

The Approach to Dysphagia

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Disclosure

**Consultant: Braintree; Diversatek; Medpace;
Medtronic**

Licensing Agreement: Medtronic

**Speaker's Bureau: Medtronic; Phathom;
Sanofi/Regeneron**



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Dysphagia Outline

- Clinical history for dysphagia
- Diagnostic evaluation for dysphagia
- Disease-targeted treatment strategies

The *Burden* of Esophageal Diseases

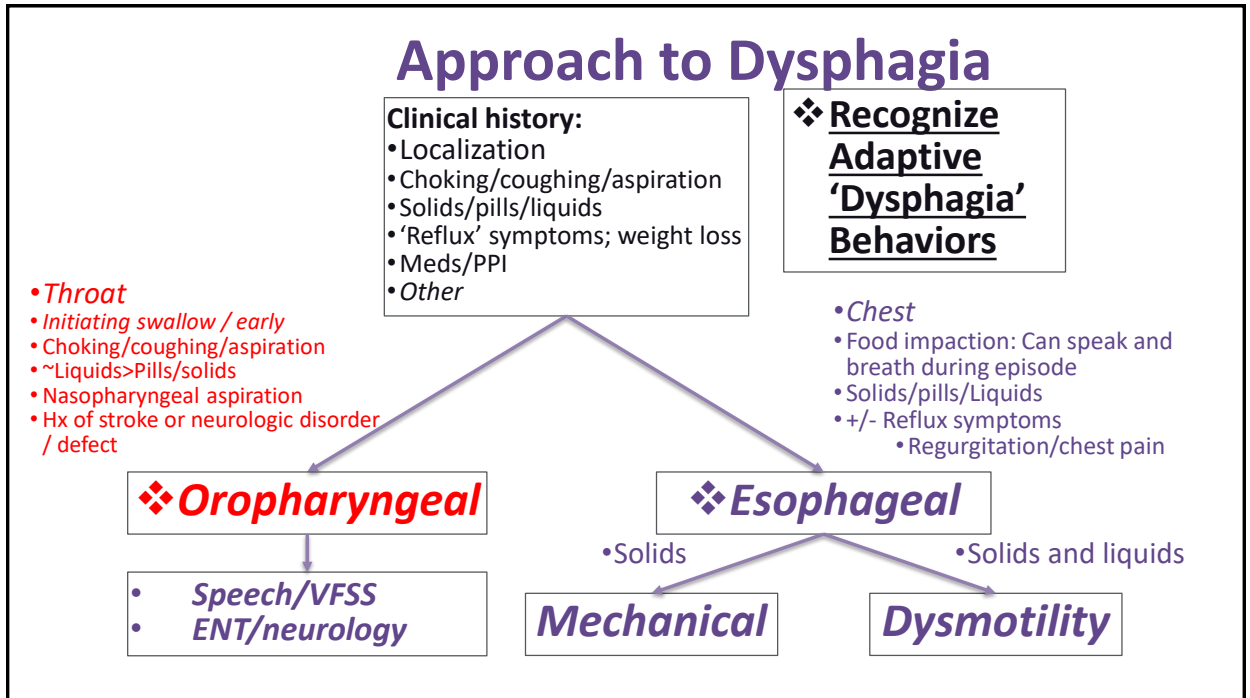
- Dysphagia >1 million visits per year
 - GERD > 4.5 M visits / year
- GERD prevalence: 18-28% of US population
- Eosinophilic esophagitis (EoE): Rising incidence: 8/100,000-year
- Achalasia prevalence: 15-32 / 100,000

Cases

- 1) 54 yo F p/w dysphagia
- 2) 23 yo M p/w food impaction, dysphagia
- 3) 45 yo F p/w regurgitation and occasional dysphagia

Dysphagia – Clinical History

- **Dysphagia: sensation of difficulty or abnormality of swallowing**
- Odynophagia: pain with swallowing.
- *Globus sensation: foreign body sensation (lump, tightness) in the pharyngeal or cervical area*
 - *Not during swallowing*



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Dysphagia – Clinical History

IMPACT - Adaptive 'Dysphagia' Behaviors

- **I** mbibe fluids with meals
- **M** odify food (cutting into small pieces)
- **P** rolong meal times
- **A** void hard texture foods
- **C** hew excessively
- **T** urn away tablets/pills

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Hirano, I and Furuta, G. Gastroenterology. 2020;158(4): 840–851

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Case 1

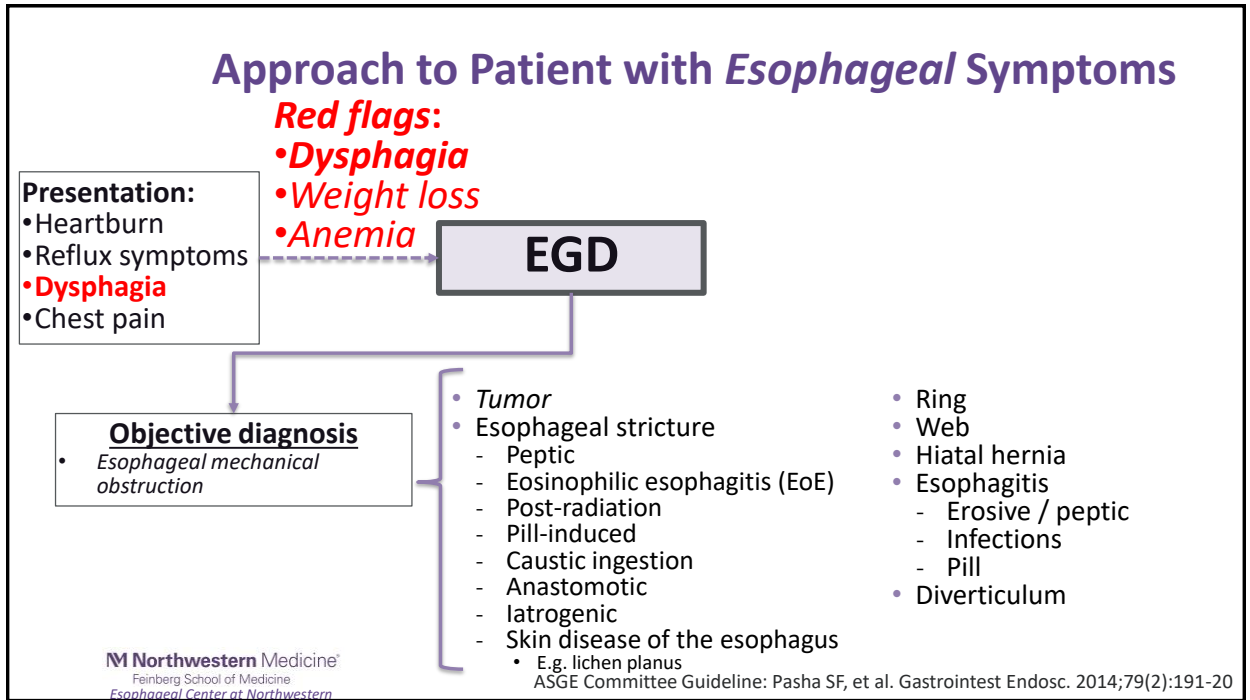
1) 54 yo F p/w dysphagia

- Solid food dysphagia, localized to substernum
 - Has been occurring for the past ~1 year
 - Minimizes with soft diet; slow eating
- Occasional heartburn +/- nocturnal regurgitation
 - ~3-5x/week
- Partial improvement on PPI omeprazole 40mg qd
 - Stopped PPI: ‘not supposed to be on that too long’
- Weight stable

CASE 1: 54 yo F presenting with solid food dysphagia localized to her substernum

What Is the Next Step in Management?

- A. Empiric trial of proton pump inhibitor (PPI)
- B. Barium esophagram
- C. Upper endoscopy
- D. Reassure and schedule for clinical follow-up in 1 year



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Barium Esophagram

Barium esophagram:

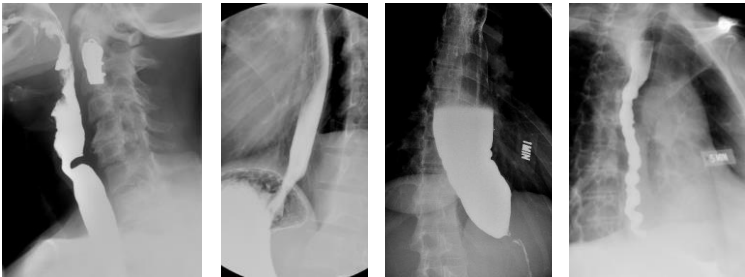
- If positive → EGD
- If negative → EGD

• **‘Pre-EGD’ barium esophagram**

- Concern for proximal esophageal etiology
- History of:
 - Laryngeal / esophageal cancer surgery
 - Radiation therapy
 - Caustic ingestion
 - Zenker’s diverticula
- Oropharyngeal dysphagia (VFSS)

• **Esophagram protocol:**

- Tailor to clinical scenario
- “Include cervical phase”
 - Proximal dysphagia
- “Include barium tablet (12.5mm)”
- “Timed barium esophagram”
 - Helpful complement in achalasia, possible motility disorder
- Standardized to quantify esophageal retention
- 200ml thin barium in upright position
- AP images at 1, 2, 5 minutes



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Case 1 - Continued

- **1) 54 yo F p/w dysphagia**
- *Solid food dysphagia, localized to substernum*
- *Has been occurring for the past ~1 year*
- *Minimizes with soft diet; slow eating*
- *Occasional heartburn +/- nocturnal regurgitation*
- *~3-5x/week*
- *Partial improvement on PPI omeprazole 40mg qd*
- *Stopped PPI: 'not supposed to be on that too long'*
- *Weight stable*

- EGD (off PPI)
 - Stricture at EGJ
 - Small hiatal hernia



- Balloon dilation to 15mm performed
- Esophageal biopsies collected



- Biopsies = squamous mucosa
- **Diagnosis:**
 - **Peptic stricture**
- Monitoring symptom response after dilation
- Started on omeprazole 20mg daily with plan for maintenance therapy

Esophageal Strictures

- **Etiologies**
 - Peptic
 - Eosinophilic esophagitis (EoE)
 - Post-radiation
 - Pill-induced
 - Caustic ingestion
 - Anastomotic
 - Iatrogenic
 - Skin disease of the esophagus
 - E.g. lichen planus
- **Management**
 - **Dilation**
 - **Treat underlying cause**
 - prevent or slow restenosis
 - **Diet modifications:**
 - Cut food into small pieces; chew thoroughly; liquids w/ meals
 - **Medications / Pill modifications:**
 - Avoid unnecessary meds / supplements
 - Crushable/chewable/liquid when available
 - Taking w/ plenty of water (before and after) in upright position

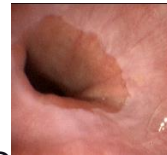
GERD

❖ GERD prevalence: 18-28% of US population

❖ >\$12 BILLION in health care expenditures

(esophageal disease)

- Peptic complications: erosive esophagitis, **peptic stricture**, Barrett's esophagus, esophageal adenocarcinoma



- Most (70+%) patients with GERD will be EGD negative ('non-erosive GERD')
- PPIs are an effective (and safe) treatment for chronic GERD

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Peery, A, et al. Gastroenterol. 2022
El Serag H. Gastroenterology 2010
Everhart JE. Gastroenterology 2009;136:376-86

Case 2

2) 23 yo M p/w food impaction, dysphagia

- Seen in ER for food impaction
- Chicken (no bone); ate ~5 hr ago. Having to spit secretions.
- Until ER visit... infrequent solid food dysphagia (~3-4x/year) since childhood, but never sought medical evaluation.
- Ate slowly, drank lots of water with meals.
- No heartburn.
- Hx: asthma, seasonal allergies
- **EGD (emergent)**
 - **Chicken**
 - Rings, narrow caliber, exudates
- Biopsies: 65 eos/hpf



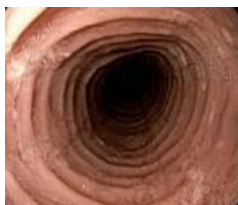
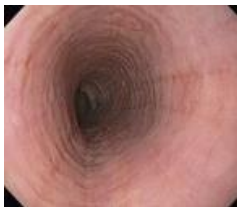
CASE 2: 23 yo M presenting with food impaction, dysphagia. Upper endoscopy with esophageal mucosal rings and furrows; biopsies with 85 eosinophils per hpf.

Which of the Following Statements About Eosinophilic Esophagitis (EoE) Is True?

- The presence of heartburn indicates that acid reflux (GERD), not EoE, is the cause of esophageal eosinophilia
- Allergy-based skin prick testing can effectively identify the dietary trigger of EoE
- A four-food elimination diet (dairy, wheat, soy, egg) is the most effective treatment for EoE
- There are multiple different medical or dietary treatments that can effectively treat EoE
- None of the above statement are true.

EoE

Chronic, immune/antigen-mediated esophageal disease characterized clinically by symptoms related to esophageal dysfunction and histologically by eosinophil-predominant inflammation



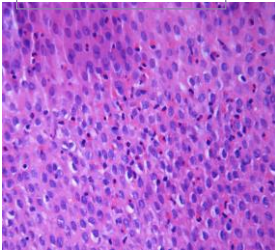
• Diagnosis

- *Clinico-pathologic diagnosis:*
- Esophageal symptoms
- *> 15 eosinophils/hpf on esophageal mucosal biopsy*
- Furrows, rings, exudates on endoscopy

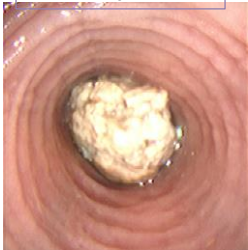
Eosinophilic Esophagitis

- Adult
 - Commonly 20-30s (any age possible)
 - Male > female
 - Dysphagia / food impaction / chest pain
- Children
 - Any age
 - Male > Female
 - Symptoms may differ from adults
 - Feeding dysfunction
 - Vomiting
 - Abdominal pain
 - Dysphagia/food impaction
- **Commonly co-exist with other atopic diseases, E.g. asthma, eczema, allergic rhinosinusitis**

Molecular and Cellular Mechanisms




Physiologic and Mechanical Consequences




Remodeling changes occurring over time
Longer untreated disease, i.e. 'diagnostic delay'

Dellon, ES, et al. Gastrointest Endosc. 2014;79(4)
Araujo IK, et al. Clin Gastro Hep. 2023

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EoE

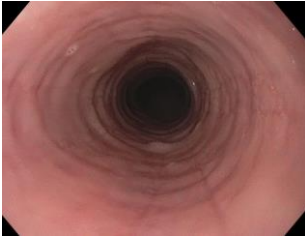


- **Management**
 - Eosinophilia (acute and maintenance)
 - PPI (~40% response rate)
 - Topical corticosteroid (~60% response rate)
 - Elimination diet (~50-70% response rate)
 - 1 – 2 – 4 – 6 food elimination diets
 - Allergy testing, e.g. skin prick, patch, serum IgE, have not shown improved prediction for diet trigger
 - Biologics (dupilumab ~60% response rate)
 - Stricture – endoscopic dilation

Case 2 – Continues

EGD

- Rings, furrows
- narrow caliber, stricture (11mm)
- Dilation to 13mm



- Path: 75 eos/hpf

- 2) 23 yo M p/w food impaction, dysphagia
- Started on omeprazole 40mg bid
- *Cautious diet*
- *Feeling ok (no dysphagia, Fls)*

- *Topical corticosteroid*
 - *Budesonide slurry 1mg BID*
- *Cautious diet*
- *No dysphagia, Fls*

EGD

- Rings, narrow caliber, stricture (13mm)
- Dilation to 15mm



- Path: 0 eos/hpf

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Case 3

3) 45 yo F p/w regurgitation and occasional dysphagia

- Post-prandial regurgitation – typically effortless and without nausea or retching x ~2 years
- Dysphagia: solids > liquids, chest
 - Occurring 2-4 meals per week
- Tried OTC PPI x 6 months – no improvement
- **EGD: ‘normal’.**
 - **Biopsies negative for EoE**
- Weight loss: 30 lbs
- Referred for gastric emptying study: normal

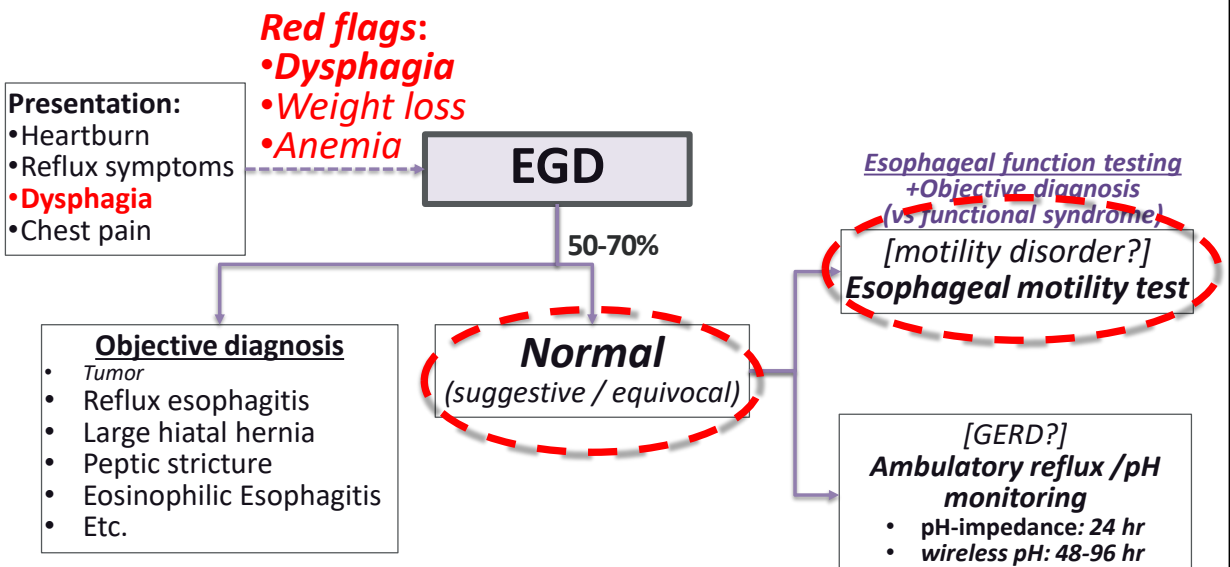
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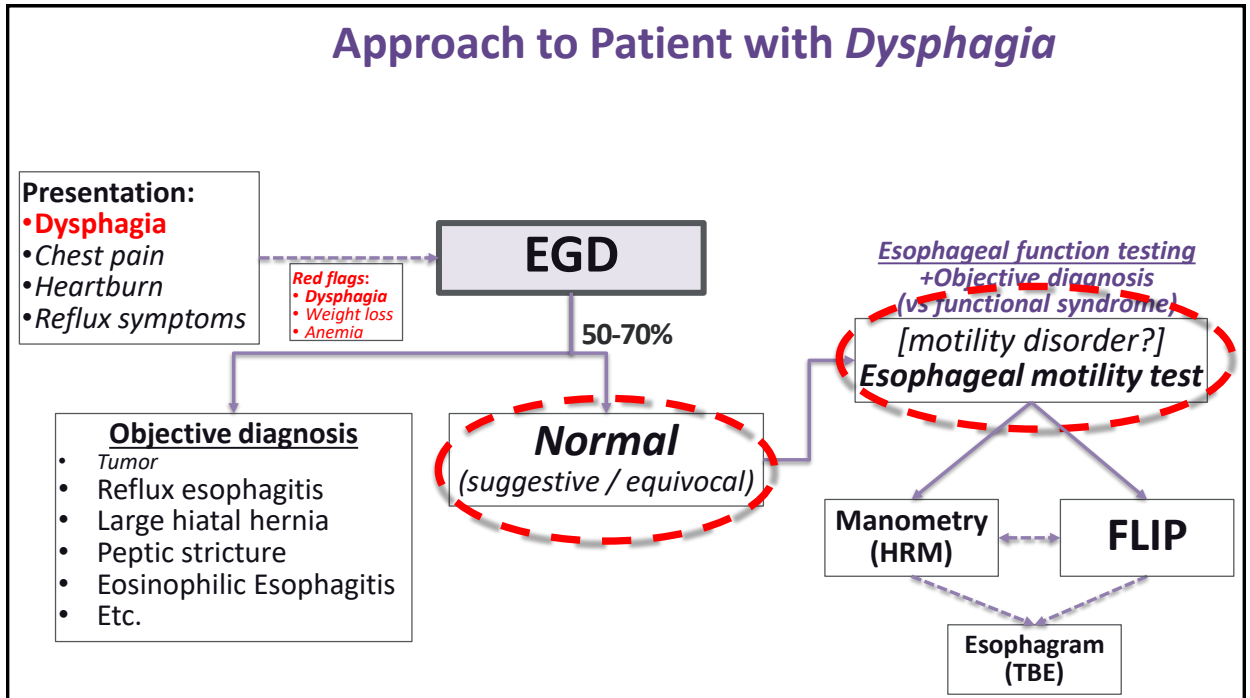
CASE 3 45 yo F p/w regurgitation and dysphagia, endoscopy without overt cause of dysphagia (i.e. endoscopy-negative dysphagia).

What Is the Next Step in Management?

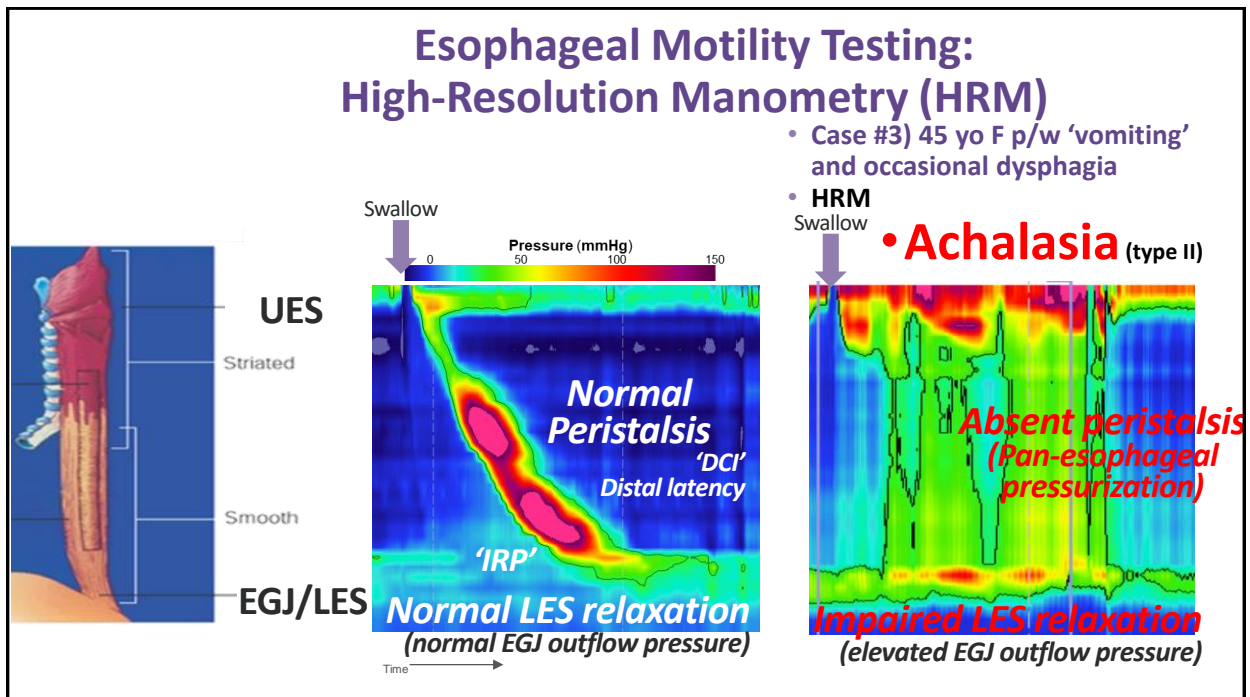
- A. Increase proton pump inhibitor to BID and continue for 6 more months
- B. Refer for video fluoroscopic swallow study (VFSS)
- C. Refer for esophageal manometry
- D. Reassure and schedule for clinical follow-up in 1 year

Approach to Patient with Esophageal Symptoms

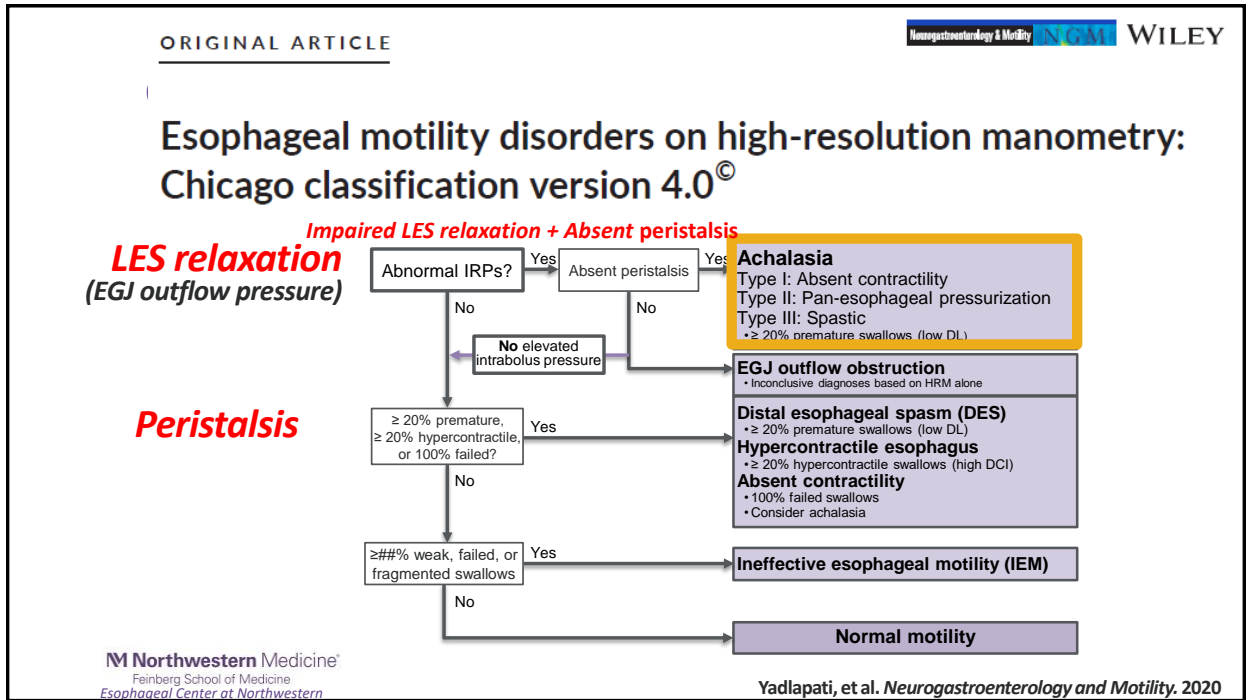




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Achalasia

- **Primary** esophageal motor disorder
 - (i.e. secondary causes, aka pseudo-achalasia, ruled out)
- 1. **Impaired relaxation of lower-esophageal sphincter (LES)**
- 2. **Absent** esophageal peristalsis
- Achalasia prevalence: 15-32 / 100,000¹
 - Often delayed diagnosis (ave 4-5 years)²; *PPI-refractory GERD*
- Clinical manifestations:
 - dysphagia, regurgitation, chest pain; *heartburn*
 - Late: malnutrition, weight loss
- Effective treatment options – LES targeted

Pandolfino and Gawron, JAMA. 2015
 Samo, S, et al. Clin Gastro Hep 2017; 15
 Muller, M, et al. Dis Esoph; 2023

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Achalasia Treatment Options

- Medications: generally ineffective; off-label use
- LES botulinum toxin:
 - temporary (6-12 mos)
 - Typically reserved for 'non-surgical candidates' (or diagnostic uncertainty)

Durable treatment options:

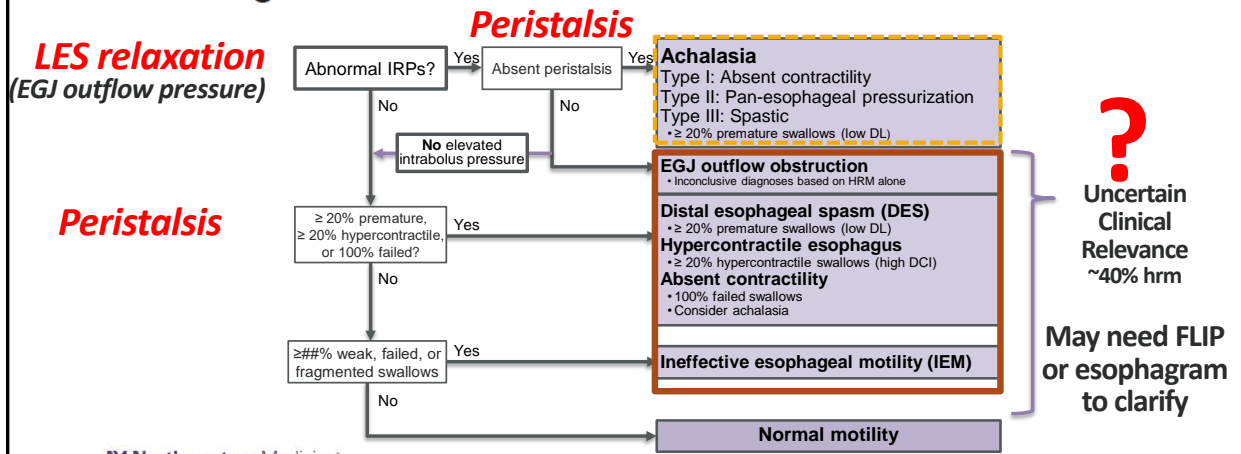
	Pneumatic dilation	POEM PerOral Endoscopic Myotomy	Laparoscopic Heller's myotomy
Recovery time	↓	↓	↑
GERD risk	↓ 0-10%	↑ ~40%	↑ ~20-30%
Need for repeat	↑	↓	↓
Spastic achalasia	↓	↑	↑

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Diagnosis of Esophageal Motility Disorders

Esophageal motility disorders on high-resolution manometry:
Chicago classification version 4.0[©]



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Yadlapati, et al. *Neurogastroenterology and Motility*. 2020

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Functional Lumen Imaging Probe (FLIP)

- ❖ Performed during sedated endoscopy
- ❖ Esophageal motility findings often parallel manometry
- ❖ FLIP findings can help clarify equivocal manometry

Diameter (mm)
5 10 15 20 25 30

Intra-bag pressure

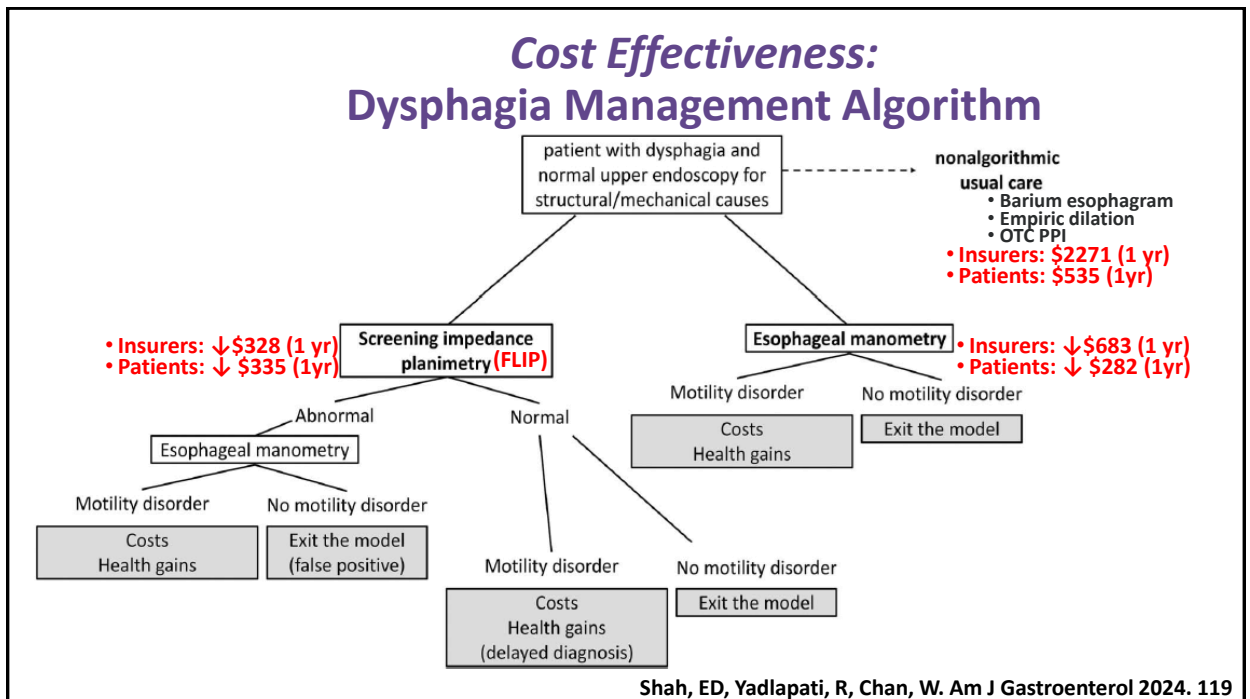
Normal Secondary Peristalsis
Normal EGJ opening (normal EGJ distensibility)
Normal Esophageal Motility

Absent peristalsis
Impaired EGJ opening (reduced EGJ distensibility)
Achalasia

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Carlson, DA et al. Am J Gastroenterol; 2021; 00: 1-10

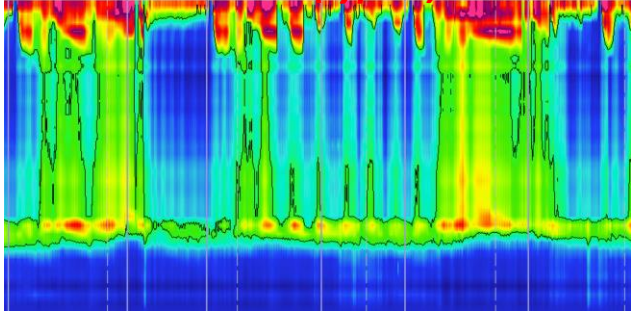
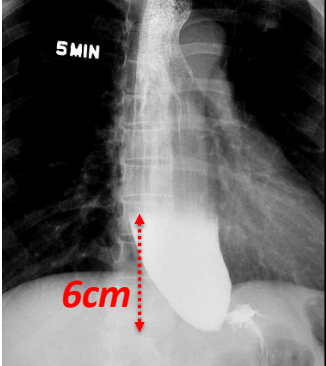
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Case 3

Achalasia (type II)

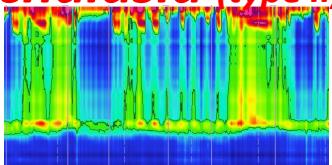



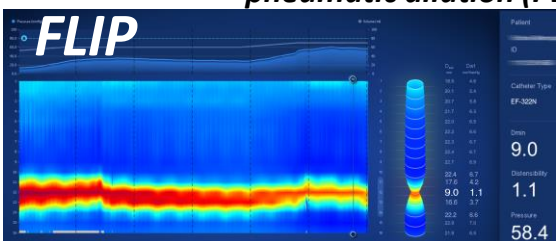
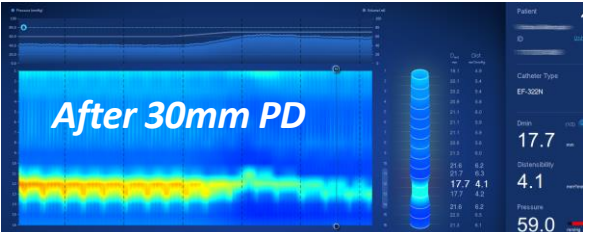
- 3) 45 yo F p/w regurgitation and occasional dysphagia; wt loss
- EGD #1: 'normal'.
- Offered PD, POEM, or LHM
- Chooses pneumatic dilation (PD)

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Case 3

Achalasia (type II)

- 3) 45 yo F p/w 'vomiting' and occasional dysphagia; wt loss
- EGD 1: 'normal'.
- EGD w/ FLIP for 30mm pneumatic dilation (PD)

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Conclusions:

Approach to dysphagia

- Detailed clinical history to direct evaluation
 - Consider 'dysphagia adaptive behaviors'
- Upper endoscopy (EGD) may identify objective diagnosis
- High-resolution manometry and/or FLIP Panometry for diagnosis of esophageal motility disorders, particularly achalasia
- ❖ *Effective diagnosis* can direct targeted and personalized application among effective treatment options