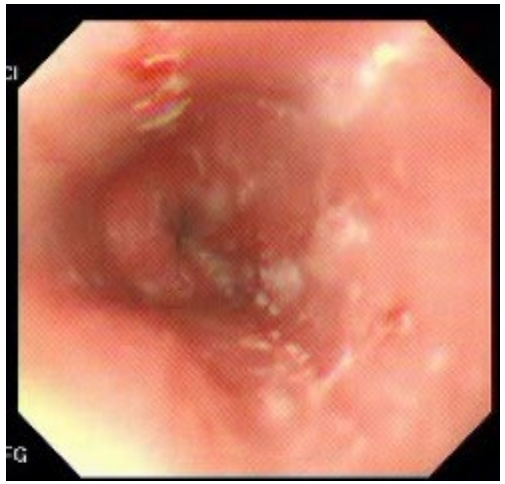
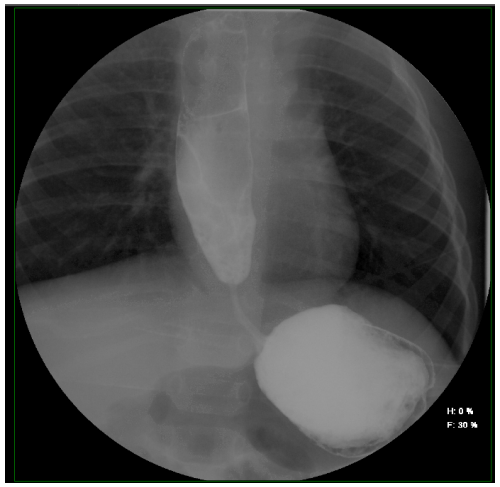
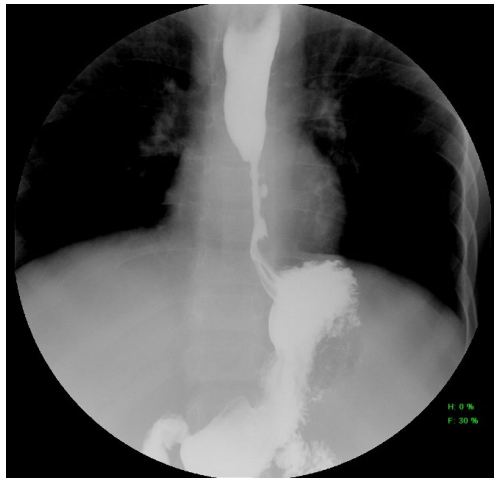
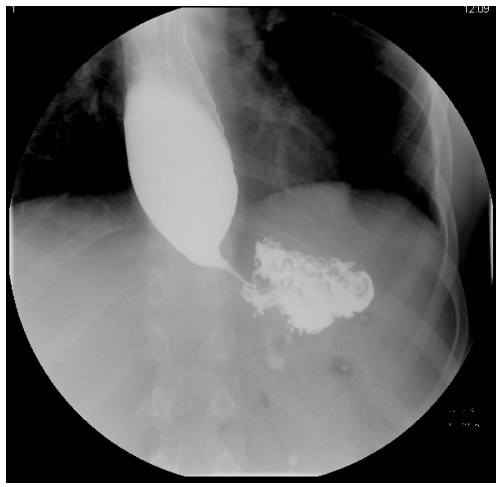
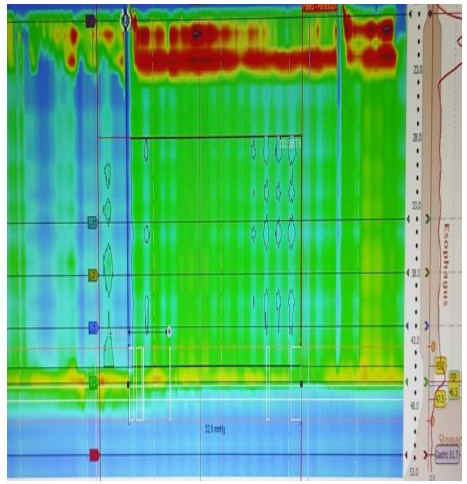






14. ULUSAL
ÇOCUK GASTROENTEROLOJİ, HEPATOLOJİ VE BESLENME KONGRESİ

Özofageal Disfaji

Dr. Öğretim Üyesi Ersin Gümüş

Hacettepe Üniversitesi Tıp Fakültesi

Çocuk Gastroenteroloji, Hepatoloji ve Beslenme Ünitesi

Mayıs 2022

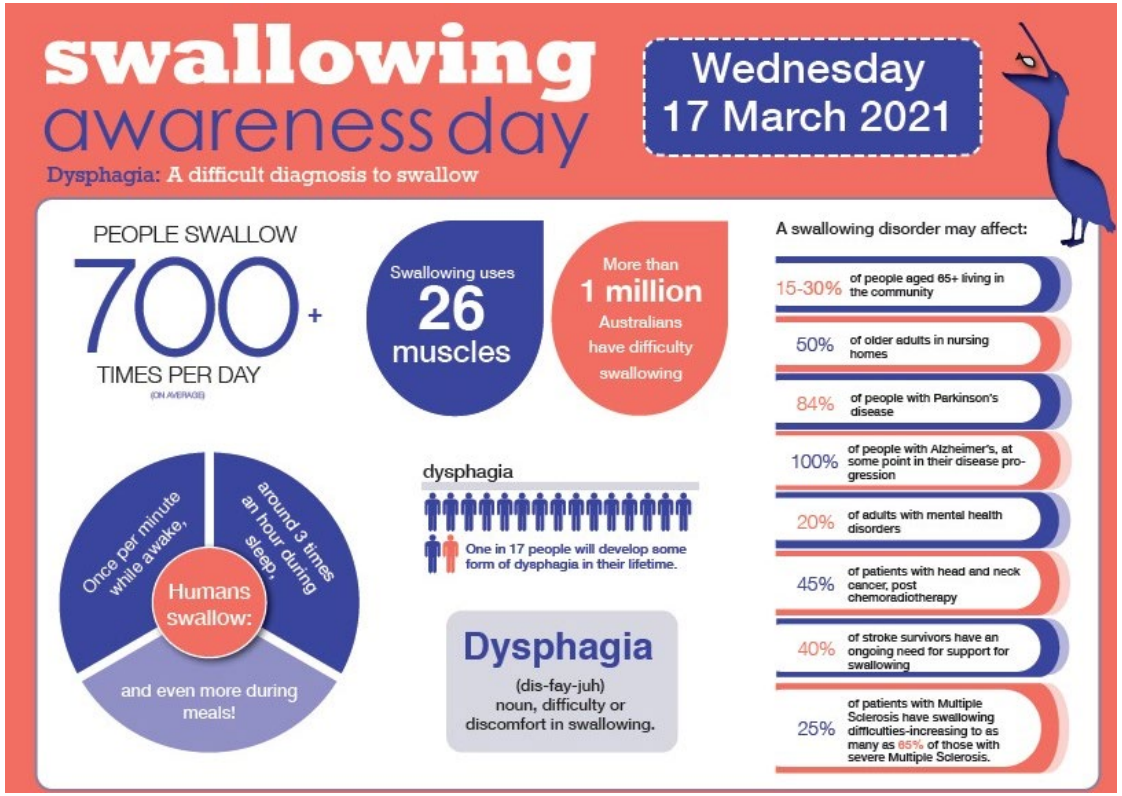
Çıkar çatışması beyanı

Bu sunumla ilgili mevcut veya potansiyel herhangi bir çıkar çatışmam bulunmamaktadır.

Sunum Planı

Özofageal disfajinin;

- ❑ Tanımı
- ❑ Epidemiyolojisi
- ❑ Klinik bulguları
- ❑ Tanısı
- ❑ Nedenleri
- ❑ Takibi
- ❑ Özet



SWALLOWING AWARENESS DAY | 16 MARCH 2022

DYSPHAGIA: HOW DOES IT AFFECT CHILDREN?

Dysphagia affects:

Between 25 - 40 % of a typically developing paediatric population

Between 31 - 99 % of children with cerebral palsy

Between 26.8 - 40 % of infants born prematurely

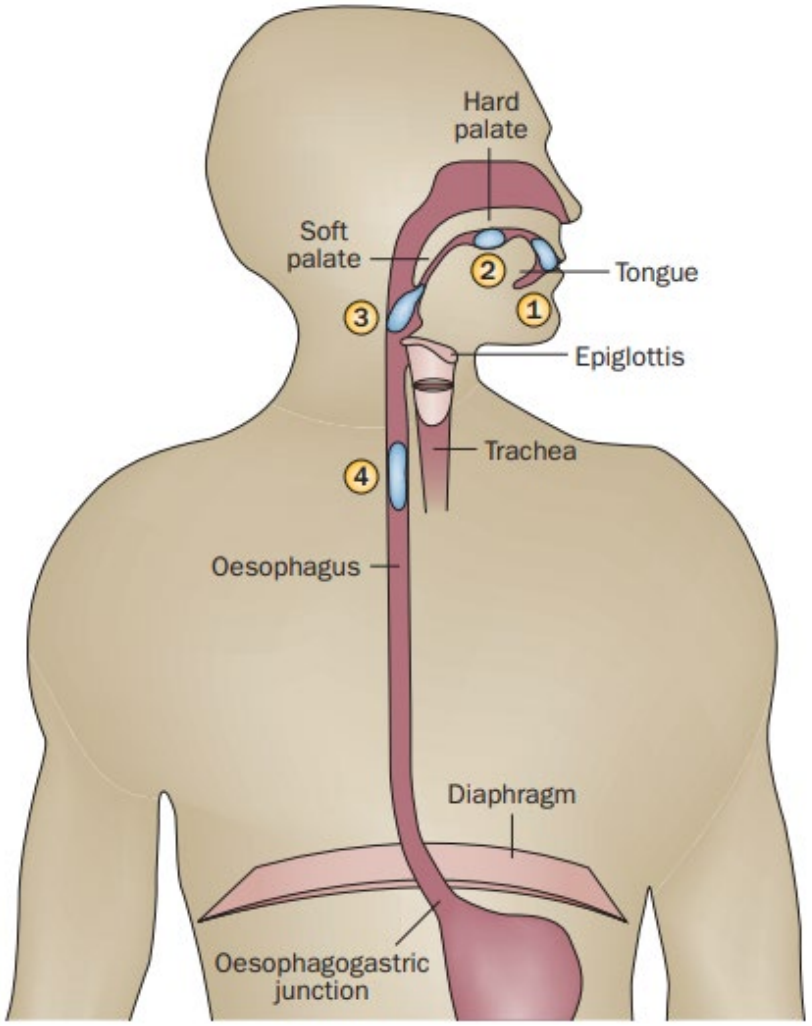
What difficulties does dysphagia lead to in infants, children and young people?

- Issues with the development of feeding skills
- Behavioural issues associated with eating, drinking and mealtimes
- Can cause chest infections, pneumonia, choking, dehydration, weight loss and malnutrition

Tanım

Yutmada zorlanma hissi

Yemek borusunda takılma hissi



- ❑ Orofaringeal disfaji
- ❑ **Özofageal disfaji**
  - ➢ Özofagus ve alt özofageal sfinkterin anatomik, inflamatuvar veya fonksiyonel patolojileri sonucu ortaya çıkan disfaji

Epidemiyoloji

- Gerçek insidansı ve prevalansı?
- **Yaşla birlikte görülme sıklığı artıyor.**
- **İnsidans ve prevalans yıllar içinde artıyor.**
- Beslenme ve yutma sorunları
  - Normal gelişen çocukların %25-45'inde
  - Gelişme geriliği olan çocukların %30-80'inde

Klinik

Akut

Subakut – Kronik

Akut

- Ani başlangıçlı
- Beslenememe veya beslenme reddi
- Ağrılı yutma (Odinofaji)
- Salya akması (“*Drooling*”)
- ±Solunum sistemi belirti ve bulguları
- ±Ek yakınmalar (ateş, bulantı, epigastrik ağrı, hematemez gibi)
- Gastroenterolojik acil
- Yabancı cisim, korozif madde, enfeksiyonlar

Subakut - Kronik

Bebek ve küçük çocuklarda;

- ❑ Beslenmede zorluk
- ❑ Beslenme sırasında huzursuzluk
- ❑ Beslenme reddi
- ❑ Regürjitasyon ve kusma
- ❑ Diyetin sınırlanması (içerik ve miktar olarak)
- ❑ Kilo alamama, kilo kaybı

Subakut - Kronik

Büyük çocuk ve adolesanlarda;

- ❑ Göğüs bölgesinde takılma hissi
- ❑ Beslenme ile göğüs ağrısı, yanma
- ❑ Kusma ile sindirilmemiş besinlerin çıkarılması
- ❑ Beslenme sırasında dolgunluk hissi
- ❑ Post-prandiyal kusma
- ❑ Noktürnal kusma

Supin pozisyonda yakınmalar artabilir!

Öykü

Yakınması ile ilgili öykü

Özgeçmiş

Soygeçmiş

Fizik Muayene

Sistemlerin muayenesi

Belirti ve bulgulara yönelik muayeneler

Ön tanılar

Ön tanı

Ayırıcı tanılar

Bazen kesin tanı için öykü ve fizik muayene yeterli.

Tanısal incelemeler

Laboratuvar

Görüntüleme

Manometri

Endoskopi

Patoloji

Tanı & İzlem

Tedavi planı

Ek incelemeler

İzlem

Tanının gözden geçirilmesi

Tanı

En önemli tanısal yaklaşım basamağı kapsamlı bir öykü ve ayrıntılı bir fizik muayenedir.

Öykü

- Disfaji orofaringeal mi özofageal mi?
- Altta yatan neden ne olabilir?
- Hastanın (*organik nedenli*) disfajisi var mı?

Orofaringeal disfaji

- Sıvılarla daha şiddetli
- Yutar yutmaz, beslenirken
- Öksürme
- Boğulma
- Öğürme (“*gagging*”)
- Morarma
- Kusma, nazal regürjitasyon
- Yaş ses (“*wet voice*”)
- Boğaz temizleme

Özofageal disfaji

- Yakınmanın lokalizasyonu
  - **Yemek borusunda/göğüs bölgesinde/sternum arkasında**
  - **Takılma/zor geçme/kalma**
  - **Hastanın tarif ettiği yer ile patolojinin olduğu yer farklı olabilir**
- Retrosternal yanma
- Regürjitasyon
- Non-kardiyak göğüs ağrısı
- Solunum yolu bulguları daha nadir ve genellikle tedavi edilmemiş ağır vakalarda

Öykü

- Hangi tip besinlerle?

Sıvılarla

Katılarla

Sıvı ve Katılarla

Özofageal disfaji

Kural değil ancak;

- ❑ Katılarla
  - ➢ Özofageal striktür veya stenoz
  - ➢ Eozinofilik özofajit
  - ➢ Erken dönem akalazya
  - ➢ Korozif madde hasarı
- ❑ Sıvı ve katılarla
  - ➢ İleri evre akalazya
  - ➢ Bağ dokusu hastalıkları
  - ➢ Primer veya sekonder motilite bozuklukları

Öykü

- Altta yatan neden ne olabilir?
  - GÖRH semptomları?
  - Alerji hikayesi?
    - Besin alerjisi, ilaç alerjisi, astım, alerjik rinit, atopik dermatit
  - Kullanılan ilaçlar?
    - NSAİİ, KCl, bisfosfonatlar, tetrasiklin, kinin
  - Korozif maruziyeti?
  - Komorbiditeler?
    - Nöromüsküler hastalıklar, bağ dokusu hastalıkları, sendromik durumlar, dermatolojik hastalıklar, özofagus atrezisi
  - Geçirilmiş cerrahiler?
  - Sık akciğer enfeksiyonu hikayesi?

Gastroenterology 2016;150:1368–1379

SECTION II: FGIDs: DIAGNOSTIC GROUPS

Esophageal Disorders

Table 1. Functional Esophageal Disorders

Functional chest pain
Functional heartburn
Reflux hypersensitivity
Globus
Functional dysphagia

Functional esophageal disorders consist of a disease category that presents with esophageal symptoms (heartburn, chest pain, dysphagia, globus) that are not explained by mechanical obstruction (stricture, tumor, eosinophilic esophagitis), major motor disorders (achalasia, esophagogastric junction outflow obstruction, absent contractility, distal esophageal spasm, jackhammer esophagus), or gastroesophageal reflux disease. Although mechanisms responsible are unclear, it is theorized that visceral hy-

Rome IV

https://www.mdcalc.com

MD+CALC

Rome IV Diagnostic Criteria for Functional Dysphagia ☆

Official Rome IV criteria for the diagnosis of functional dysphagia.

INSTRUCTIONS

Use in patients with symptoms suggestive of functional dysphagia, such as a recurrent sense of solid and/or liquid foods passing abnormally through the esophagus, for at least 6 months.

Patients with any of the following features must be evaluated clinically for other diagnoses even though functional dysphagia may be present:

- Odynophagia.
- Sore throat.
- Heartburn or esophageal reflux/regurgitation.
- Unexplained iron deficiency anemia.
- Unintentional weight loss.
- Palpable cervical lymphadenopathy on exam.
- Persistent vomiting.

When to Use | Pearls/Pitfalls | Why Use

Must have the following:

For 3 months prior with symptom onset ≥6 months ago with a frequency of at least once a week

- ✓ Sense of solid and/or liquid foods sticking, lodging, or passing abnormally through the esophagus
- ✓ Absence of evidence that esophageal mucosal, or structural abnormality is the cause of the symptom
- ✓ Absence of evidence that gastroesophageal reflux or EoE is the cause of the symptom
- ✓ Absence of major esophageal motor disorders (achalasia/EGJ outflow obstruction, diffuse esophageal spasm, jackhammer esophagus, absent peristalsis)

Diagnostic Result

Positive Diagnosis for functional dysphagia as per Rome IV criteria

Copy Results | Next Steps

Rome IV Diagnostic Criteria for Globus ☆

Official Rome IV criteria for the diagnosis of globus.

INSTRUCTIONS

Use in patients with symptoms suggestive of globus, such as a persistent or intermittent non-painful sensation of a lump or foreign body in the throat, for at least 6 months.

Patients with any of the following features must be evaluated clinically for other diagnoses even though globus may be present:

- Dysphagia.
- Odynophagia.
- Sore throat.
- Unexplained iron deficiency anemia.
- Unintentional weight loss.
- Palpable cervical lymphadenopathy on exam.
- Persistent vomiting.

When to Use | Pearls/Pitfalls | Why Use

Must have the following:

For 3 months prior with symptom onset ≥6 months ago with a frequency of at least once a week

- ✓ Persistent or intermittent, nonpainful, sensation of a lump or foreign body in the throat with no structural lesion identified on physical examination, laryngoscopy, or endoscopy
  Occurrence of the sensation between meals, absence of dysphagia or odynophagia, and absence of a gastric inlet patch in the proximal esophagus
- ✓ Absence of evidence that gastroesophageal reflux or EoE is the cause of the symptom
- ✓ Absence of major esophageal motor disorders (achalasia/EGJ outflow obstruction, diffuse esophageal spasm, jackhammer esophagus, absent peristalsis)

Diagnostic Result

Positive Diagnosis for globus as per Rome IV criteria

Copy Results | Next Steps

Globus hissi?
Fonksiyonel disfaji?
Dispepsi?

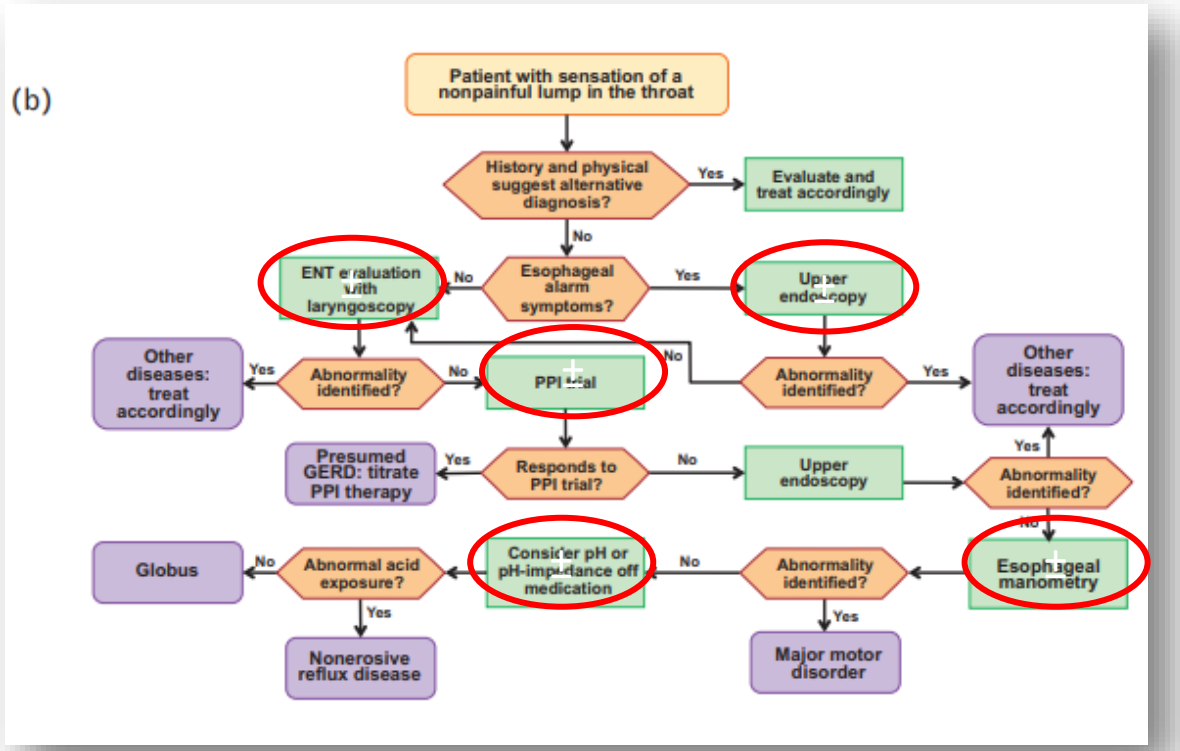
How to use Rome IV criteria in the evaluation of esophageal disorders

Curr Opin Gastroenterol 2018, 34:000–000

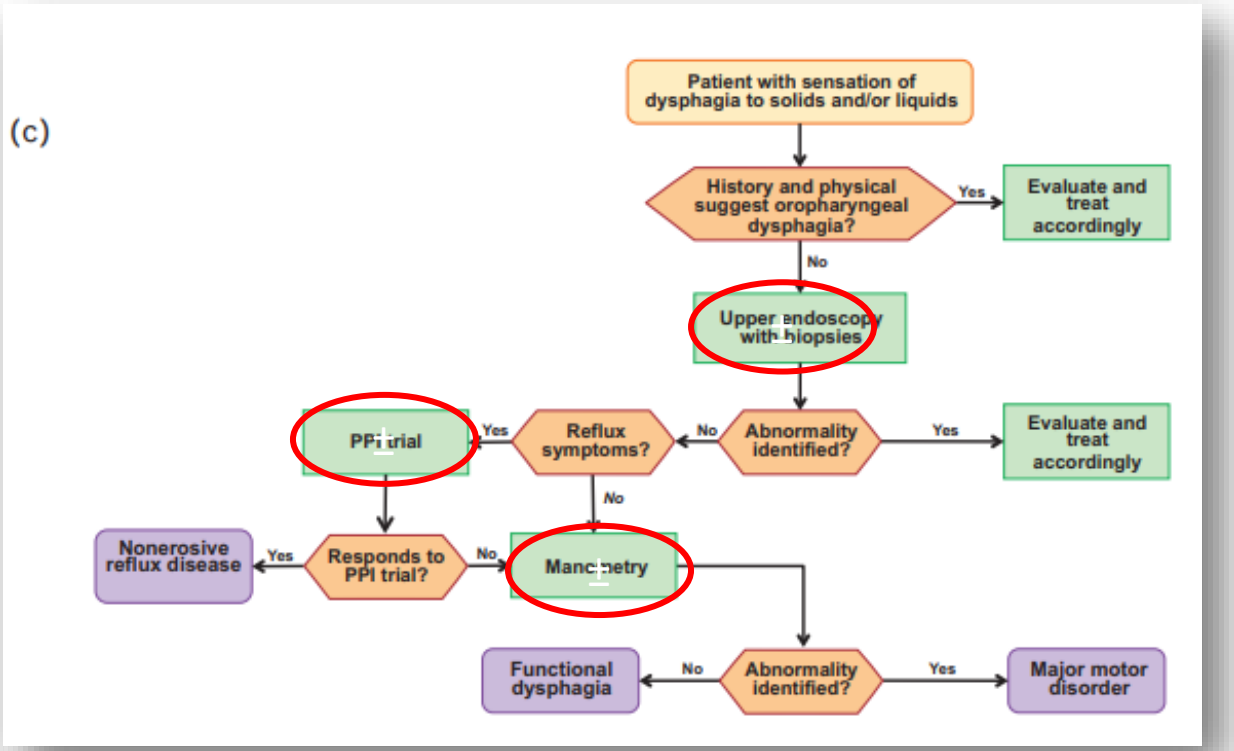
***EKARTASYON

Roma IV tanısal yaklaşım algoritmaları

Globus



Fonksiyonel disfaji



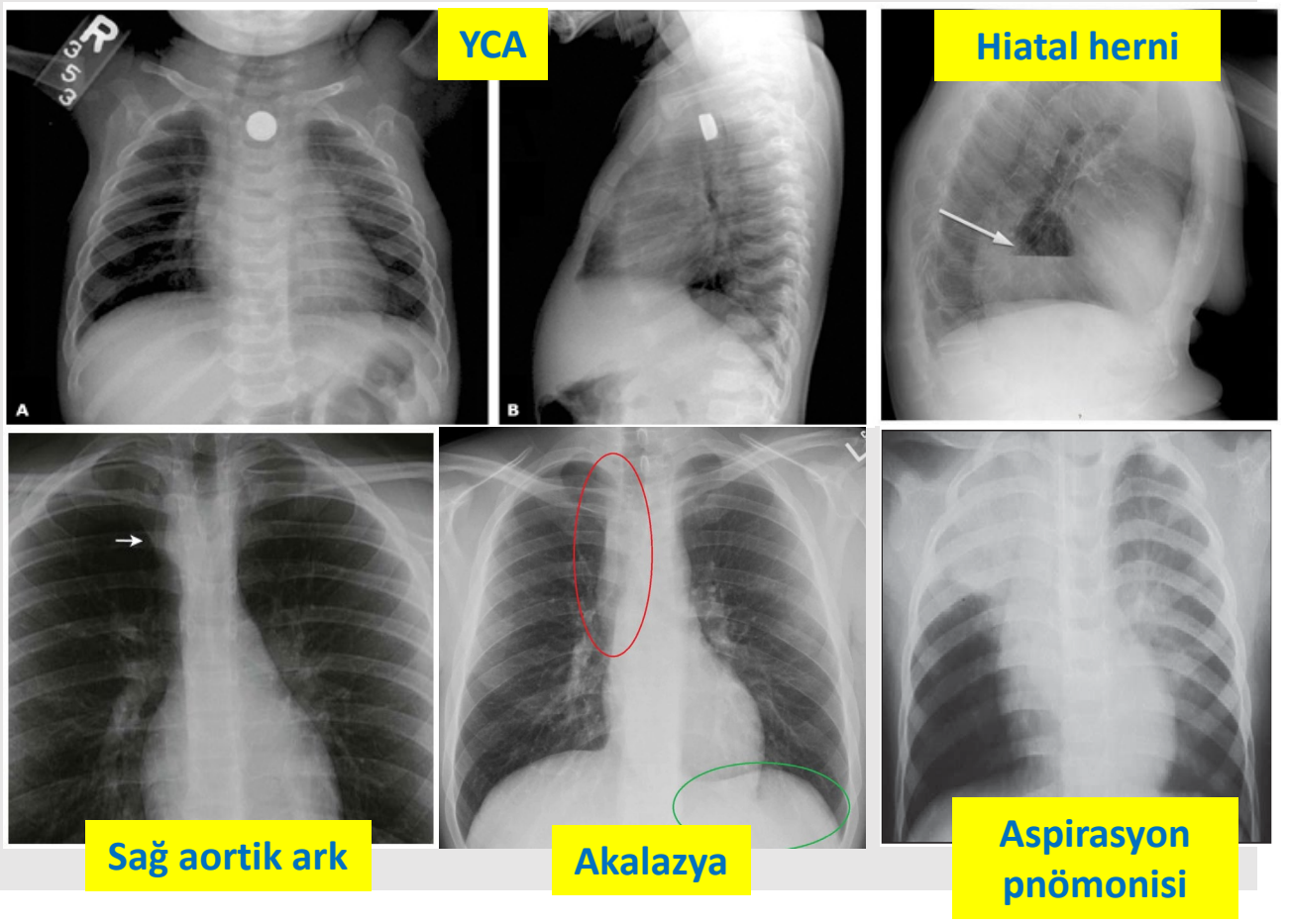
Fizik muayene

- ❑ Sistemik fizik muayene
- ❑ Oral kavite, farenks ve boyun muayenesi
- ❑ Nörolojik muayene
  - ➢ Kraniyal sinir çiftleri
  - ➢ Kas tonusu, kas gücü, refleksler değerlendirilmeli

- ➢ Kitle?
- ➢ Kraniyal sinir defektleri?
- ➢ Nöromüsküler hastalıklar?
- ➢ Bağ dokusu hastalıkları?

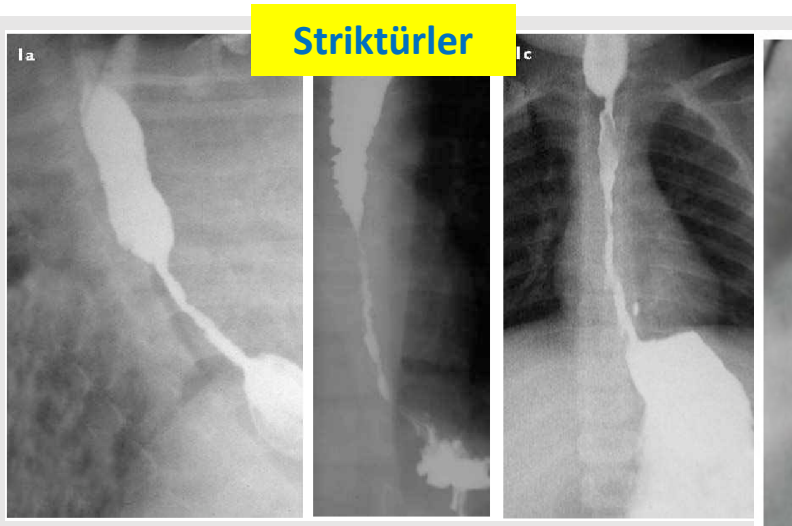
Görüntüleme

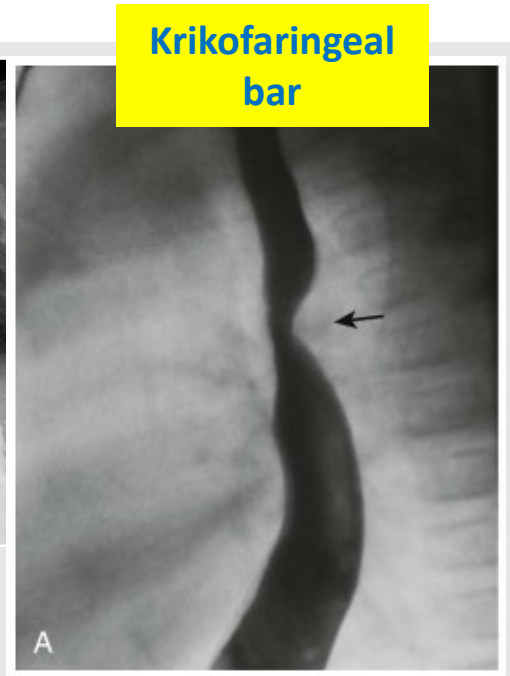
- Düz grafi

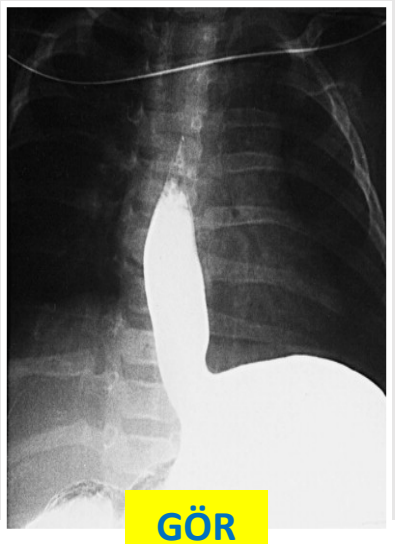


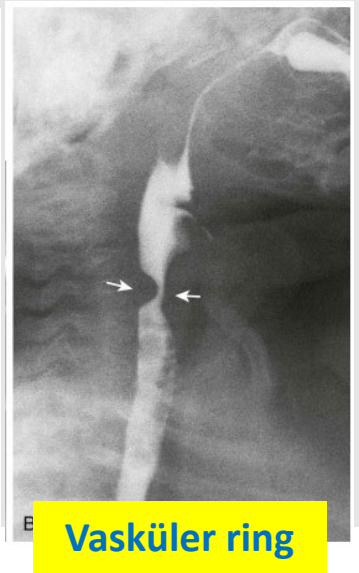
- ❑ Baryumlu çalışmalar/özofagografi
- ❑ Anatomik patolojiler
- ❑ GÖR

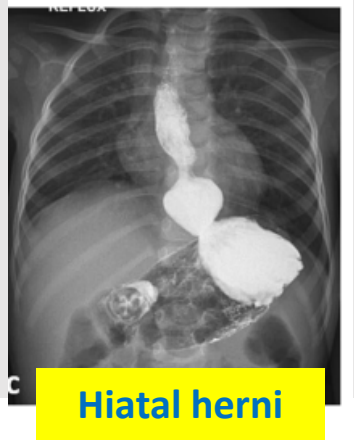
Görüntüleme







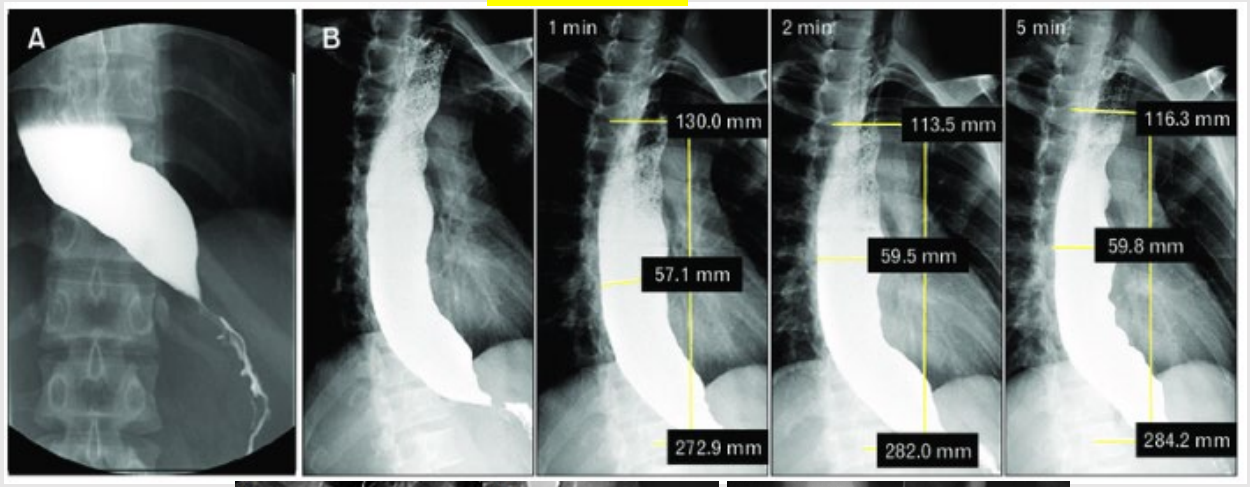


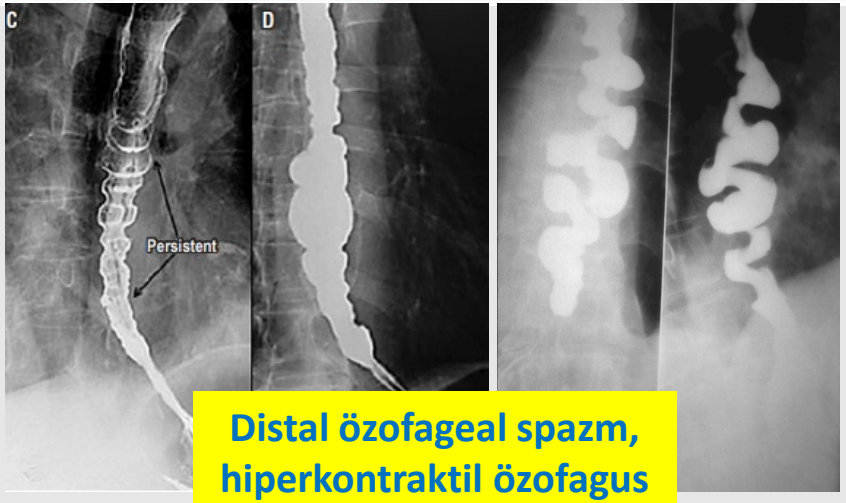


- ❑ Baryumlu çalışmalar/özofagografi
- ❑ Motilite sorunları

Görüntüleme

Akalazya





Distal özofageal spazm, hiperkontraktil özofagus

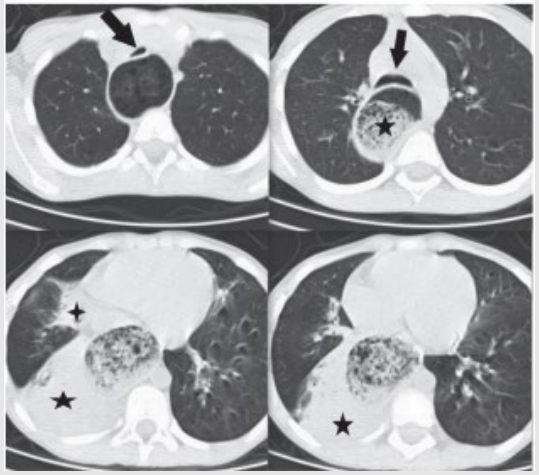
Görüntüleme

- VFSS - Videofloroskopik yutma çalışması
- Daha çok orofaringeal patolojiler
- Aspirasyon ve penetrasyon
- İşlem sırasında özofagus motilitesi ile ilgili bilgi verebilir.

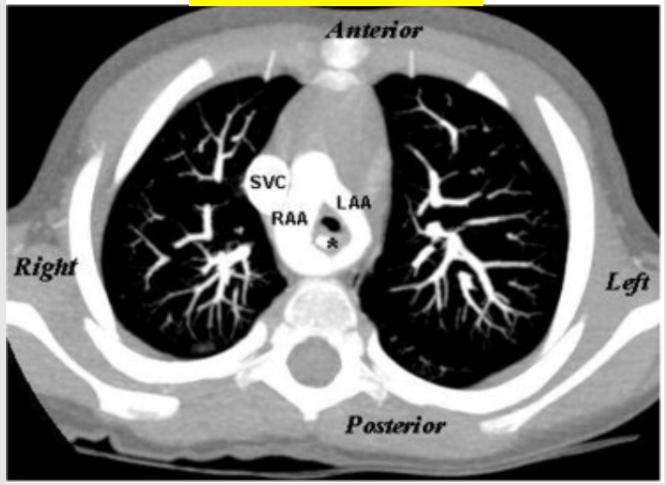
- ❑ Kesitsel görüntüleme teknikleri – BT, MRG
- ❑ Kitle (benign, malign)
- ❑ Vasküler patolojiler
- ❑ Dismotilite ??
- ❑ Akciğer hastalığının takibi!

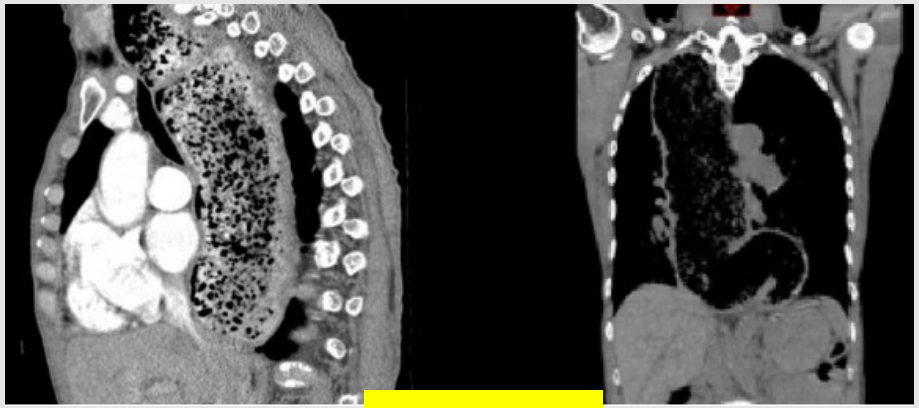
Görüntüleme

Akalazya



Vasküler ring





Akalazya

Endoskopi

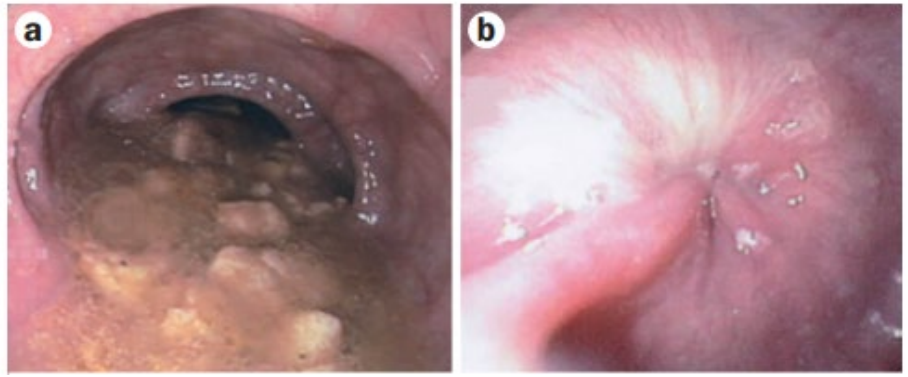
- ÖGD ve endoskopik biyopsi, fırça ile mukozal sürüntü örneği
- Anatomik etiyolojiler
  - Striktürler, web, dıştan bası
- İnflamatuvar etiyolojiler
  - EoE, reflü özofajiti, enfeksiyöz özofajit, korozif hasarı
- Motilite bozuklukları
  - Akalazya, dilate özofagus, aperistalsis
- Endoskopik USG
- Terapötik – Dilatasyon, miyotomi

Reflü özofajit

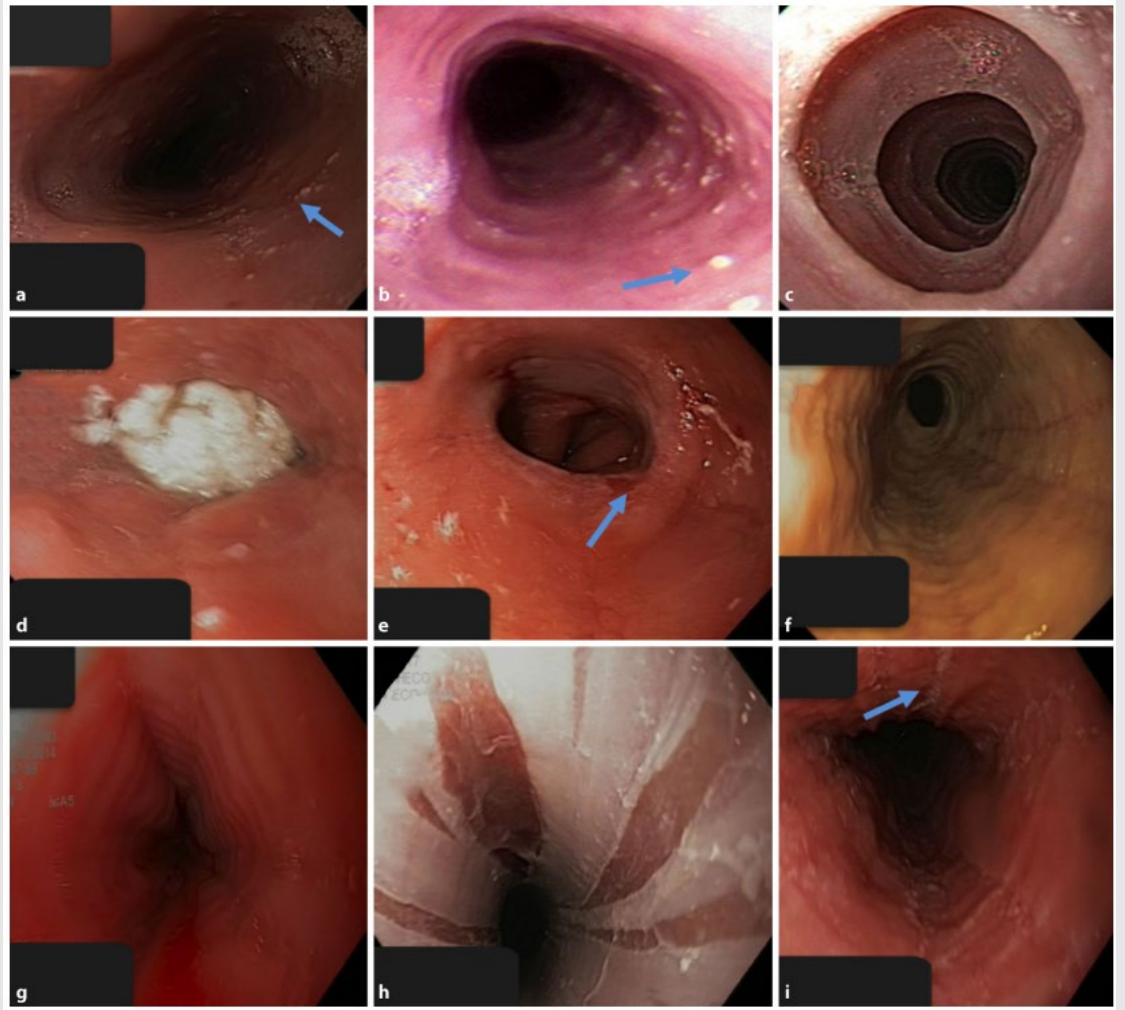
Candida özofajiti

Endoskopi

Akalazya



EoE



Manometri

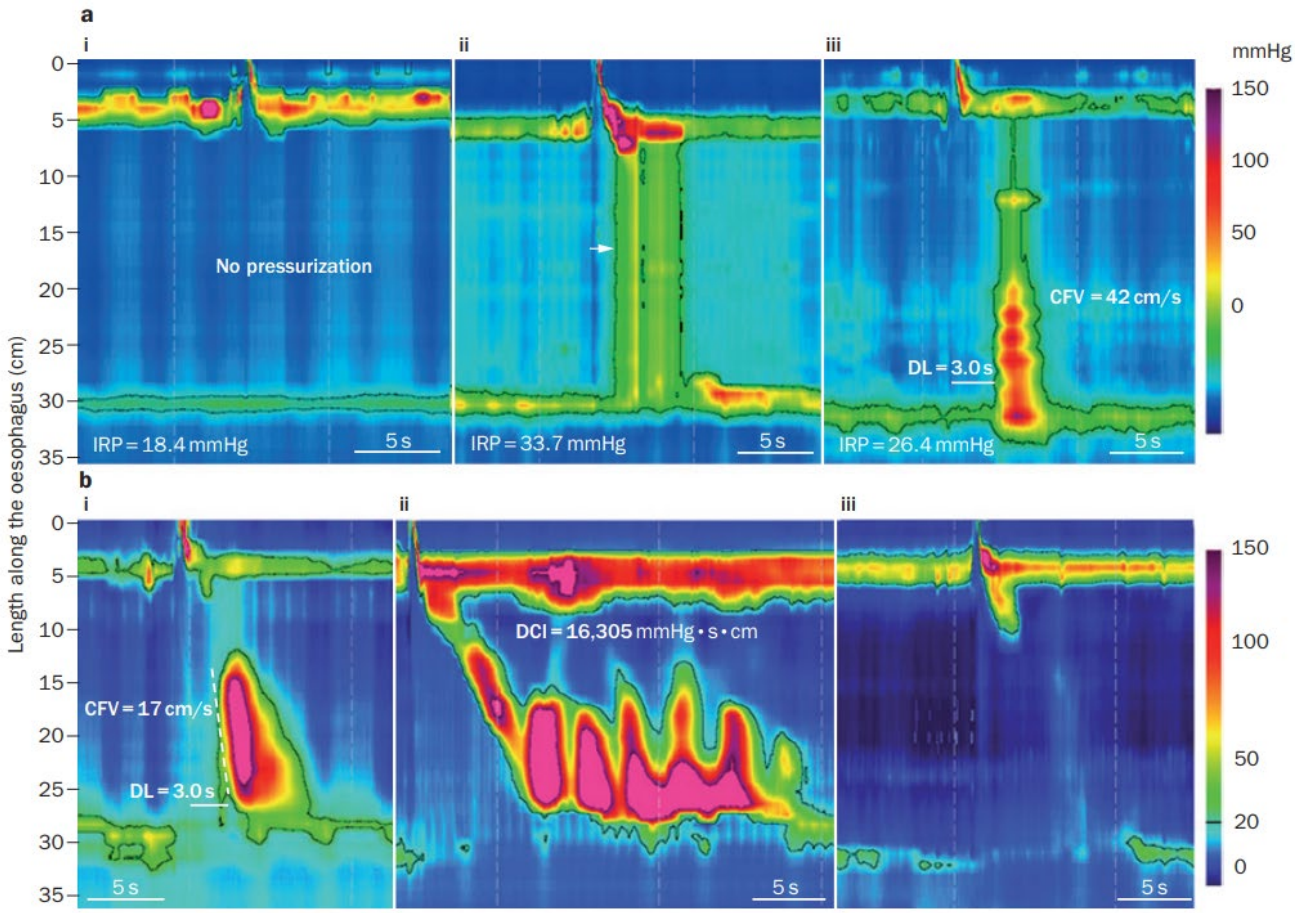


Figure 5 | Examples of major oesophageal motility disorders never seen in healthy individuals. **a** | The three achalasia subtypes, (i) type I no compression (ii) type II with compression (arrow) (iii) type III (spastic achalasia). **b** | Examples of non-achalasic major motor disorders. (i) oesophageal spasm (premature contraction, short distal latency) (ii) hypercontractile 'jackhammer' oesophagus (DCI >8,000 mmHg.s.cm (iii) absent peristalsis. Abbreviations: CFV, contractile front velocity; DCI, distal contractile integral; DL, distal latency; IRP, integrated relaxation pressure.

Received: 11 November 2020 | Revised: 21 November 2020 | Accepted: 24 November 2020
DOI: 10.1111/nmo.14058

REVIEW

Neurogastroenterology & Motility NGM WILEY

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

Classification	Disorder	Definition
Disorders of EGJ Outflow	Type I Achalasia	Abnormal median IRP & 100% failed peristalsis
	Type II Achalasia	Abnormal median IRP, 100% failed peristalsis, & ≥20% swallows with panesophageal pressurization
	Type III Achalasia[a]	Abnormal median IRP & ≥20% swallows with premature/spastic contraction and no evidence of peristalsis
	EGJ Outflow Obstruction[b,c]	Abnormal median IRP (supine and upright), ≥20% elevated intrabolus pressure (supine), and not meeting criteria for achalasia
Disorders of Peristalsis	Absent Contractility	Normal median IRP (supine and upright) & 100% failed peristalsis
	Distal Esophageal Spasm[c]	Normal median IRP & ≥20% swallows with premature/spastic contraction
	Hypercontractile Esophagus[c]	Normal median IRP & ≥20% hypercontractile swallows
	Ineffective Esophageal Motility	Normal median IRP, with >70% ineffective swallows or ≥50% failed peristalsis

HRM'den elde edilen veriler kullanılarak özofageal motilite bozukluklarının sınıflandırılması.

Received: 16 May 2019 | Revised: 30 July 2019 | Accepted: 26 August 2019
DOI: 10.1111/nmo.13721

ORIGINAL ARTICLE

Neurogastroenterology & Motility NGM WILEY

High-resolution esophageal manometry in pediatrics: Effect of esophageal length on diagnostic measures

REVIEW ARTICLE

What is the role of high-resolution oesophageal manometry in paediatrics?

- ❑ Teknik zorluklar
- ❑ Erişkinler için kullanılan verilerin çocuklardaki uygunluğu
- ❑ Hasta boyutu – özofageal uzunluk ve kalibre

Table 1 Indications for investigation with high-resolution manometry

Indication	Comments
Non-cardiogenic chest pain	
Gastroesophageal reflux disease	If difficult to treat and prior to fundoplication to exclude primary disorders of oesophageal motility
Dysphagia post-fundoplication	To differentiate between tight wrap and oesophageal dysmotility as cause
Rumination	Diagnosis and subtyping
Oesophageal atresia	For evaluation of dysphagia in absence of stricture, and for evaluation of 'cyanotic spells' and feeding difficulties
Achalasia	For diagnosis and subtyping, assessment of impact of intervention
Hiatal hernia	To determine size and effect prior to surgery
Dysphagia	Post caustic ingestion in absence of stricture
Eosinophilic oesophagitis	In presence of dysphagia and food bolus impaction in absence of stricture and if biopsies normal
Swallowing disorders	In presence of direct aspiration to determine aetiology and evaluate treatment
Vascular rings	To determine role in dysphagia by looking at pressurisation patterns during bolus transport due to extrinsic compression
Aberrant right subclavian artery	
Accurate placement of pH/impedance probe	In difficult patients with prior oesophageal surgery and hiatal hernia

Received: 4 June 2020 | Revised: 30 September 2020 | Accepted: 2 November 2020
DOI: 10.1111/nmo.14043

ORIGINAL ARTICLE

Neurogastroenterology & Motility NGM WILEY

European Society for Neurogastroenterology and Motility (ESNM) recommendations for the use of high-resolution manometry of the esophagus

Indications

46. Esophageal manometry is only indicated after obstruction and esophageal mucosal lesions have been ruled out, preferably by upper gastro-intestinal endoscopy.
47. Esophageal manometry is indicated in patients with dysphagia when obstruction and esophageal mucosal lesion have been ruled out.
48. Esophageal manometry is indicated with non-cardiac chest pain when a cardiac cause has been ruled out, and mechanical obstruction, esophageal mucosal lesions, and reflux disease.
49. Manometry is imperative before reflux testing (pH or pH-impedance monitoring) to accurately localize the OGJ.
50. Esophageal manometry is mandatory in the work up prior to antireflux surgery.
51. Esophageal manometry is indicated in connective tissue disorders.
52. An edrophonium provocation test is indicated in patients with non-cardiac chest pain.
53. Amyl nitrite administration is useful in patients to distinguish post-surgical stenosis fr achalasia (example achalasia vs Dor fundoplication).
54. Esophageal manometry with meal is indicated when rumination is suspected.
55. Postprandial manometry helps to diagnose the rumination syndrome.
56. Combined HRM impedance is required for the diagnosis of rumination syndrome.
57. Postprandial manometry helps to diagnose belching disorders.
58. Combined HRM impedance is required for the diagnosis of belching disorders.

- ❑ Organik hastalık vs. dismotilite ???
- ❑ Önce organik patolojileri ekarte et!
- ❑ Endoskopi ve biyopsi
- ❑ Kontrastlı çalışmalar

Received: 16 May 2019 | Revised: 30 July 2019 | Accepted: 26 August 2019
DOI: 10.1111/nmo.13721

ORIGINAL ARTICLE

Neurogastroenterology & Motility NGM WILEY

High-resolution esophageal manometry in pediatrics: Effect of esophageal length on diagnostic measures

REVIEW ARTICLE

Journal of Paediatrics and Child Health 56 (2020) 1754–1759

What is the role of high-resolution oesophageal manometry in paediatrics?

- ❑ Teknik zorluklar
- ❑ Erişkinler için kullanılan verilerin çocuklardaki uygunluğu
- ❑ Hasta boyutu – özofageal uzunluk ve kalibre

Table 1 Indications for investigation with high-resolution manometry

Indication	Comments
Non-cardiogenic chest pain	
Gastroesophageal reflux disease	If difficult to treat and prior to fundoplication to exclude primary disorders of oesophageal motility
Dysphagia post-fundoplication	To differentiate between tight wrap and oesophageal dysmotility as cause
Rumination	Diagnosis and subtyping
Oesophageal atresia	For evaluation of dysphagia in absence of stricture, and for evaluation of 'cyanotic spells' and feeding difficulties
Achalasia	For diagnosis and subtyping, assessment of impact of intervention
Hiatal hernia	To determine size and effect prior to surgery
Dysphagia	Post caustic ingestion in absence of stricture
Eosinophilic oesophagitis	In presence of dysphagia and food bolus impaction in absence of stricture and if biopsies normal
Swallowing disorders	In presence of direct aspiration to determine aetiology and evaluate treatment
Vascular rings	To determine role in dysphagia by looking at pressurisation patterns during bolus transport due to extrinsic compression
Aberrant right subclavian artery	
Accurate placement of pH/impedance probe	In difficult patients with prior oesophageal surgery and hiatal hernia

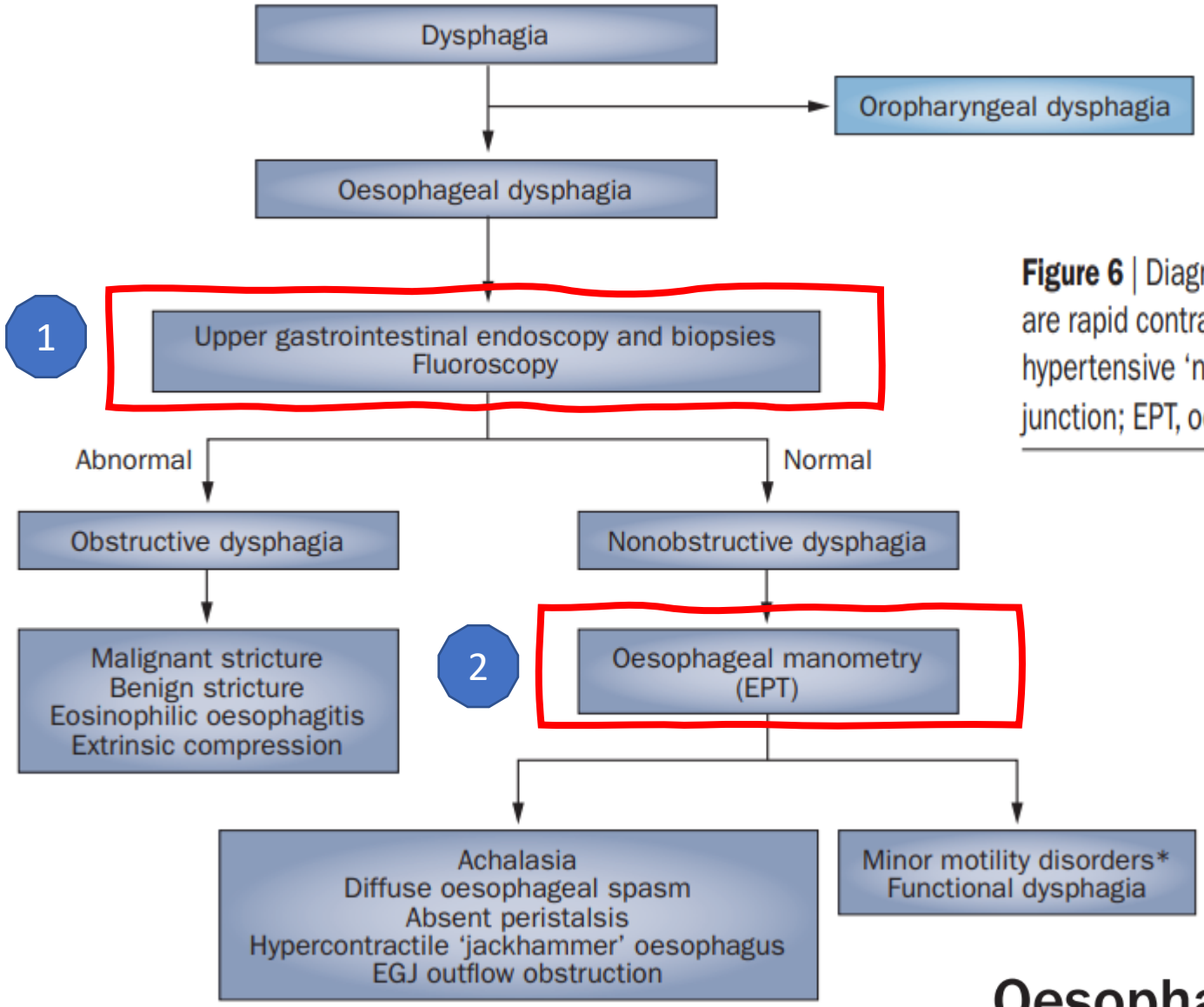


Figure 6 | Diagnosis algorithm for oesophageal dysphagia. *Minor motor disorders are rapid contractions, weak peristalsis, frequent failed peristalsis and hypertensive 'nutcracker' oesophagus. Abbreviations: EGJ, oesophagogastric junction; EPT, oesophageal pressure topography.

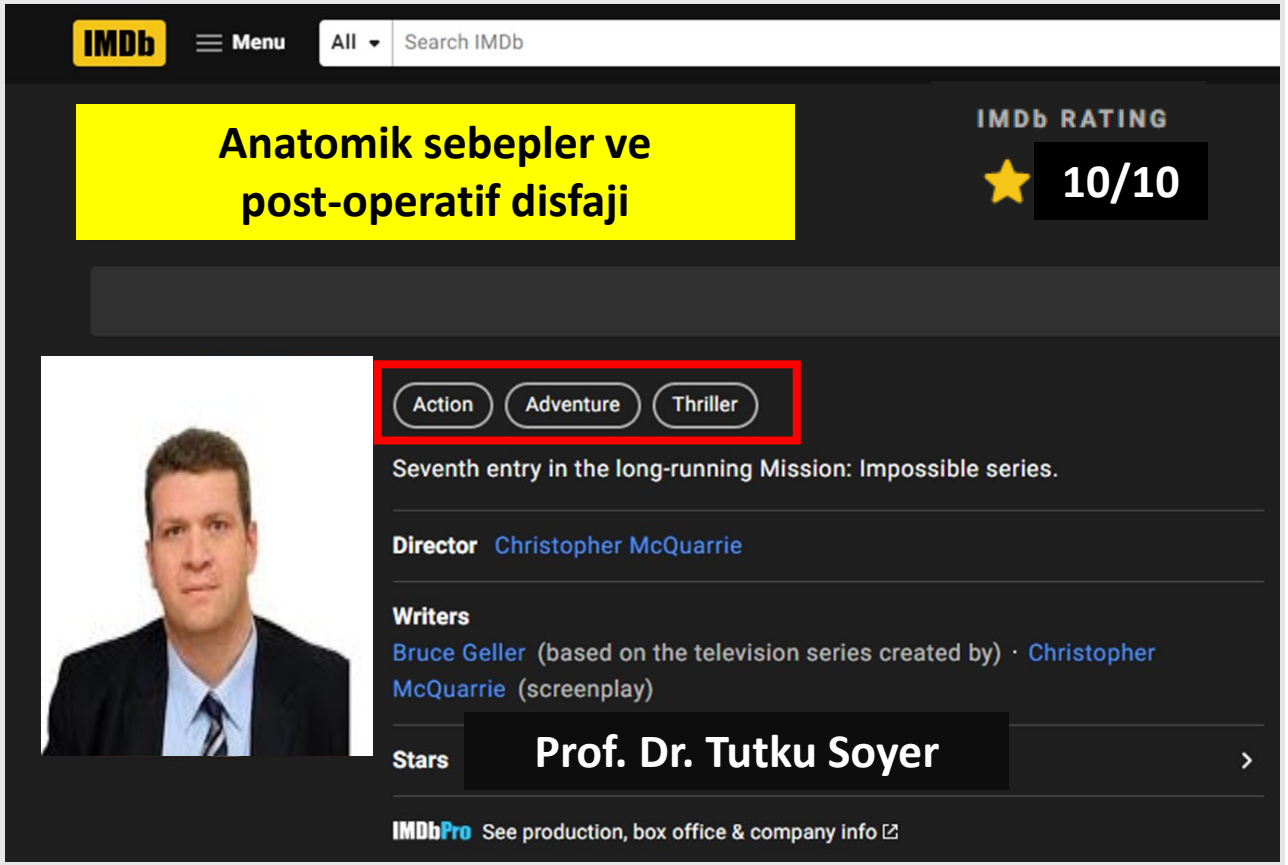
Oesophageal dysphagia: manifestations and diagnosis

18 November 2014;

Subakut – Kronik özofageal disfaji nedenleri

- Anatomik
- İnflamatuvar
- Fonksiyonel / Dismotilite

Anatomik nedenler

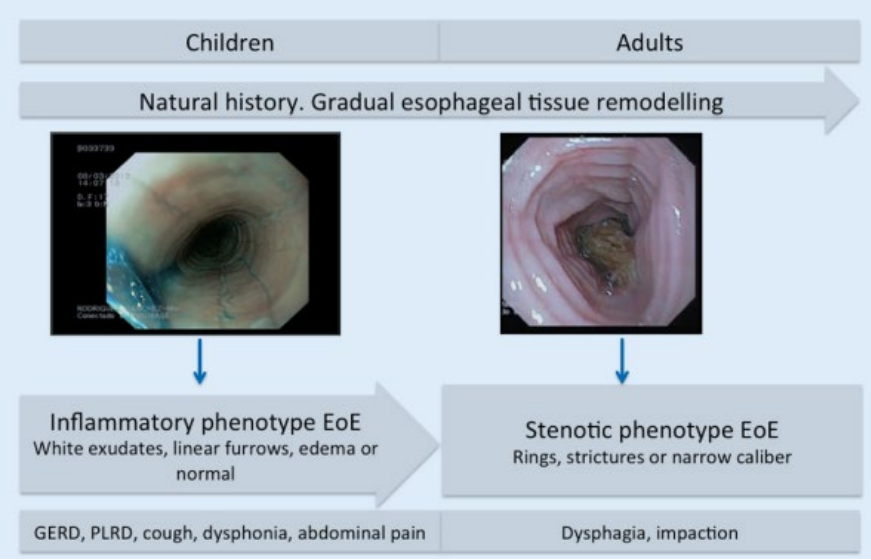


İnflamatuvar nedenler

- Eozinofilik özofajit
- Gastroözofageal reflü – peptik özofajit
- Enfeksiyonlar – enfeksiyöz özofajit
- …

Eozinofilik özofajit

- Klinik olarak **özofagus disfonksiyonu** ve histolojik olarak eozinofillerin baskın olduğu inflamasyon ile karakterize kronik, immün/antijen aracılı
- Klinik bulgular yaşa göre değişkenlik gösterir.



PROGRESİF!

Digestive Diseases and Sciences (2022) 67:1101–1115
https://doi.org/10.1007/s10620-022-07419-6

INVITED REVIEW

Pathophysiology of Dysphagia in Eosinophilic Esophagitis: Causes, Consequences, and Management

Edward Young[1,2] · Hamish Philpott[1,2]

1. Anatomik bozulma
   - ❑ Bazal zon hiperplazisi
   - ❑ Düz kas hipertrofisi ve hiperplazisi
   - ❑ Mukozal vasküler proliferasyon
   - ❑ Fibrostenotik hastalık
     - ➢ Striktürler
     - ➢ Daralmış özofagus (yaygın fibrozise sekonder)
2. Dismotilite
3. Duyusal patolojiler
   - ❑ Hiposensitivite veya hipersensitivite?

Table 1 Barium swallow features in EoE

Author/year	Study design	Patients	Fibrostenotic features			
			Limited maximal esophageal dilation	Rings (narrowed segment < 1 cm in length)	Strictures (narrowed segment 1-8 cm in length)	Small caliber esophagus (narrowed segment > 8 cm in length)
Muinuddin, 2018 [46]	Prospective case–control series	10 EoE, 22 controls	Esophageal diameter reduced in EoE vs controls ($p=0.002$)	N/A	20% ($n=2$)	N/A
Al-Hussaini, 2016 [19]	Retrospective	26 EoE	38% ($n=10$)	15% ($n=4$)	31% ($n=8$)	19% ($n=5$)
Podboy, 2016 [47]	Retrospective	66 EoE	44% ($n=29$)	35% ($n=23$)	20% ($n=13$)	52% ($n=34$)
Savarino, 2015 [48]	Prospective cohort study	45 EoE	51% ($n=23$)	N/A	N/A	N/A
Gentile, 2014 [45]	Retrospective	58 EoE	59% ($n=34$) defined as < 21 mm	26% ($n=15$)	17% ($n=10$)	14% ($n=8$)
Lee, 2012 [49]	Prospective case–control series	11 EoE, 10 controls	45% ($n=5$) Median 19 mm vs 24 mm in controls ($p=0.004$)	N/A	N/A	N/A
Diniz, 2012 [50]	Retrospective	107 EoE	Not recorded	6% ($n=7$)	10% ($n=11$)	4% ($n=5$)
White, 2010 [51]	Retrospective case series	10 EoE, 9 controls	$n=10$ (mean diameter 14.7 mm)	N/A	N/A	N/A

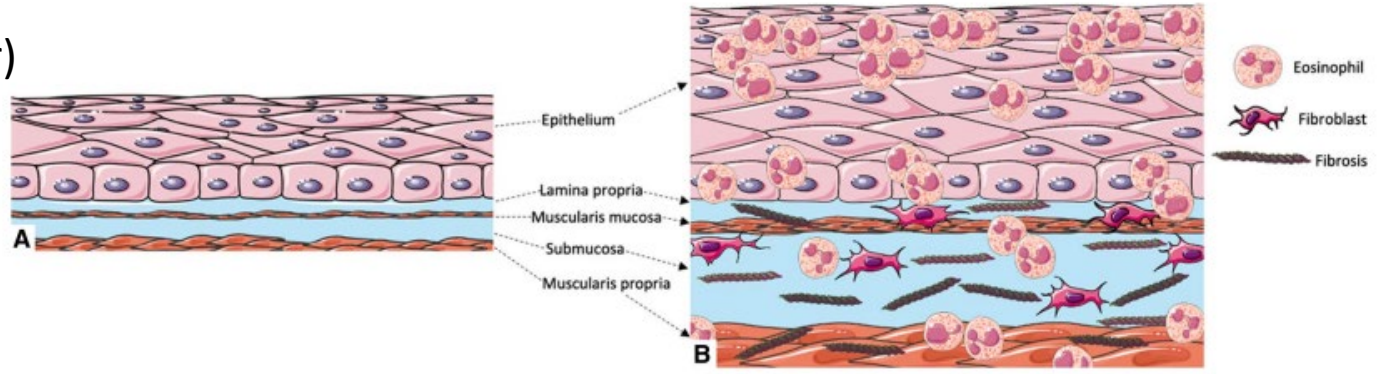


Fig. 1 Anatomical distortion predisposing to dysphagia in EoE. **a**: Normal esophageal layers. **B** Eosinophilic infiltration throughout all layers of the esophagus, with increased epithelial thickness, submucosal fibrosis, muscle hypertrophy and hyperplasia, and submucosal fibrosis. This figure was created using Servier Medical Art available at https://smart.servier.com

Digestive Diseases and Sciences (2022) 67:1101–1115
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   - ❑ Hiposensitivite veya hipersensitivite?

Table 2 Features of dysmotility on manometry in EoE

Author/year	Study design	Patients	Abnormal motility	Manometry features				
				Lower esophageal sphincter resting pressure	Weak peristalsis	Frequent failed peristalsis	Esophagogastric junction outflow obstruction	Pan-esophageal pressurization
Ghisa, 2021 [78]	Prospective case series	109 EoE	38% ($n=41$)	N/A	22% ($n=24$)		5% ($n=5$)	4% ($n=4$)
Hejazi, 2020 [80]	Retrospective case series	14 EoE	57% ($n=8$)	Low (< 15 mmHg) in 2 patients	14% ($n=2$)	14% ($n=2$)	$n=0$	14% ($n=2$)
Von Arnim, 2017 [81]	Prospective case–control	24 EoE, 23 controls	54% ($n=13$)	34 mmHg (EoE) vs 26 mmHg (controls)	29% ($n=7$)	4% ($n=1$)	21% ($n=5$)	N/A
Colizzo, 2016 [84]	Retrospective cohort	29 EoE	21% ($n=6$)	N/A	7% ($n=2$)	$n=0$	7% ($n=2$)	7% ($n=2$)
Nennstiel, 2016 [85]	Prospective cohort	20 EoE	35% ($n=7$)	Mean 21.2 mmHg	10% ($n=2$)	5% ($n=1$)	$n=0$	15% ($n=3$)
Van Rhijn, 2014 [86]	Retrospective case–control	31 EoE, 31 GORD, 31 controls	58% ($n=18$)	12 mmHg (EoE) vs 14 mmHg (controls)	29% ($n=9$)	13% ($n=4$)	6% ($n=2$)	N/A
Monnerat,, 2012 [87]	Prospective cohort	20 EoE	25% ($n=5$)	Hypotensive in 1 patient (4.6 mmHg)	15% ($n=3$)		5% ($n=1$)	N/A
Martín Martín, 2011 [82]	Prospective case–control	21 EoE, 21 controls	76% ($n=16$)	16.2 mmHg (EoE) vs 12.6 mmHg (controls)	29% ($n=6$)		$n=0$	48% ($n=10$)
Moawad, 2011 [88]	Retrospective cohort	75 EoE	37% ($n=28$)	N/A	33% ($n=25$)		N/A	4% ($n=3$)
Roman, 2011 [89]	Retrospective case–control	48 EoE, 50 controls	38% ($n=18$)	N/A	17% ($n=8$)	10% ($n=5$)	63% ($n=30$)	17% ($n=8$)
Bassett, 2009 [90]	Prospective cohort	30 EoE	N/A	N/A	17% ($n=5$)		N/A	N/A
Nurko, 2009 [83]	Prospective case–control	17 EoE, 13 GORD, 11 controls (children)	41% ($n=7$)	23.7 mmHg (EoE) vs 19 mmHg (controls)	35% ($n=6$)	6% ($n=1$)	N/A	N/A
Martín Martín, 2008 [91]	Prospective cohort	11 EoE	55% ($n=6$)	N/A	45% ($n=5$)		N/A	9% ($n=1$)

frontiers in Pediatrics

REVIEW
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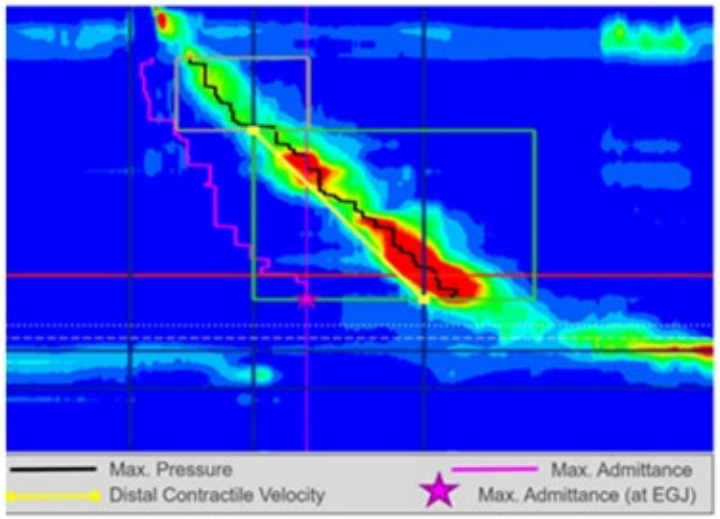
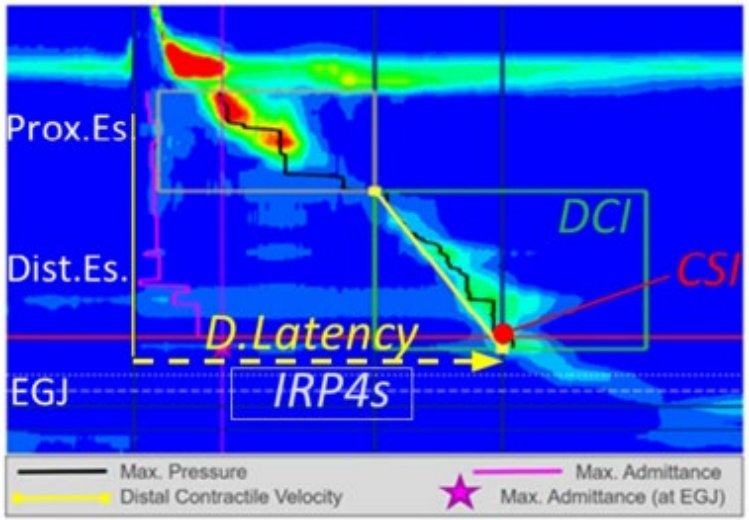
doi: 10.3389/fped.2022.853754

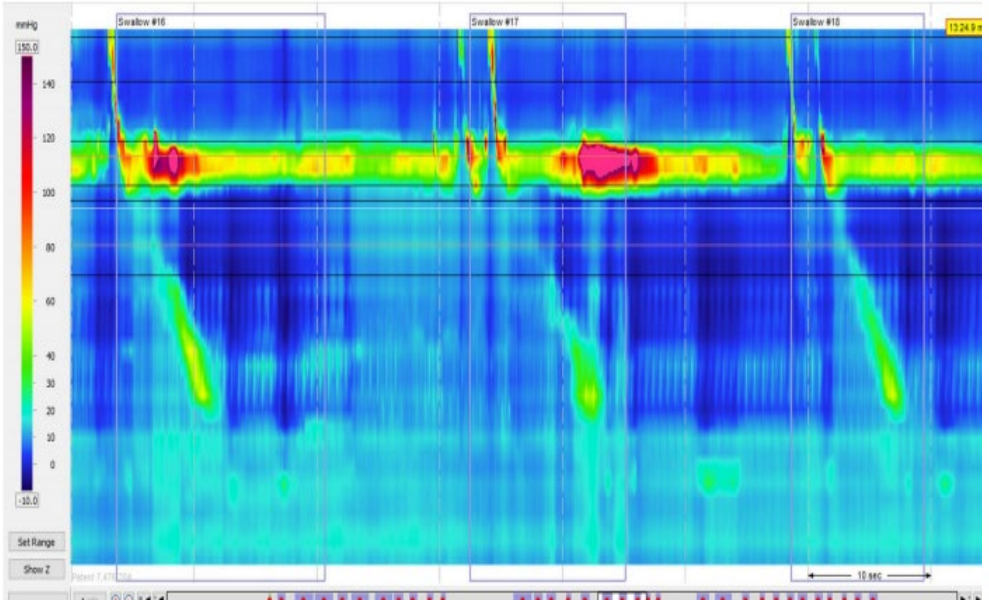
Dysmotility in Eosinophilic Esophagitis

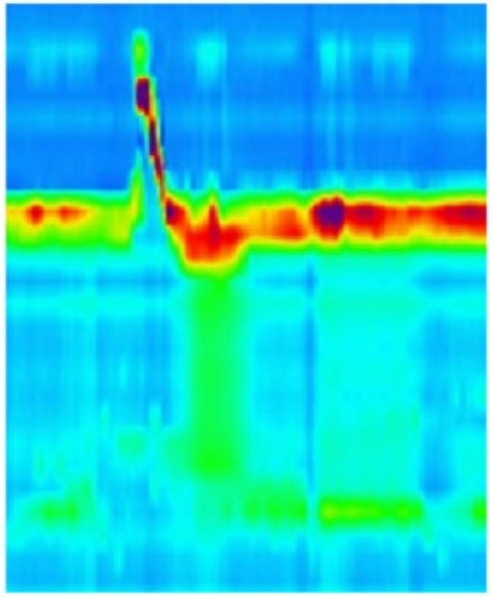
Charmaine Chai[1*] *and Usha Krishnan*[2,3]

single motility pattern has been associated with EoE. The results of both conventional and high resolution manometry studies in EoE groups have been diverse, ranging from normal peristalsis to hypo contractile patterns (**Figures 1–3**), including ineffective esophageal motility (IEM) **(Figure 4)** and absent contractility, as well as hyper contractile patterns such as distal esophageal spasm (DES), nutcracker esophagus, jackhammer esophagus and pan-esophageal pressurization **(Figure 5)**. Esophago-gastric junction outflow obstruction and achalasia have also been described. It has been hypothesized that the different phases in the development of esophageal motor abnormalities in EoE may reflect a progression of disease from normal to hyper peristalsis/spastic to low amplitude simultaneous contractions, followed by ineffective esophageal motility and eventually leading to aperistalsis in severe cases.









frontiers in Pediatrics

Dysmotility in Eosinophilic Esophagitis

Charmaine Chai[1*] *and Usha Krishnan*[2,3]

TABLE 3 | Manometry findings before and after eosinophilic esophagitis treatment.

References	N	Treatment	Manometric findings before treatment	Manometric findings after treatment
Landres et al. (23)	1	Myotomy	Vigorous achalasia	Normalised peristalsis and LES pressure
Hempel (52)	1	Systemic steroids	Low LES and DES	Low LES; normalised peristalsis
Lucendo (43)	1	Fluticasone	Hypomotility	80% normalised
Lucendo (44)	12	Fluticasone	High amplitude contractions in 3, severe abnormal peristalsis and 1 with mildly abnormal peristalsis	7 had ongoing manometric abnormalities but all improved
Nennstiel (30)	20	Budesonide	Early pan-esophageal pressurisation 3 (15%) Compartmentalised esophageal pressurisations 1 (5%) Frequently failed peristalsis 1 (5%) Weak peristalsis 2 (10%) Elevated IBP in 20%	Reduction of IBP in 55% of patients Resolution in 6/7 patients with manometric findings (no improvement in frequently failed peristalsis)
Tanaka (53)	1	Systemic steroids Myotomy	Jackhammer esophagus	No change after steroids; resolution after myotomy
Funaki (54)	3	Systemic steroids	Jackhammer esophagus	All normalised

LES, Lower esophageal sphincter pressure; DES, Distal esophageal spasm; IBP, Intrabolus pressure.

- ❑ Disfaji ve besin takılması
  - ❑ Dismotilite, bozulmuş esneyebilirlik > anatomik komplikasyonlar
- ❑ Hiperkontraktilite → hipokontraktilite
- ❑ HRM, EoE ilişkili motilite sorunlarını saptayabiliyor ancak henüz tanı ve tedavinin takibindeki yeri net değil.
- ❑ **EoE için spesifik bir manometrik bulgu henüz yok.**
- ❑ **EoE ilişkili motilite sorunları tedaviye cevap verebiliyor** ancak semptomatik iyileşme ile korelasyonu ?
- ❑ EoE hastalarında disfajinin aydınlatılması açısından tek başına yeterli değil.
- ❑ HRM → terapötik hedeflerin belirlenmesi

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INVITED REVIEW

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- ✓ Objektif bulgular ve semptom skorları arasındaki düşük korelasyon
  - Eozinofili // besin takılması
  - Azalmış esneyebilirlik // besin takılması
- ✓ Hiposensitivite
  - Sessiz GÖRH'na benzer olabilir mi?
  - İlk başvuru yakınmasının besin takılması olması
  - Klinik disfaji olmadan fibrostenotik hastalık
  - Sensöryel nörotoksisite
- ✓ Hipersensitivite
  - Nöronal TRPV1 ekspresyonunun artması
  - Retrosternal yanma ve dispepsi sık yakınmalar

Enfeksiyöz özofajit

- Fungal
- Viral
- Bakteriyel (nadir)
- Paraziter (nadir)

- *Candida albicans* (*en sık*)
- Cytomegalovirus
- Herpes simplex virus
- Aspergillus
- Histoplasmosis
- *Mycobacterium tuberculosis*
- *E. coli, Enterobacter cloacae, Klebsiella pneumoniae*

Enfeksiyöz özofajit

Açıklanamayan ve progresif;

- **Disfaji**
- **Odinofaji**

+ retrosternal yanma/ağrı, ateş, epigastrik ağrı, bulantı/kusma, iştahsızlık, hematemez

- Genellikle immün yetmezlik temelinde
  - Yakın zamanda antibiyotik kullanımı
  - Kemoterapi
  - Transplantasyon
  - Radyoterapi
  - Malignite
  - İmmünsüpresif tedavi
  - AIDS
  - Primer immün yetmezlikler
- **İmmünkompetan kişilerde de bildirilmiş!**
  - Akalazya, özofageal gastrik metaplazi, skleroderma
  - HSV ile ilgili olgu sunumları

Tanı; endoskopi ve biyopsi, fırça ile mukozal sürüntü, sitoloji, kültür, PCR, immünohistokimya → ETKENİN BELİRLENMESİ'ne yönelik!

Tedavi; Enfeksiyon etkenine yönelik tedavi, immünsüpresyonun azaltılması

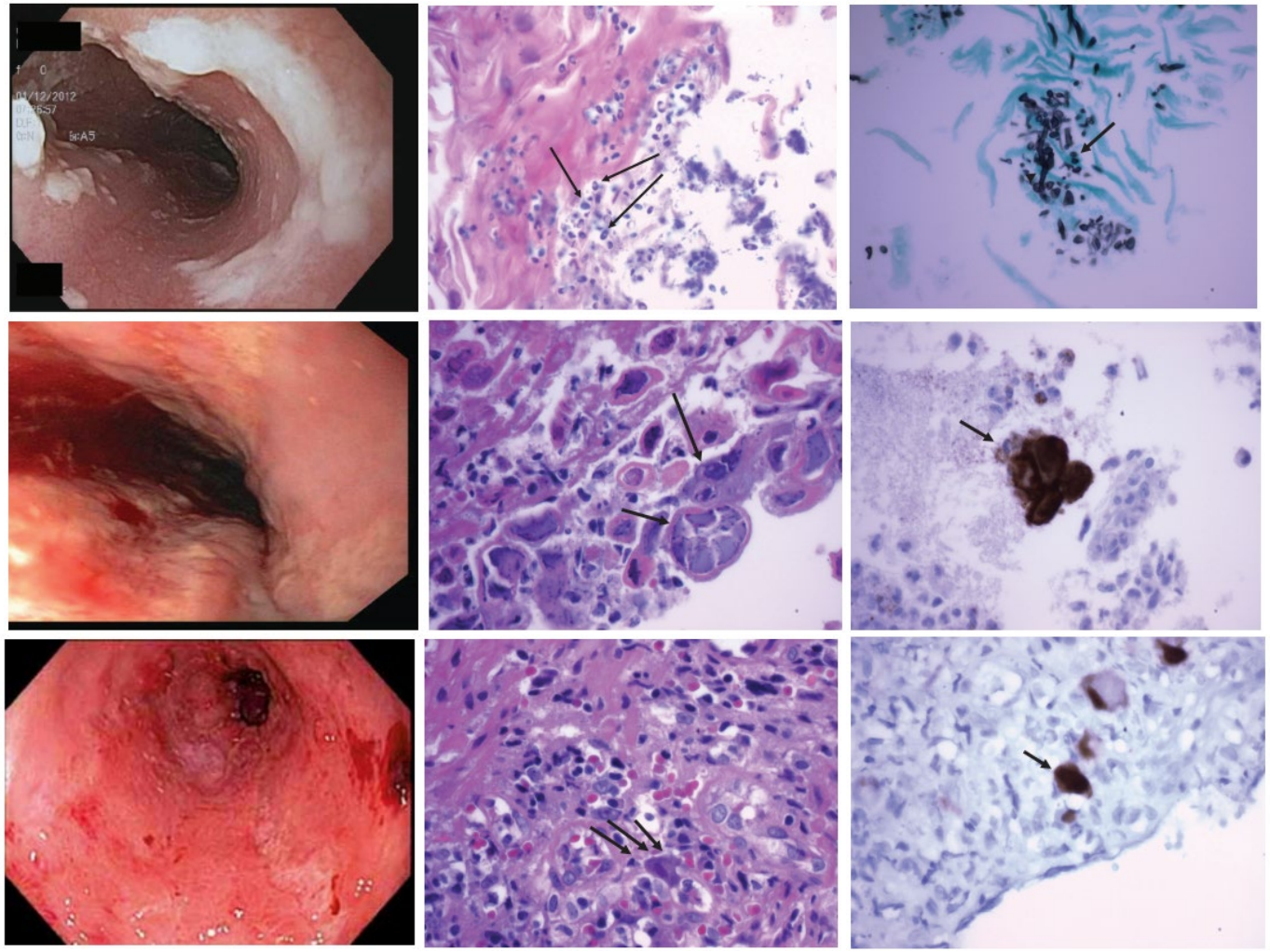

Table 1. A Comparison of *Candida*, HSV, and CMV Esophagitis.

Pathogens	Endoscopic Findings	Histologic Features
Candida	White mucosal plaques dispersed throughout the esophagus, with an underlying erythematous mucosa.	Pseudohyphae and yeast among patches of necrotic squamous cells. Pseudohyphae invading GI tissue.
HSV	Diffuse, superficial ulcers typically in the distal esophagus. Early endoscopic findings include vesicles up to 2 cm. Later findings are coalescing ulcers with friable mucosa.	Nuclear molding, multinucleation, and chromatin margination. Eosinophilic or basophilic inclusion bodies in squamous epithelial cells at ulcer margins (Cowdry type A inclusions).
CMV	Multiple linear or longitudinal ulcers that are found in the distal mucosa. The ulcers are well circumscribed and can be shallow or deep.	Infection of mesenchymal and stromal cells at the base of the ulcer. Cytomegaly, intranuclear basophilic inclusions (owl's eye), granular cytoplasmic inclusions.

Abbreviations: CMV, cytomegalovirus; GI, gastrointestinal; HSV, Herpes simplex virus.

GE Port J Gastroenterol 2019;26:452–453
DOI: 10.1159/000497386

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Published online: March 20, 2019

Deceptive Presentation of Infectious Esophagitis

Rui Mendo[a] Catarina Félix[a] Pedro C. Figueiredo[a, b]

- Candida?
- Herpes?

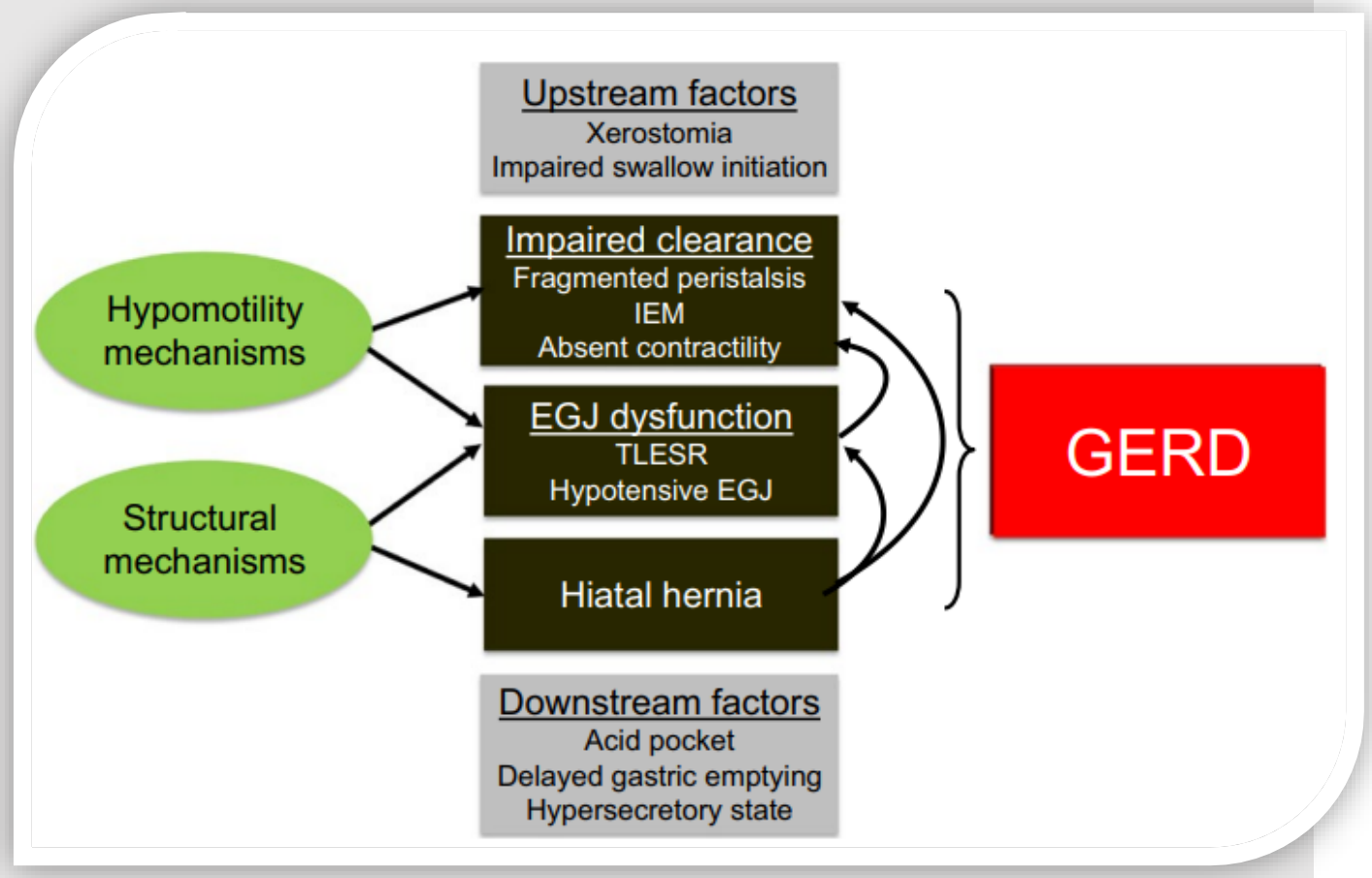
Gastroözofageal reflü

- ❑ **Tipik bir belirti değil**
- ❑ **Alarm semptomu**

Tablo 2. Gastroözofageal reflü hastalığının sistemlere göre belirti ve bulguları

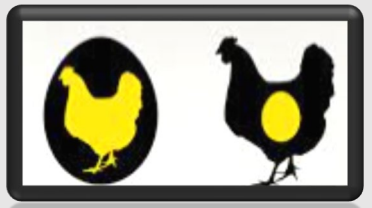
	Belirtiler	Bulgular
Genel	Huzursuzluk/irritabilite Açıklanamayan aşırı ağlama Uyku bozukluğu Kilo alamama/kilo kaybı Beslenme reddi Sandifer sendromu Nöbet benzeri ataklar	Diş çürükleri Halitozis Demir eksikliği anemisi Büyüme geriliği
Gastrointestinal	Rekürren regürjitasyon/kusma Geğirme Retrosternal yanma/ağrı, nonkardiyak göğüs ağrısı Epigastrik ağrı Yemek sonrası dolgunluk/erken doyma hissi Hematemez, melena Disfaji/odinofaji Globus farengeus (boğazda takılma hissi)	Özofajit Özofageal striktür Barret özofagusu
Ekstraözofageal/Hava yolu	Hışıltı Stridor Öksürük Ses kısıklığı, boğuk ses Kısa sürede düzelen açıklanamayan olaylar ("Brief Resolved Unexplained Events", BRUE)	Apne/siyanoz atakları Astım Tekrarlayan akciğer enfeksiyonları Tekrarlayan aspirasyon pnömonisi Tekrarlayan otitis media Tekrarlayan larenjit/farenjit Vokal kord granülomları Subglottik stenoz

Gastroözofageal reflü



Gastroözofageal reflü

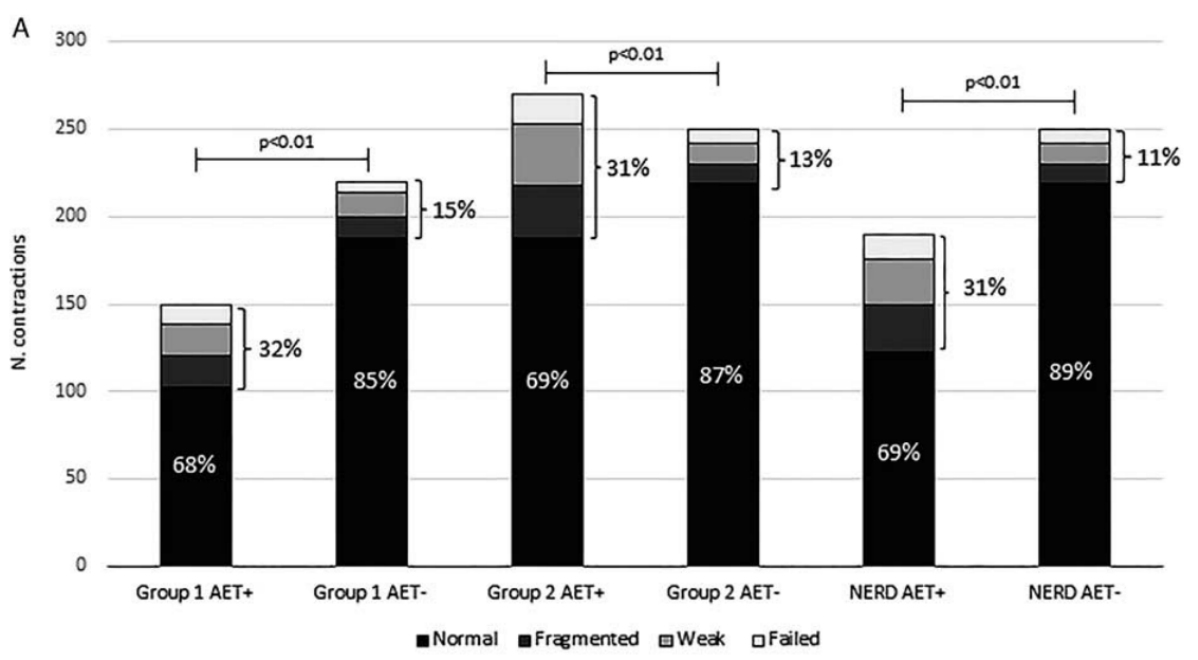
- Özofageal dismotilite
- Hipersensitivite
- Hiatal herni zemininde
- Erozif özofajit
- Mekanik obstrüksiyon
  - Kronik mukozal inflamasyona sekonder fibrotik striktür
  - Özofagografi
- Anti-reflü cerrahisi sonrası

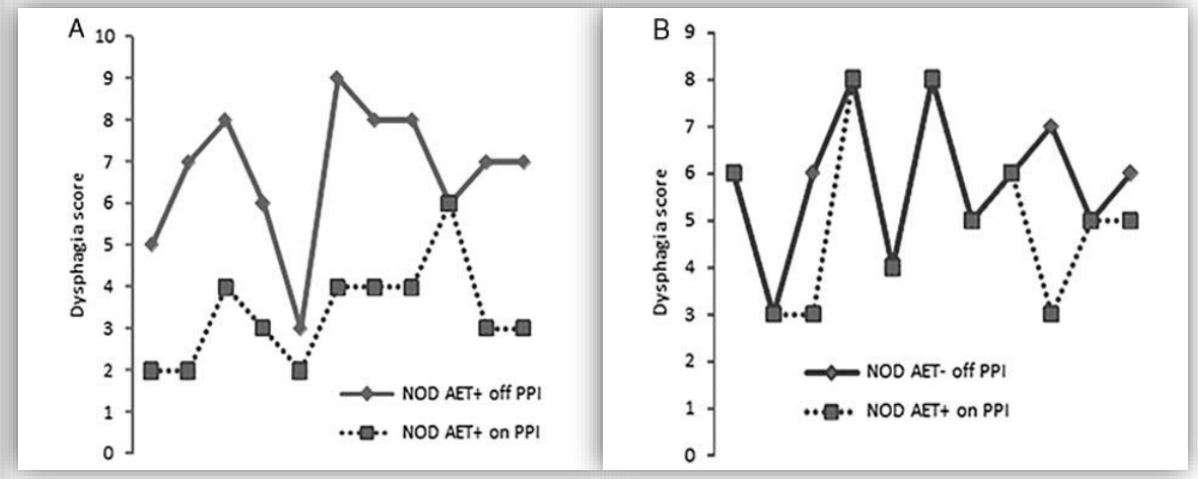


ORIGINAL ARTICLE

Role of Esophageal Motility, Acid Reflux, and of Acid Suppression in Nonobstructive Dysphagia

J Clin Gastroenterol 2017





- ❑ Patolojik asit maruziyeti azalmış kontraktil kuvvet ile ilişkili.
- ❑ PPI tedavisi özofageal dismotilitede düzelme sağlıyor.

Motilite bozuklukları

- Primer motilite bozuklukları
- Sekonder motilite bozuklukları

Motilite bozuklukları

Classification	Disorder	Definition
Disorders of EGJ Outflow	Type I Achalasia	Abnormal median IRP & 100% failed peristalsis
	Type II Achalasia	Abnormal median IRP, 100% failed peristalsis, & ≥20% swallows with panesophageal pressurization
	Type III Achalasia[a]	Abnormal median IRP & ≥20% swallows with premature/spastic contraction and no evidence of peristalsis
	EGJ Outflow Obstruction[b,c]	Abnormal median IRP (supine and upright), ≥20% elevated intrabolus pressure (supine), and not meeting criteria for achalasia
Disorders of Peristalsis	Absent Contractility	Normal median IRP (supine and upright) & 100% failed peristalsis
	Distal Esophageal Spasm[c]	Normal median IRP & ≥20% swallows with premature/spastic contraction
	Hypercontractile Esophagus[c]	Normal median IRP & ≥20% hypercontractile swallows
	Ineffective Esophageal Motility	Normal median IRP, with >70% ineffective swallows or ≥50% failed peristalsis

Secondary esophageal motility disorders	
Myasthenia gravis	Low pressure of upper esophageal sphincter and esophageal muscle fatigue with repetitive swallowing
Dermatomyositis	Low pressure of upper esophageal sphincter and esophageal muscle fatigue with repetitive swallowing
Scleroderma esophagus	Low to absent pressure of lower esophageal sphincter; absence of esophageal contractions and peristalsis in smooth muscle of the esophagus
Connective-tissue disorders	Low to absent pressure of lower esophageal sphincter; absence of esophageal contractions and peristalsis in smooth muscle of the esophagus
Diabetes mellitus	Low-amplitude, multipeaked esophageal contractions and low pressure of the lower esophageal sphincter
Secondary achalasia esophagus	Associated with neoplastic infiltration of lower esophageal sphincter or Chagas' disease

Pediatrik akalazya

- Primer motilite bozukluğu
- Nörodejeneratif (inhibitor myenterik pleksusun kaybı veya harabiyeti)
- AÖS'nin gevşemesinde bozulma ve özofagus gövdesinde aperistalsis veya spastik kontraksiyon
- Etiyoloji ? → İdiyopatik
- 7 – 15 yaş, E>K
- Yıllık insidans 0,1-0,18/100.000

Patogenez ve hastalığın doğal seyri

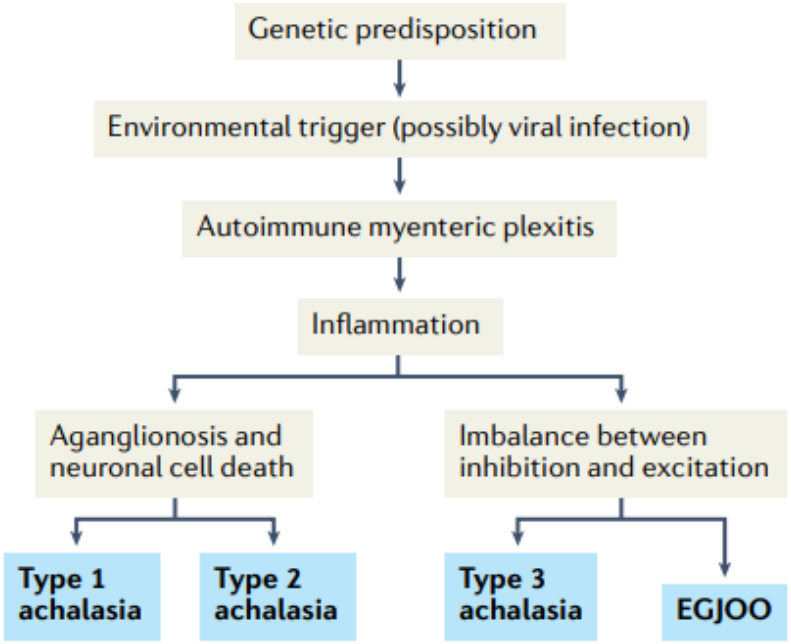
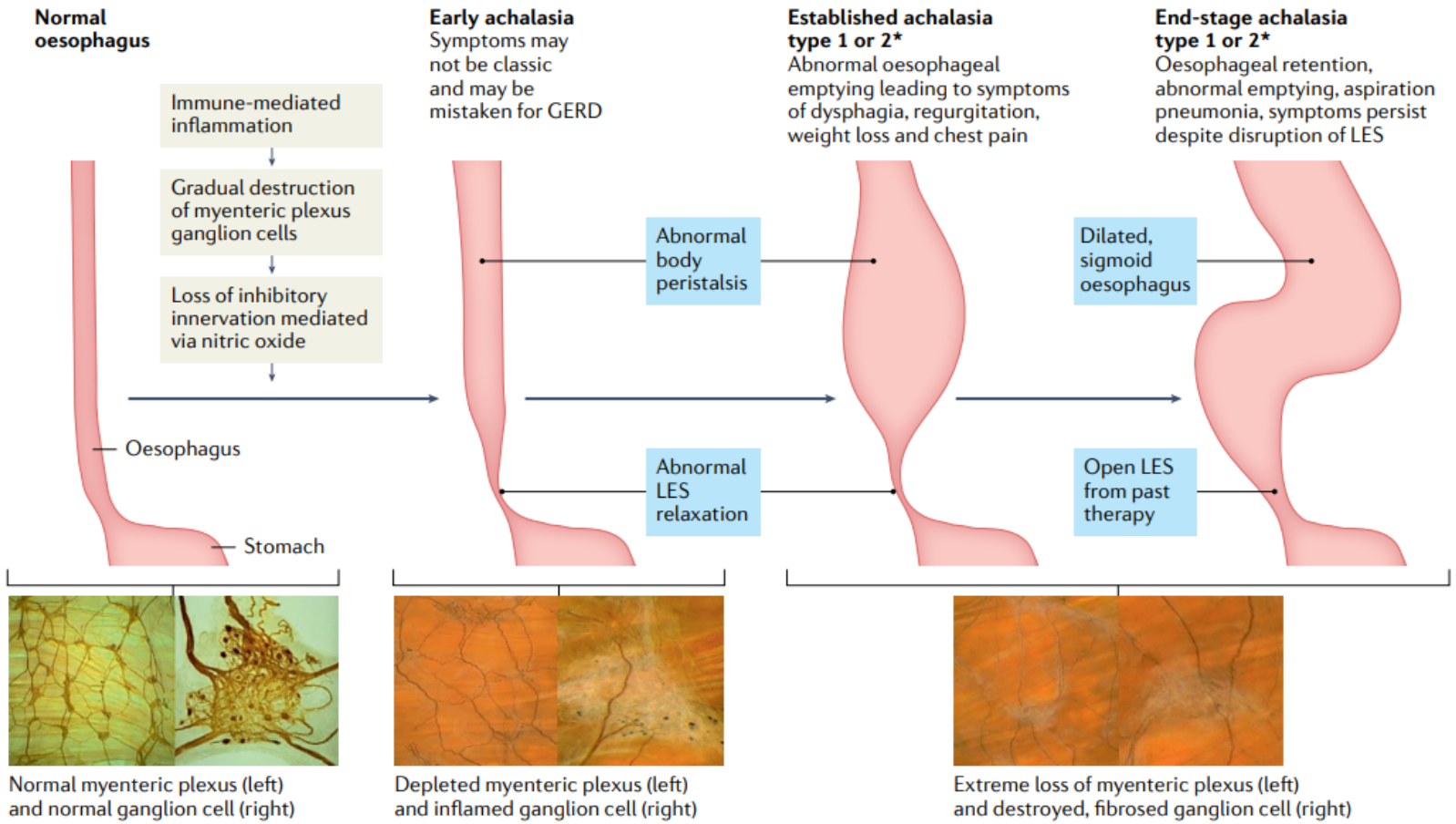


Fig. 4 | **Two possible pathways of pathogenesis differentiate achalasia subtypes.** In genetically predisposed individuals, an environmental trigger, perhaps a viral infection, is thought to initiate a cell-mediated immune response as well as an antibody-mediated response that preferentially attacks inhibitory ganglia and neurons in the oesophageal neural plexi. If complete loss of ganglia and neurons results, abnormal lower oesophageal sphincter (LES) relaxation coexists with absent contraction in the oesophageal body, characterizing potentially type 2 achalasia in early stages, and type 1 achalasia as the disease progresses. If inflammation ensues without complete loss of inhibitory control, imbalance between inhibition and excitation results in premature or spastic oesophageal body contractions characterizing type 3 achalasia or even intact oesophageal body contractions in conjunction with abnormal LES relaxation characterizing oesophagogastric junction outflow obstruction (EGJOO).

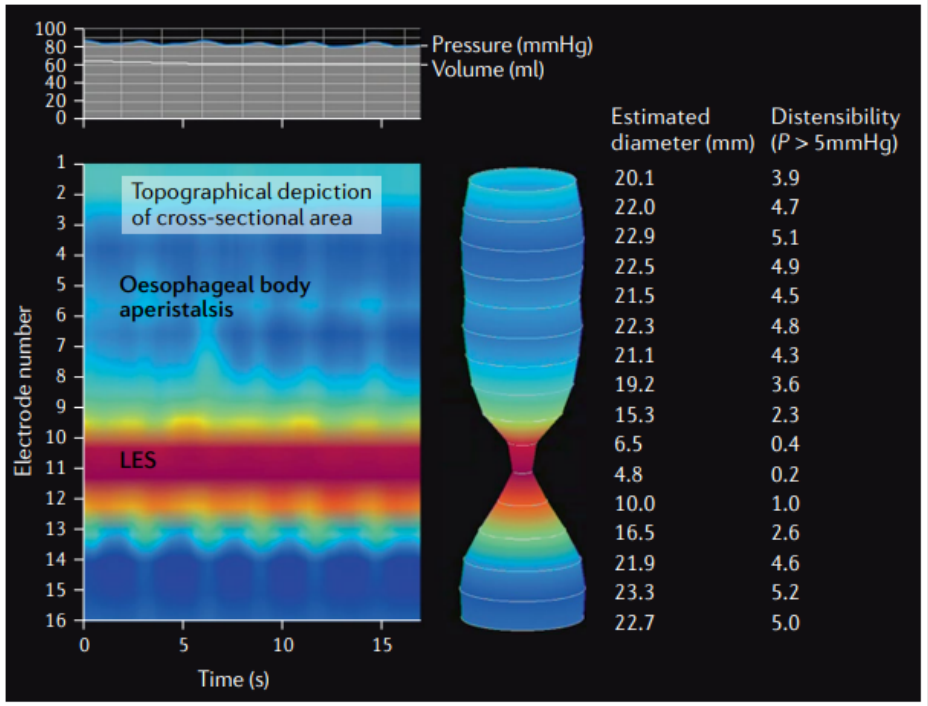


Pediatrik akalazya

- Progresif disfaji
- Retrosternal rahatsızlık/takılma hissi/ağrı
- Regürjitasyon ve kusma
- (Kronik) öksürük, genellikle supin pozisyonda ve noktürnal
- Rekürren aspirasyon, trakeal bası
- Beslenme reddi
- Kilo kaybı ve malnutrisyon

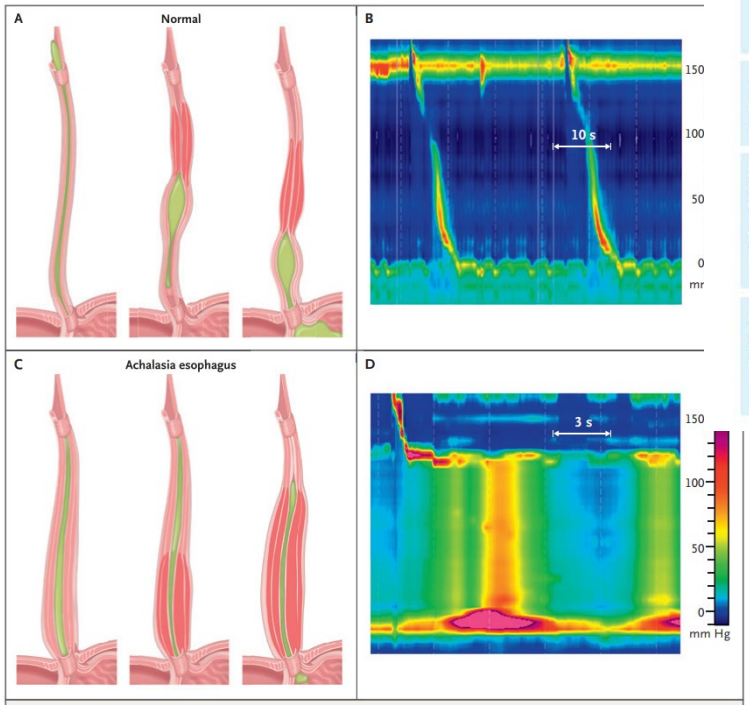
Table 1. Eckardt score.

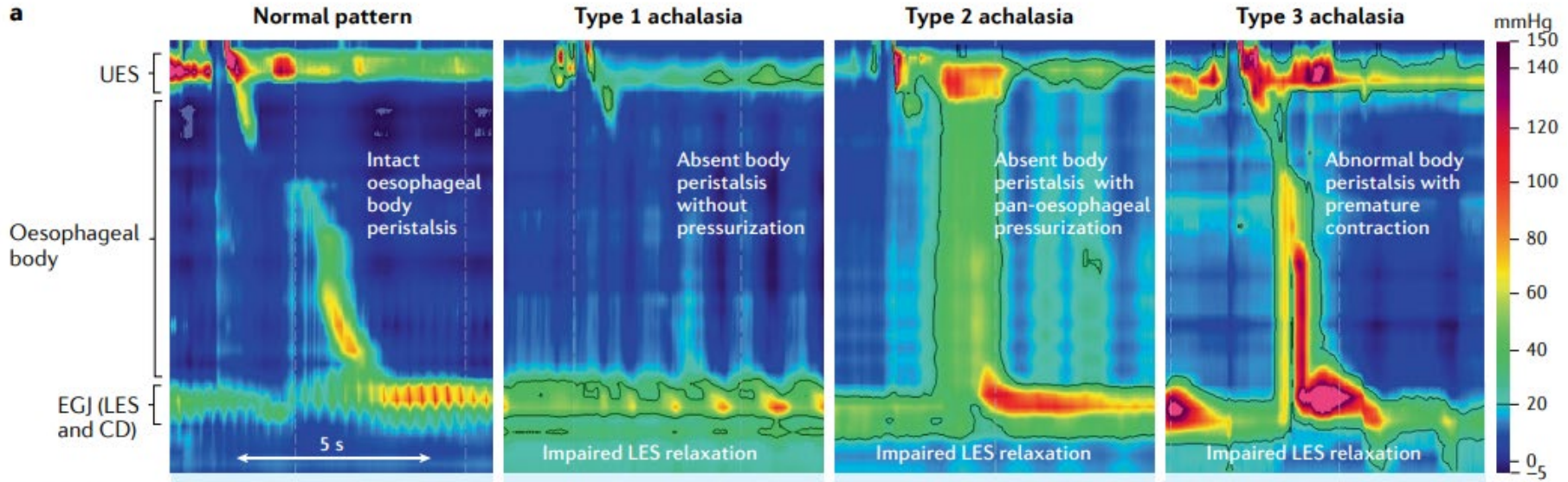
Score	0	1	2	3
Dysphagia	No	Occasionally	Daily	At each meal
Regurgitation	No	Occasionally	Daily	At each meal
Chest pain	No	Occasionally	Daily	At each meal
Weight loss	No	<5 kg	5–10 kg	>10 kg



- ❑ Klinik şüphe!
- ❑ Düz grafi – sınırlı bilgi sağlar
- ❑ Kontrastlı seriler – tersiyer kontraksiyonlar, dilate özofagus, özofagusta hava-sıvı seviyesi, kuş gagası görünümü, sigmoid özofagus, kontrast retansiyonu
- ❑ HRM– altın standart – tanı ve tiplendirme
- ❑ Endoskopi – rutin?, ayırıcı tanı açısından
- ❑ HRIM – “*high resolution impedance manometry*”
- ❑ EndoFLIP – “*functional lumen imaging probe*”

Pediatrik akalazya - HRM



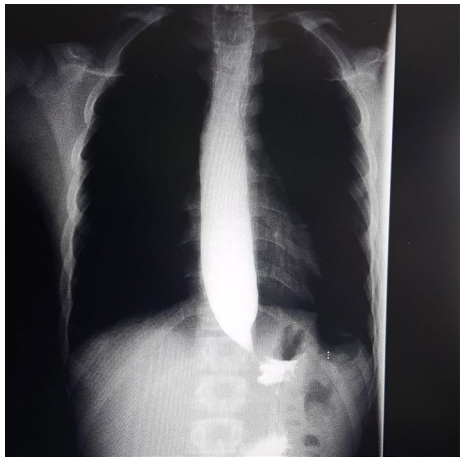


	Normal pattern	Type 1 achalasia	Type 2 achalasia	Type 3 achalasia
Definition	• IRP < upper limit of normal • Normal peristalsis or ≤30% ineffective or <50% failed swallows	• IRP > upper limit of normal • 100% absent peristalsis • No pressure compartmentalization	• IRP > upper limit of normal • 100% absent peristalsis • ≥20% pan-oesophageal pressure compartmentalization	• IRP > upper limit of normal • 100% abnormal peristalsis • ≥20% premature peristalsis
LES relaxation	Normal	Impaired	Impaired	Impaired
Smooth muscle dysfunction	Both circular and longitudinal muscles contract	Circular and longitudinal muscles do not contract and oesophagus is dilated	Circular muscle does not contract but longitudinal muscle contraction is retained	Circular and longitudinal muscle contraction are discoordinated and asynchronous
Oesophageal emptying	Normal oesophageal empyting	Very limited; by gravity and by unique patient manoeuvres to increase intrathoracic pressure	Suboptimal; by pan-oesophageal pressurization	Emptying may be adequate, but peristalsis is segmented and compartmentalized

Alt tipleri belirlemek prognoz ve tedavi açısından önemli!

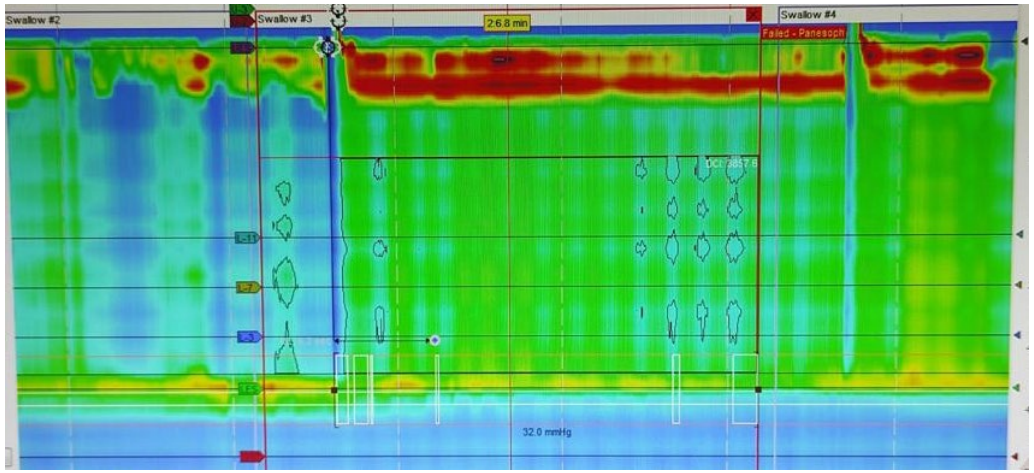
Olgu

- 16 y, E
- 4 aydır olan progresif disfaji
- Katılarla → katı ve sıvılarla



Ön tanı: Akalazya?

L/P Heller Miyotomi



Tanı: Akalazya
Alt tipi: Tip 2

Pediatrik akalazya

- Dismotiliteyi düzeltecek küreatif tedavi yok – AÖS basıncını düşürmeye yönelik yaklaşımlar
- Farmakoterapi – sınırlı fayda sağlar
- Endoskopi – aspirasyon riskine dikkat
  - Botulinum toksin enjeksiyonu
  - **Pnömatik dilatasyon**
- **L/P Heller miyotomi**
  - PO GÖRH riski, parsiyel fundoplikasyon?
- POEM – PerOral Endoskopik Miyotomi
- *Metalik stent yerleştirilmesi – "self-expanding"*
- *Etanolamin oleat enjeksiyonu*
- *Özofajektomi*

Takip

- ❑ Beslenme sorunları
- ❑ Malnütrisyon ve komplikasyonları
- ❑ Büyüme geriliği
- ❑ Yaşam kalitesinde düşme
- ❑ Psiko-sosyal sorunlar
- ❑ GÖRH ve komplikasyonları
- ❑ Özofajit, Barret özofagus, SCC
- ❑ Aspirasyon ve komplikasyonları

Multidisipliner yaklaşım ve takip önemli.

Review

Nutrition in Clinical Practice
Volume 35 Number 2
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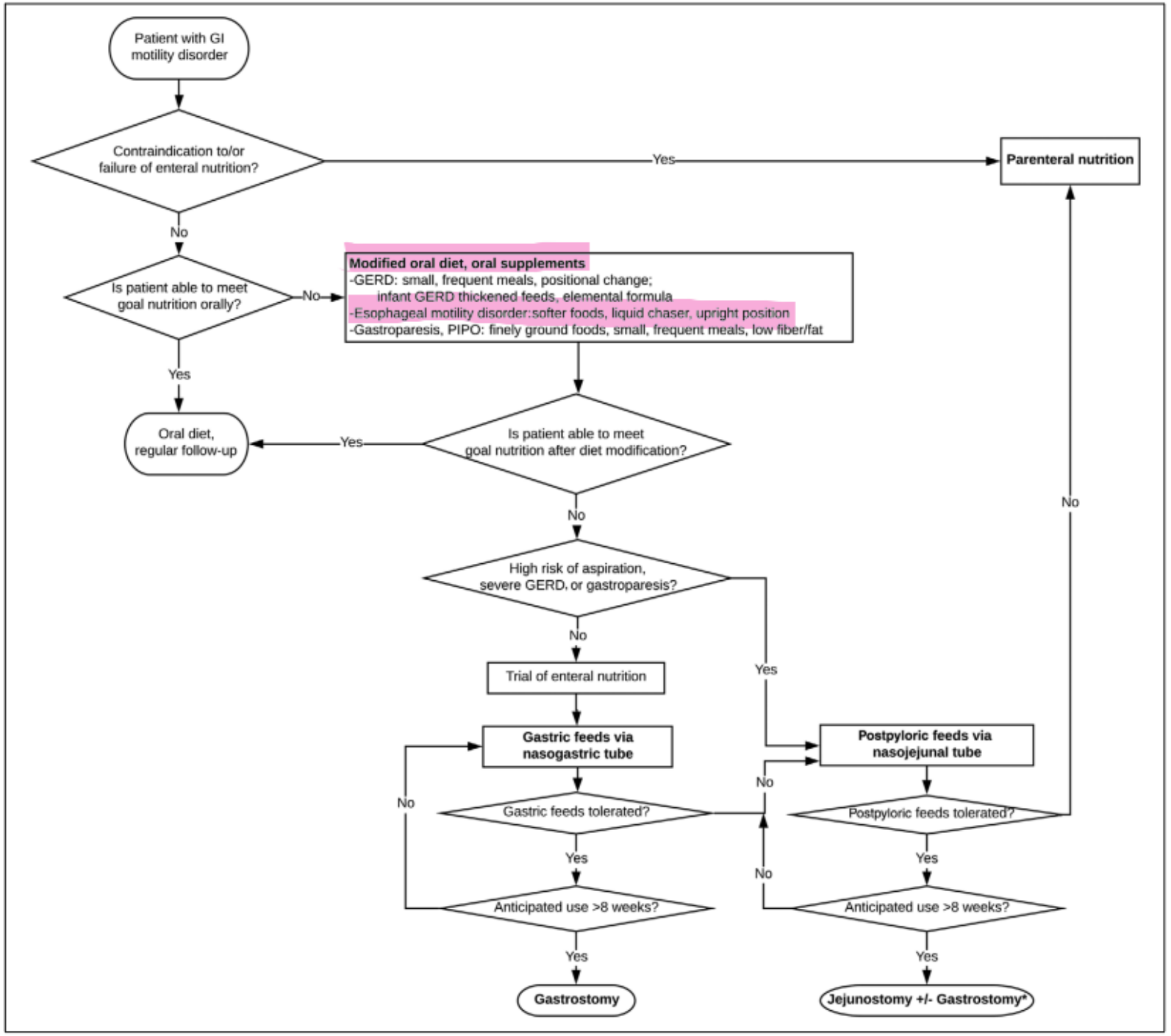
Nutrition Management in Pediatric Gastrointestinal Motility Disorders

- ❑ Beslenme durumunun değerlendirilmesi
  - ➢ Antropometrik ölçümler
  - ➢ Beslenme odaklı FM
  - ➢ Gelişimsel değerlendirme
  - ➢ Beslenme örüntüsü
  - ➢ GİS yakınmaları
  - ➢ Komorbidite(ler)
  - ➢ Laboratuvar incelemeleri

- ❑ Oral?, Enteral?, Parenteral?

- ❖ Aspirasyon riski yüksekse N/G
- ❖ Pozisyon önerileri – dik
- ❖ Yatmadan saatler önce beslenme tamamlanacak
- ❖ Sadece katılarla disfaji varsa diyet modifikasyonu
- ❖ Sıvılar, yumuşak, püre kıvamında katılar
- ❖ Her lokmadan sonra sıvı



Sözün özü;

- ❑ Yaşam kalitesini düşüren ve istenmeyen uzun dönem sonuçlara yol açabilen bir klinik durumdur.
- ❑ Başlıca nedenleri anatomik, inflamatuvar ve fonksiyonel olarak sınıflandırılabilir.
- ❑ Endoskopi+biyopsi ve baryumlu çalışmalar ile obstrüktif ve mukozal patolojiler dışlanmalıdır.
- ❑ HRM motilite bozukluklarının tanısında altın standart yaklaşımdır.
- ❑ Primer tedavi altta yatan hastalığa yöneliktir.
- ❑ Hastalar beslenme, büyüme ve komplikasyonlar (altta yatan hastalığa ya da tedavisine bağlı gelişen) açısından yakın takip edilmelidir.
- ❑ Multidisipliner yaklaşım ve takip önemlidir.

Teşekkür ederim…