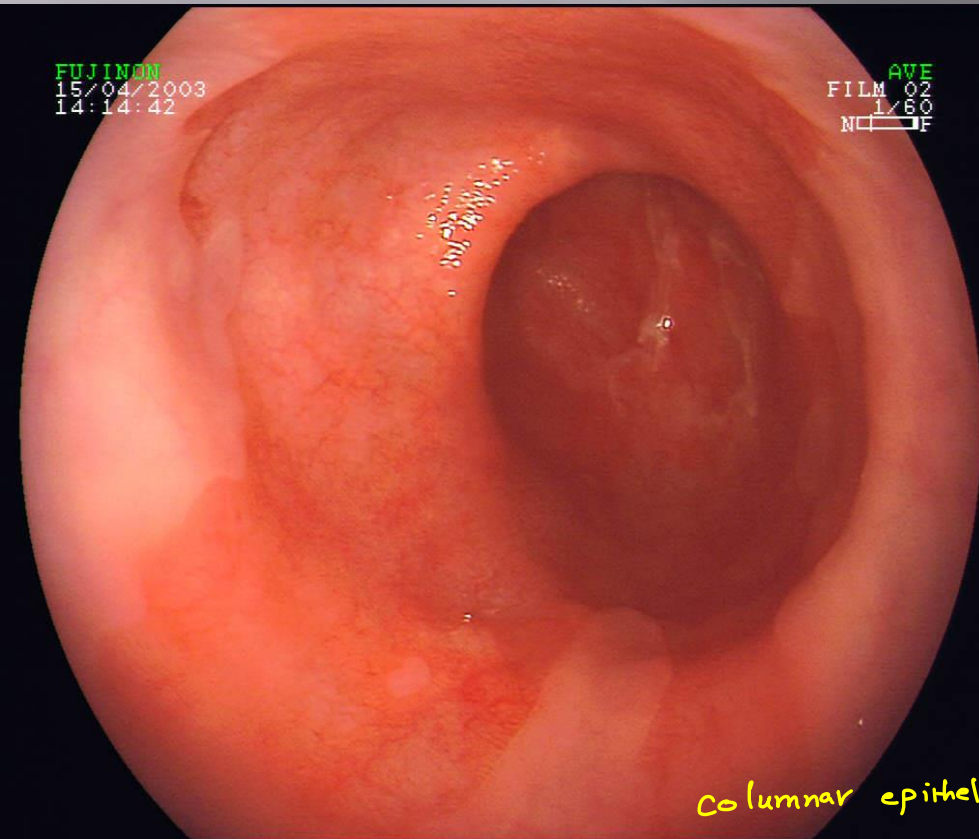
Barrett's esophagus

- ▣ As a result of chronic GERD
- ▣ Metaplastic columnar epithelium replaces the stratified squamous epithelium in the distal esophagus.
- ▣ There is increased risk of adenocarcinoma which is >30-fold above that of the general population (annual cancer incidence 0.1-3%).

Diagnosis



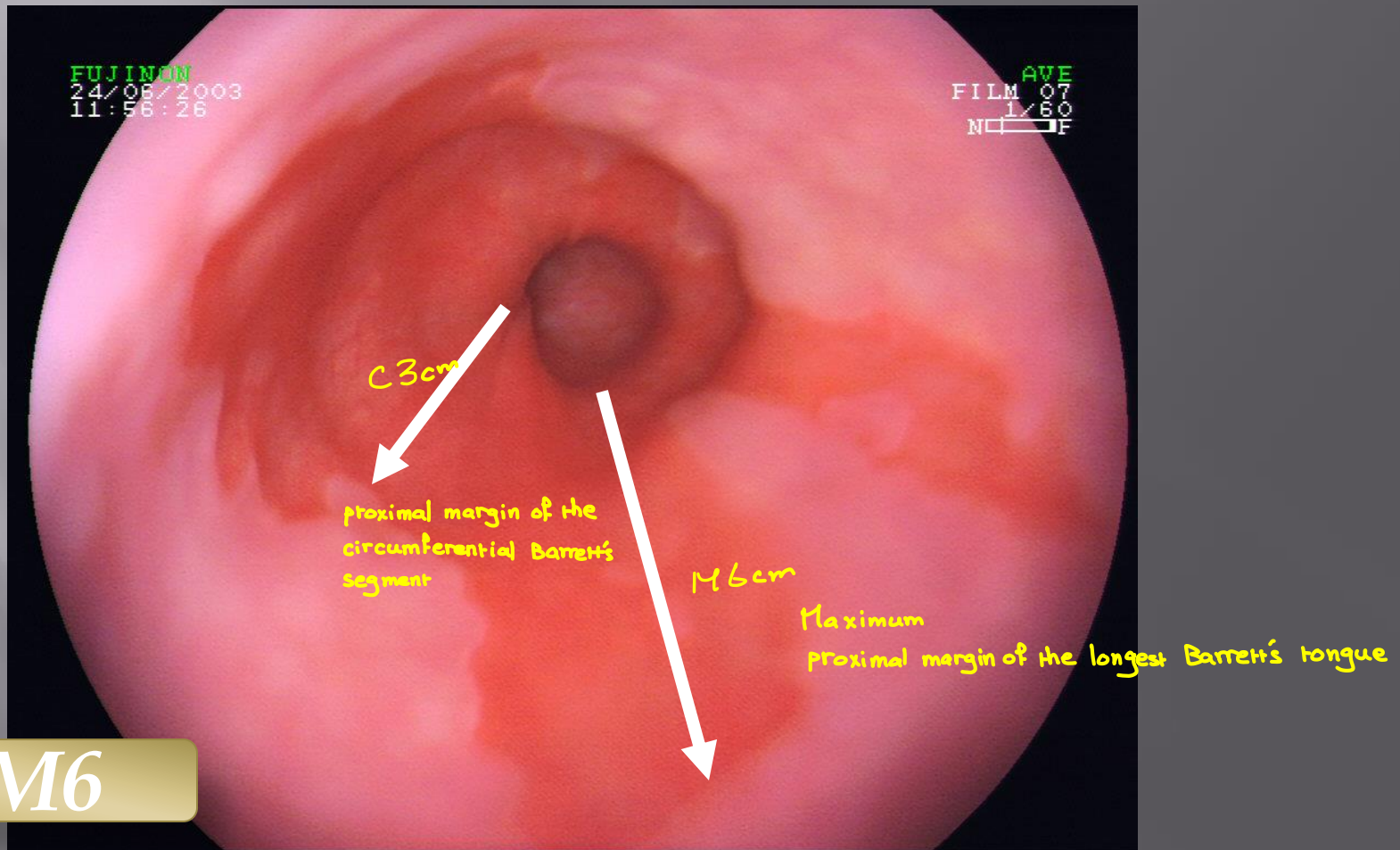
Gastro-Esophageal Junction and Barrett's Esophagus



Normal Gastro-esophageal Junction



Prague Classification



C3M6

Treatment

- ▣ Treat GERD
- ▣ Surveillance for dysplasia
- ▣ Endoscopic therapy for dysplasia (ablation, resection) *photodynamic therapy*
- ▣ Surgery-esophagectomy *not common*

Eosinophilic Esophagitis

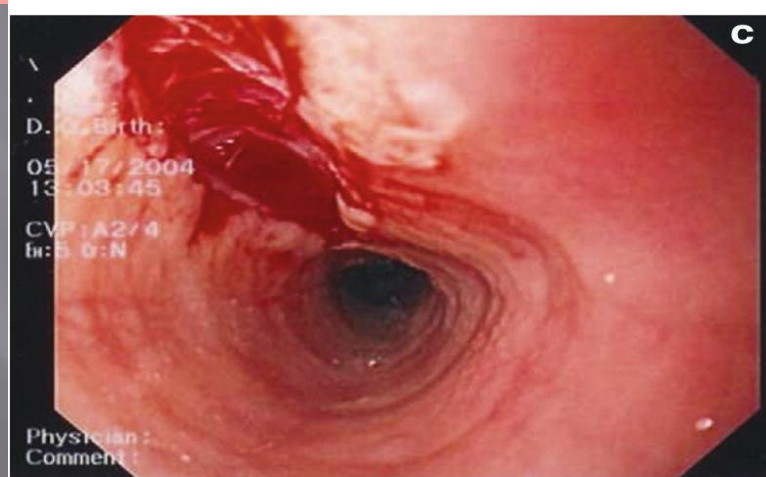
EoE

- ▣ A chronic, immune/antigen-mediated, esophageal disease characterized clinically by symptoms related to esophageal dysfunction and histologically by eosinophil-predominant inflammation(>15/HPF).
- ▣ Symptoms: dysphagia, food impaction, refractory heartburn, feeding difficulties and abdominal pain.
- ▣ Strongly associated with allergic conditions
antigen mediated immune response

Eosinophilic Esophagitis EoE



trachealization
it looks like trachea
but actually it's
esophagus



When you take biopsy, the
mucosa splits easily

Eosinophilic Esophagitis

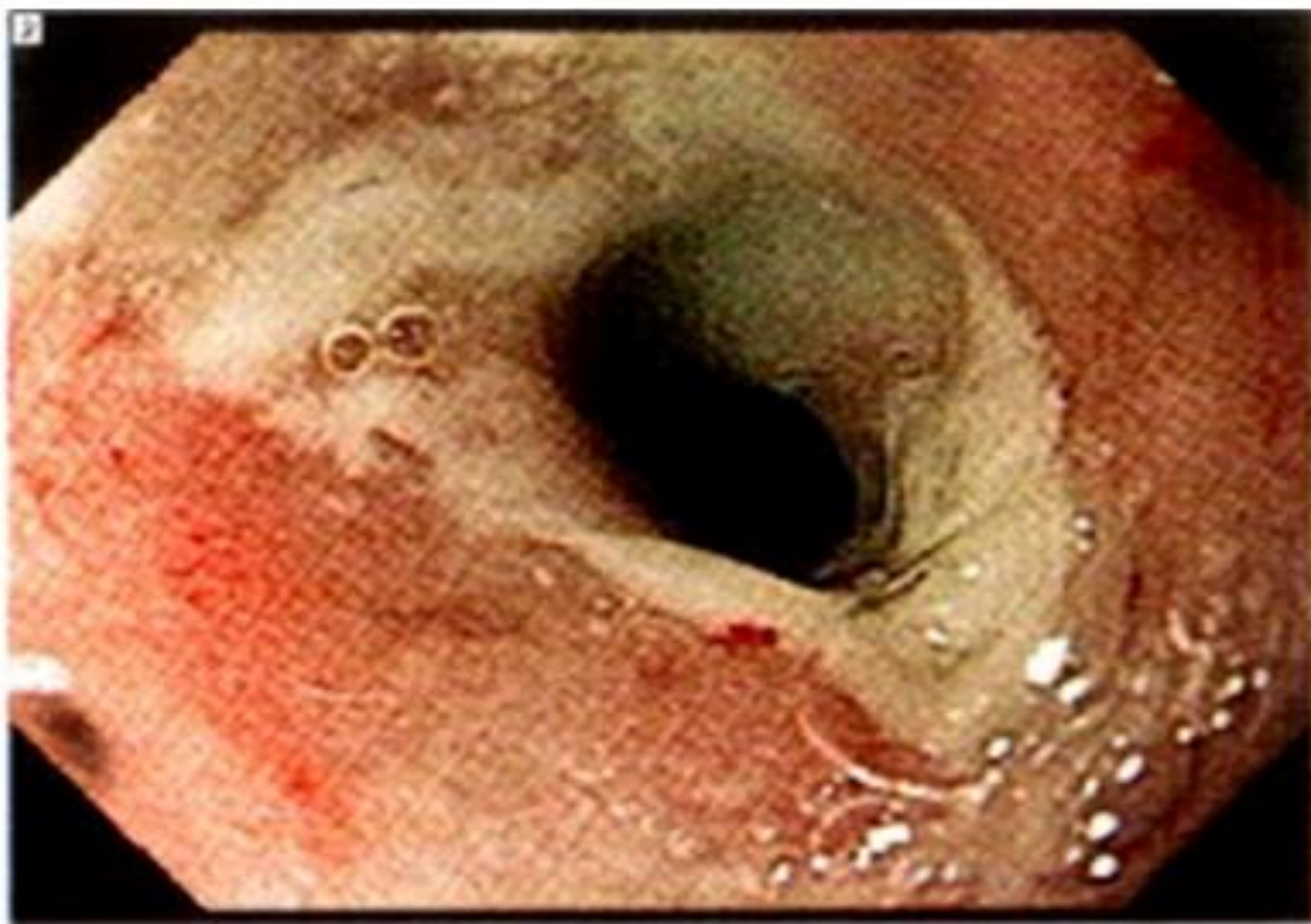
EoE

▣ Treatment:

- PPI
- Topical glucocorticoid *same used for asthma but swallow it not inhale it*
- Dietary therapy *Diet exclusion therapy*
- Endoscopic dilatation

Corrosive esophagitis

- ▣ Caused by ingestion of strong alkali or acid.
- ▣ May cause severe ulceration and end up in fibrosis and stricture formation.



very narrow → requires repeating dilation

Zenker's Diverticulum

- ▣ Occurs in the posterior hypopharyngeal wall.
- ▣ A false diverticulum
- ▣ Dysphagia*, halitosis and food regurgitation.
- ▣ Treatment by cricopharyngeal myotomy+ diverticulectomy



Esophageal Webs

- ▣ Congenital or inflammatory constrictions usually in the hypopharynx .
- ▣ May cause dysphagia.
- ▣ May be associated with iron deficiency anemia (Plummer-Vinson syndrome)
- ▣ Treatment by dilatation.

Esophageal Webs



Schatzki Ring

- ▣ Thin constriction at the Squamo-columnar junction.
Z - line
- ▣ Common cause for dysphagia and underlies food bolus obstruction.
- ▣ Treated by dilatation.



Hiatus Hernia

- ▣ Sliding : the GE junction and part of the fundus lie in the thoracic cavity.
 - May contribute to GERD
- ▣ Para-esophageal hernia: part of the stomach is herniated beside the GE junction which is normally located.
 - May incarcerate, ulcerate or cause dysphagia.



Normal



Sliding hiatus hernia



*Paraesophageal
hiatus hernia*

Mallory-Weiss Syndrome

- ▣ Usually preceded by vomiting and retching.
- ▣ Tear at the gastro-esophageal junction.
- ▣ Patients presents with upper GI bleeding
- ▣ Most cases resolves spontaneously.

Mallory Weiss syndrome



Esophageal motility disorders

Achalasia

- ▣ There is failure of relaxation of the lower esophageal sphincter.
- ▣ There is non peristaltic contractions in the body of the esophagus. *no propulsive power*
- ▣ It results from progressive degeneration of inhibitory ganglion cells (neurons) in the myenteric plexus in the esophageal wall.

Achalasia

- ▣ Psuedoachalasia or secondary causes of achalasia include:

Gastric carcinoma

Amyloidosis

Sarcoidosis

Chagas disease = **American trypanosomiasis**

Eosinophilic esophagitis

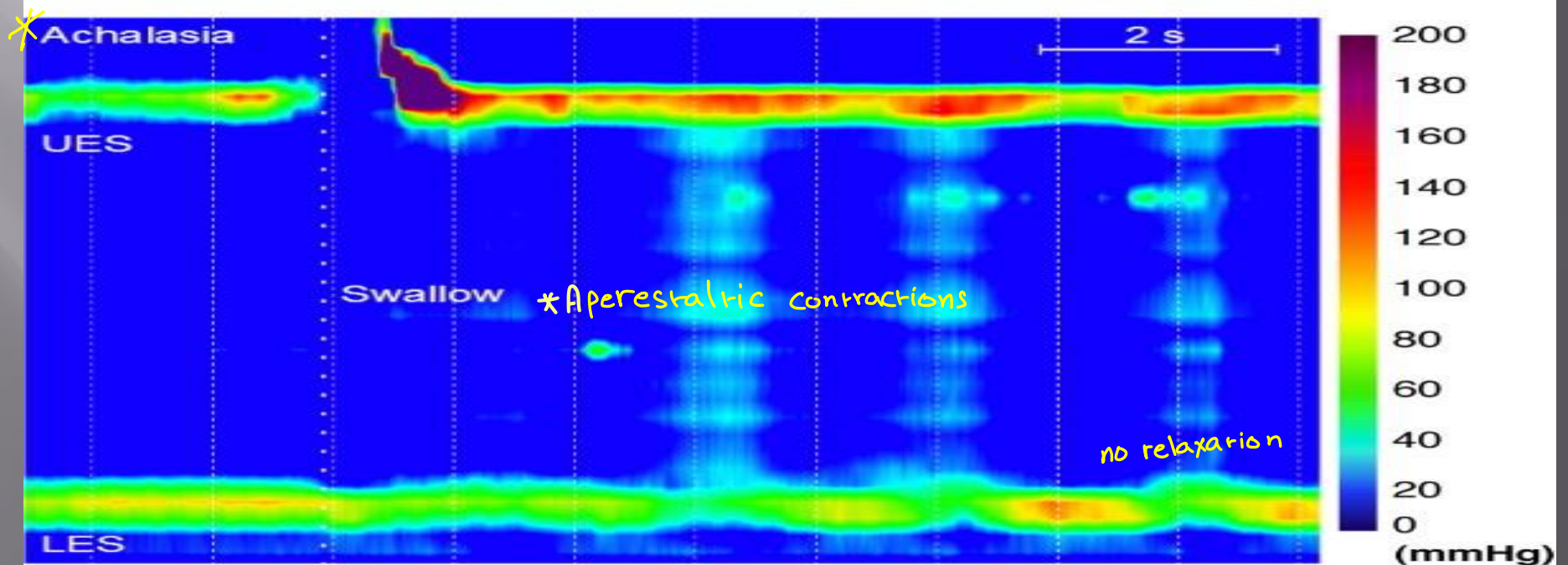
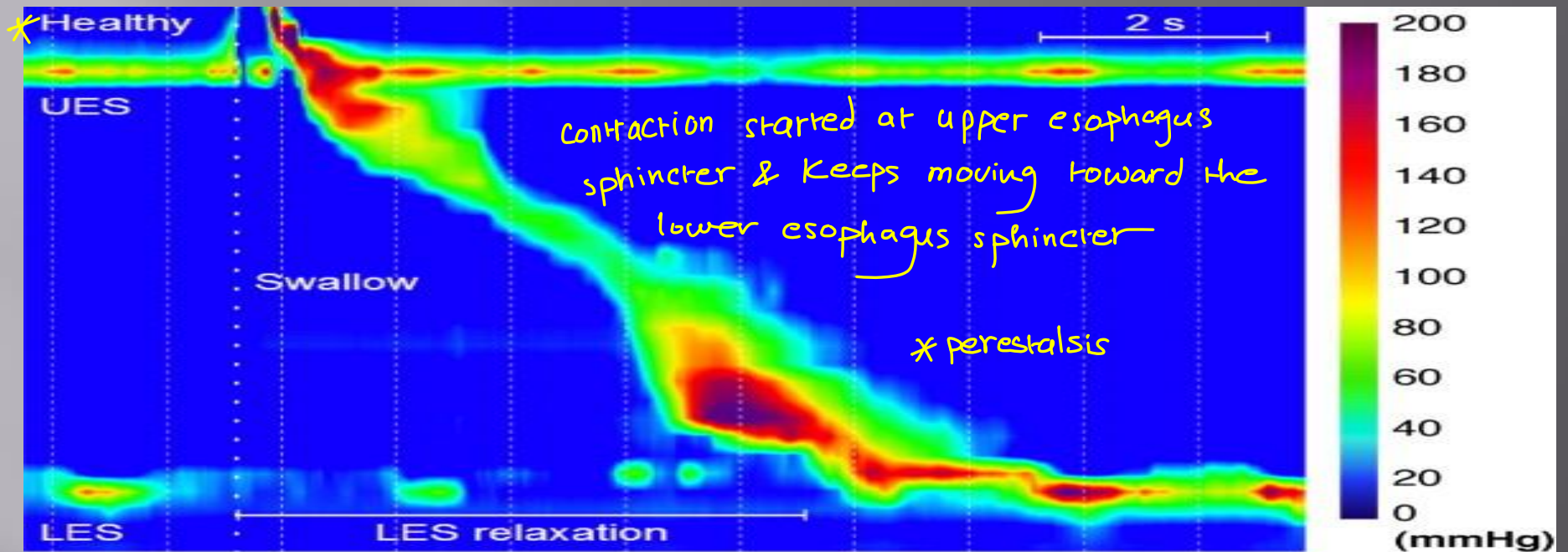
Neurofibromatosis

Clinical Features

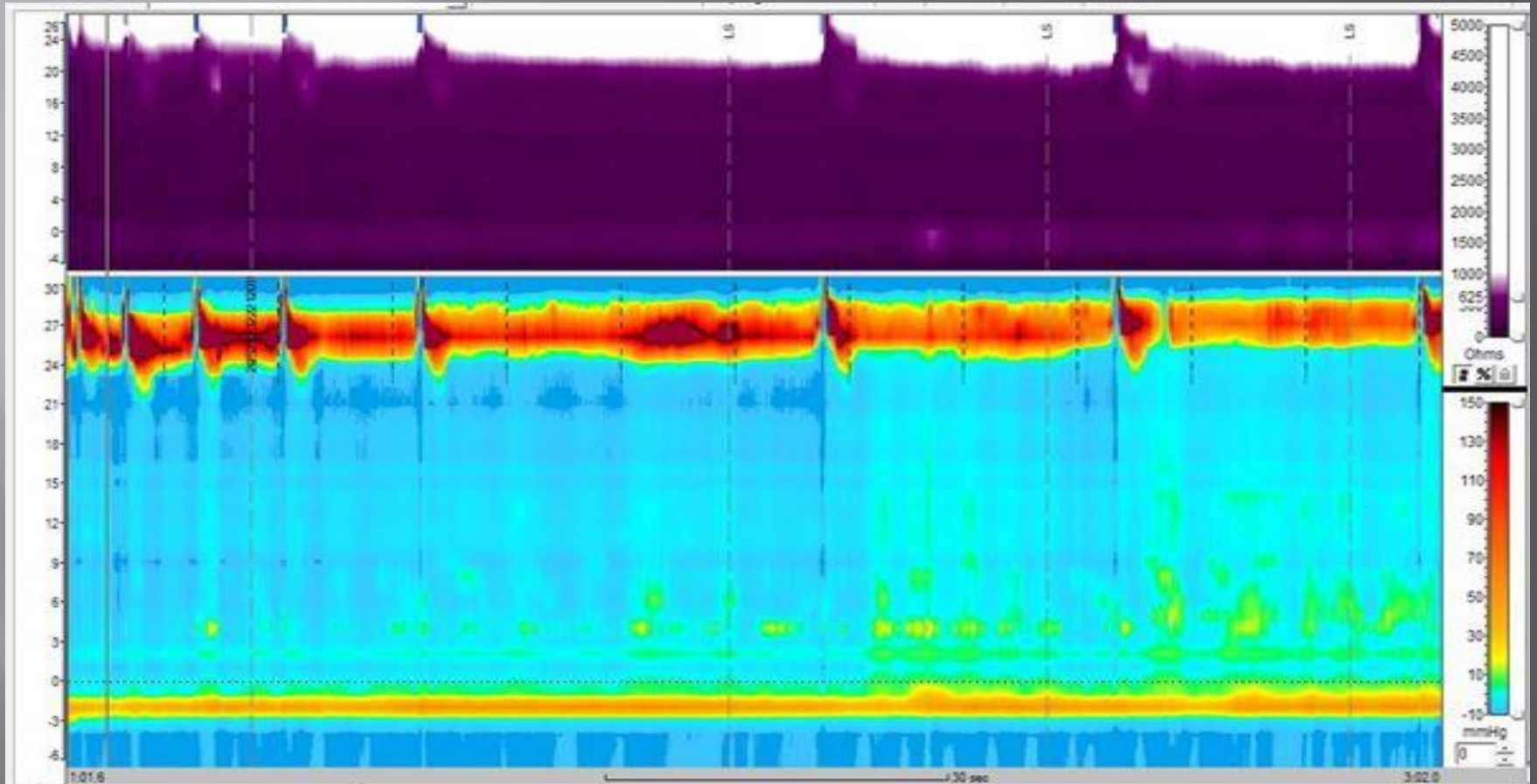
- ▣ Dysphagia. *long time*
- ▣ Chest pain.
- ▣ Regurgitation.
- ▣ Difficulty in belching.
- *a little bit weight loss*

Diagnosis

- ▣ Symptoms and signs.
- ▣ CXR:
 - * Absence of gastric bubble
 - * Air fluid level
 - * Widening of mediastinum
- ▣ Barium swallow:
 - * Dilated esophagus
 - * Bird-beak narrowing in the lower end
 - * Absent peristalsis



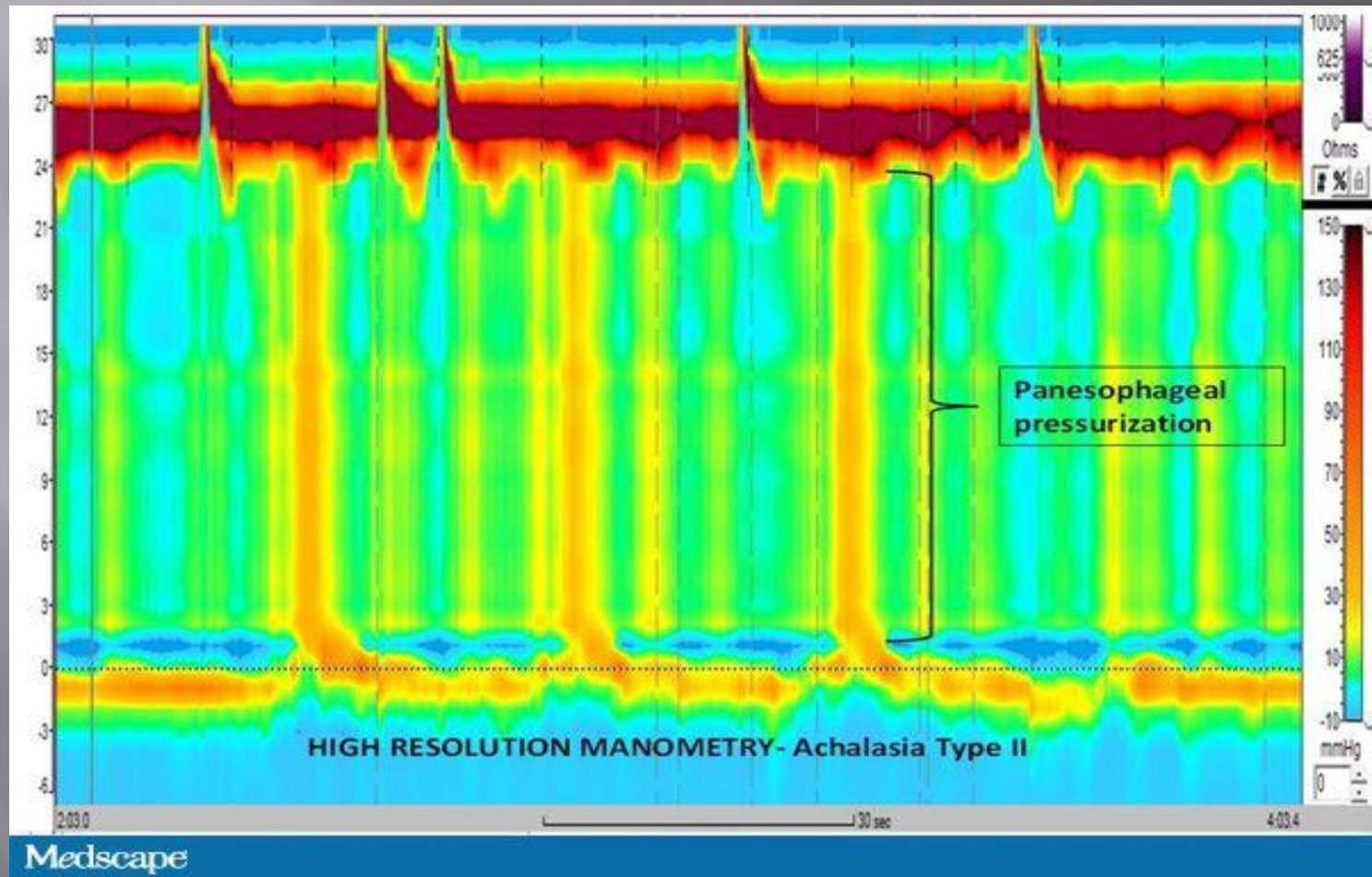
Achalasia Type I



Medscape

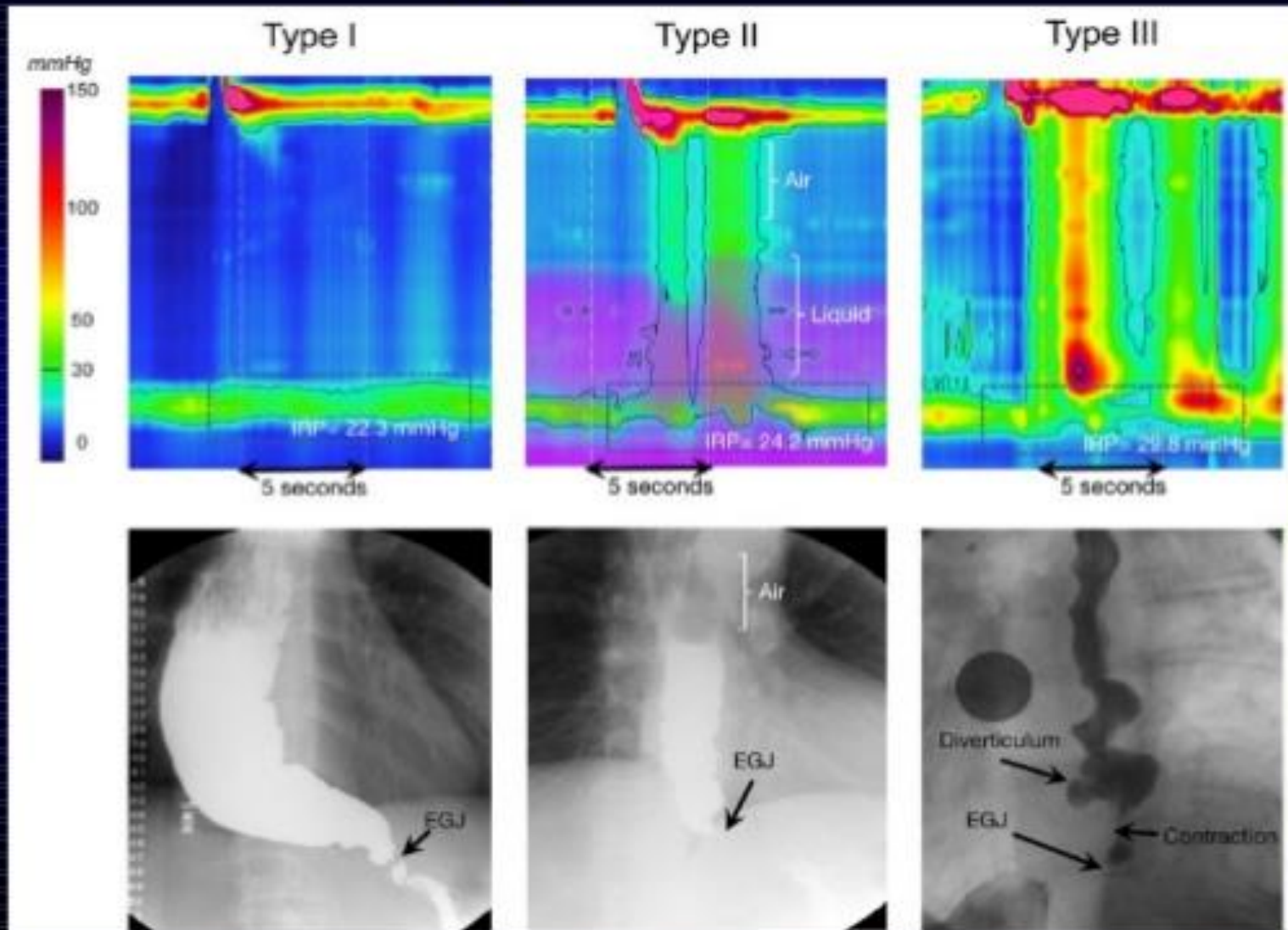
the pressure within the esophagus lumen is low

Achalasia Type II

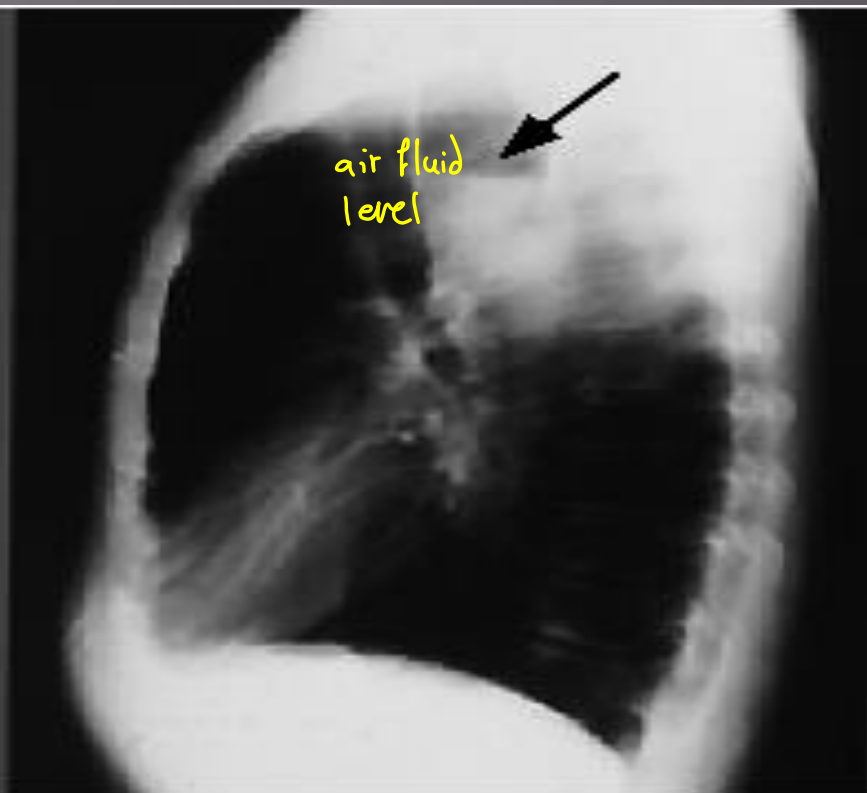
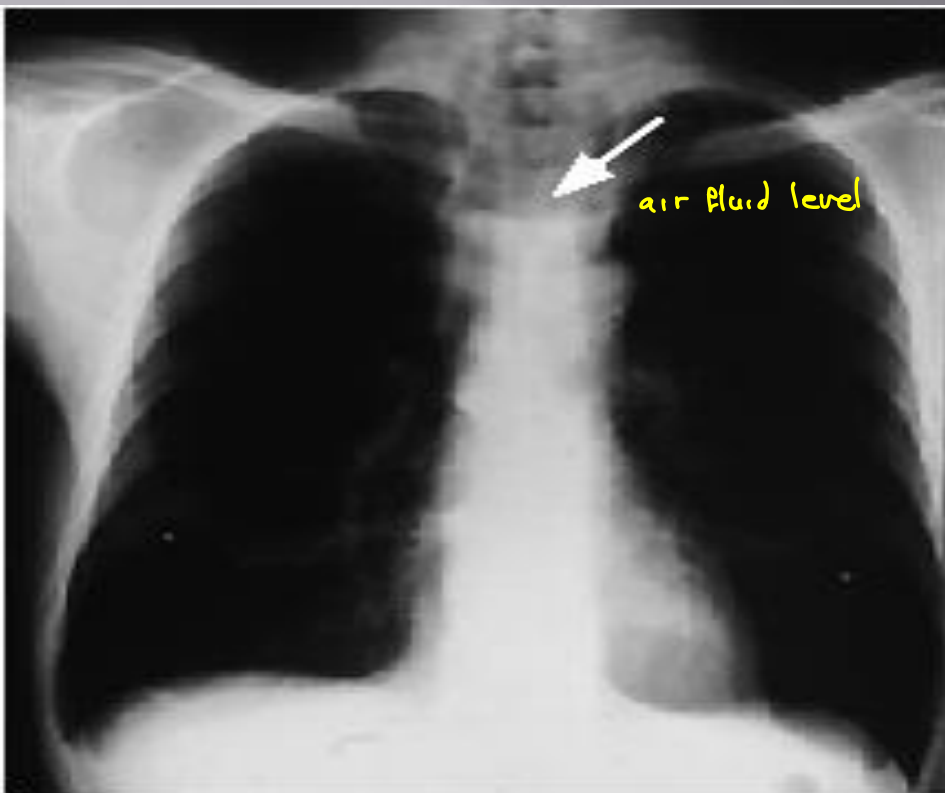


Strong contractions (elevated pressure)

Chicago Classification



barium study



chest x-ray



Achalasia Barium swallow in a 62 year old man demonstrates a dilated barium-filled esophagus with a region of persistent narrowing (arrow) at the GE junction, producing the so-called birds beak appearance. Achalasia was confirmed with manometry and the patient underwent successful dilation of the esophagus. Courtesy of Jonathan Kruskal, MD.

Diagnosis

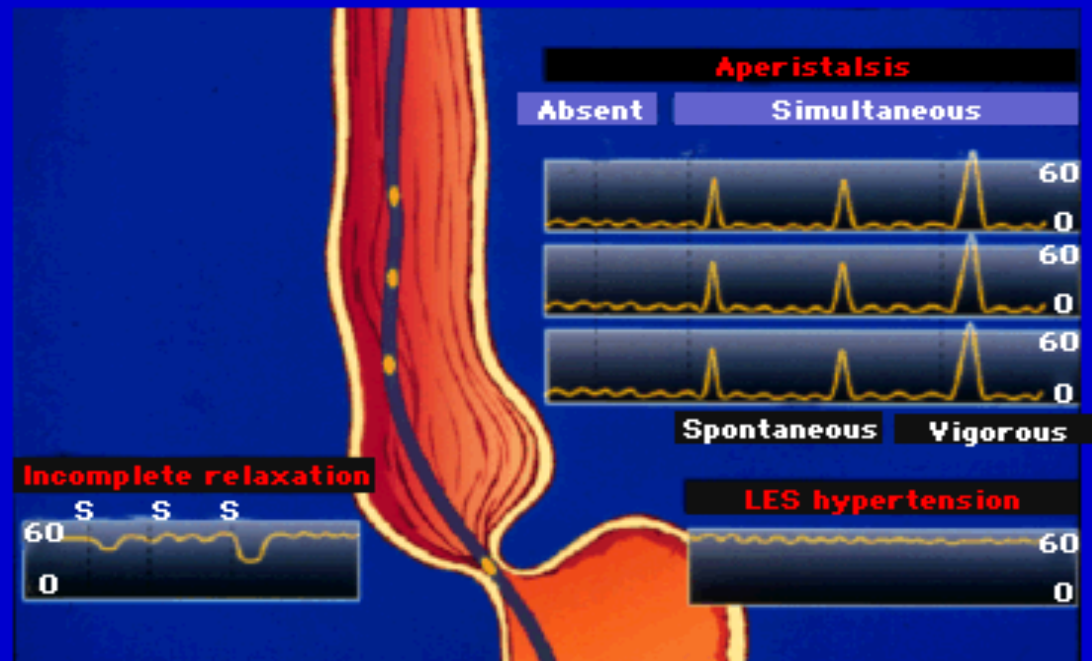
- ▣ Manometry:

- Failure of relaxation of the LES during swallowing.

- Normal or elevated resting LES pressure

- Aperistalsis in the body of esophagus

- Simultaneous esophageal body contractions with amplitudes >40 mmHg



A peristaltic
stimulus

Manometric features of achalasia There are three characteristic manometric features of achalasia: elevated resting lower esophageal sphincter (LES) pressure (above 45 mmHg); incomplete LES relaxation after a swallow (S); aperistalsis in the smooth muscle portion of the body of the esophagus. Swallows may elicit no esophageal contraction or may be followed by simultaneous contractions. The esophagus may also contract spontaneously in a simultaneous fashion. In some cases, the simultaneous esophageal contractions have amplitudes >60 mmHg, a condition known as "vigorous" achalasia. Reprinted, courtesy of the Clinical Teaching Project of the American Gastroenterological Association®. This slide cannot be downloaded but may be purchased as part of a set from the AGA through Milner-Fenwick, Inc. at 1-800-432-8433.

Endoscopy

- ① Dilated lumen contains food and fluid
- ② Narrow sphincter with resistance to the passage of the endoscope.
- Important to exclude secondary causes.

Age :
rth :
/ 2006
: 33

dilated lumen fluid

ENDOATLAS.SK

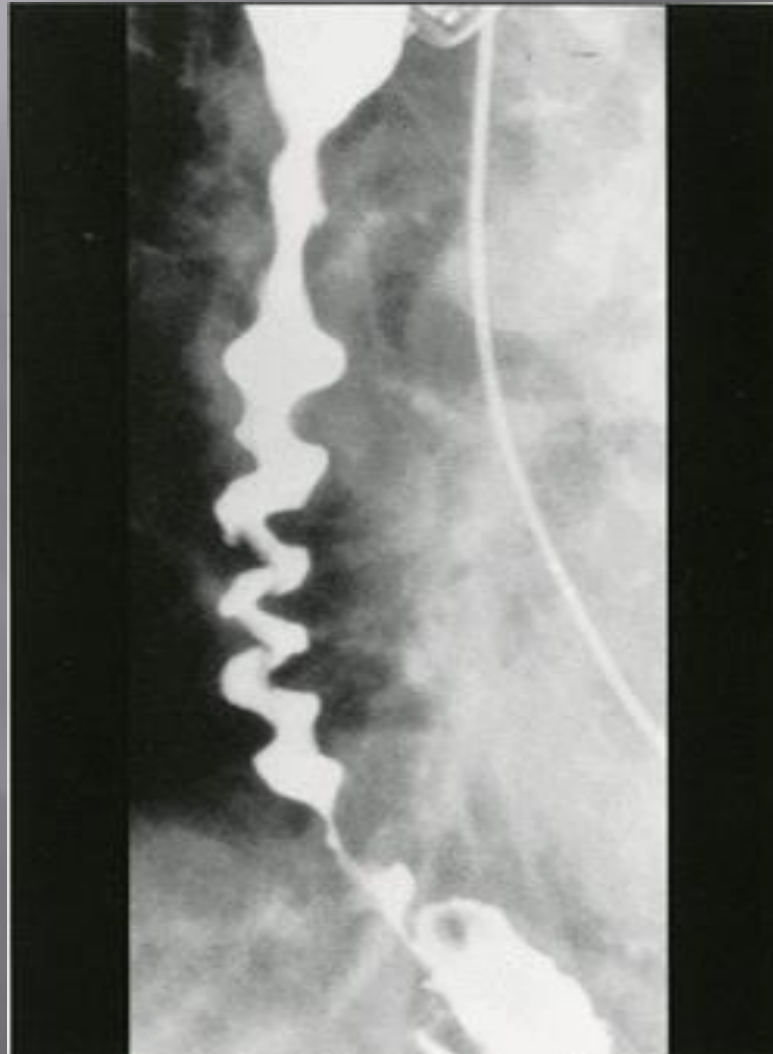
Treatment

- ▣ Aim is to decrease LES pressure to allow food to pass down.
- ▣ Mechanical disruption of the muscle fibers of the LES :
 - ⦿ Endoscopic balloon dilatation.
 - ⦿ Peroral endoscopic myotomy (POEM)
 - ⦿ Hellers extramucosal myotomy.
- ▣ Pharmacological reduction in LES pressure
 - ⦿ Botulinum toxin injection
 - Oral nitrates and calcium channel blockers

Distal esophageal spasm

- ▣ Dysphagia, chest pain, heartburn
- ▣ Due to impaired inhibitory innervation. May also be induced by acid exposure.
- ▣ Premature, simultaneous and rapidly propagated contractions in the distal esophagus >20% of swallows on manometry
- ▣ "rosary bead" or "corkscrew" appearance of the esophagus on barium esophagram
- ▣ Treatment with ^{*}PPI, ^{*}peppermint oil, ^{*}Ca-channel blocker

Distal esophageal spasm



Corkscrew

Rosary bead

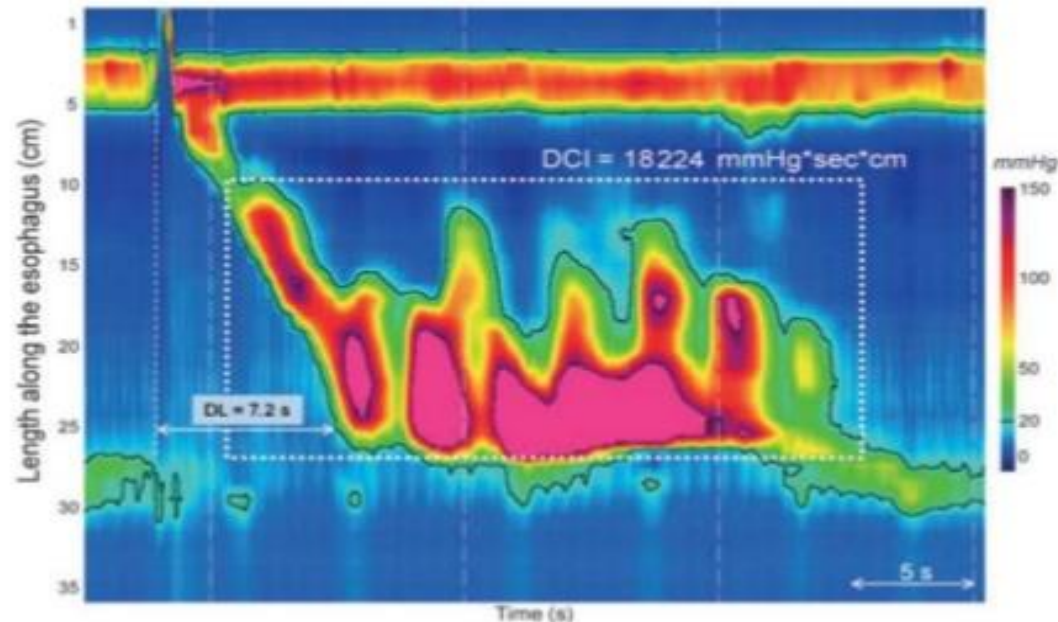
Jackhammer esophagus

- ▣ May be due to excessive excitation, smooth muscle hypertrophy and/or smooth muscle response to excitatory nerves
- ▣ Dysphagia, chest pain, heartburn
- ▣ Barium esophagram shows normal sequential peristalsis
- ▣ Characterized by high pressure but normally sequential contractions in the smooth muscle esophagus
- ▣ Treatment with PPI, peppermint oil, Ca-channel blocker

very high pressure waves

Jackhammer esophagus

Hypercontractile esophagus (jackhammer) restricted to the esophagus



At least two swallows with a $DCI \geq 8000 \text{ mmHg.s.cm}$

The End