AMSER Case of the Month
July 2025

GF is an 84 y.o. male with history of enterocolitis, perforated sigmoid diverticulitis (s/p sigmoid resection with colostomy and colostomy reversal in 2016), severe malnutrition, and chronic diarrhea presenting with dysphagia, weight loss, and failure to thrive.

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Patient Presentation

- Presented to the Cooper ED on 4/4 with 50 lb weight loss since his hernia repair 18 months ago
- Recently admitted to OSH and workup included CT scans of the abdomen and pelvis which revealed enterocolitis
- He was discharged on Creon due to his history of pancreatic insufficiency, he also was found to have aspiration pneumonia and concern for connective tissue disorder
- He states that over the past month he has had new onset dysphagia to solids, especially “crusty” breads, and feels like he has a hard time swallowing pills and often spits them up
- He also rarely has dysphagia to liquids and can choke if he drinks too much too rapidly.
- He reports chronic diarrhea that waxes and wanes with occasional black stools attributed to pancreatic insufficiency, currently on Creon
- Otherwise, patient denies any fevers, chills, new respiratory complaints, cough or cold symptoms, focal weakness, or chest pain.
- He denies any current alcohol, tobacco or other recreational substance use, smoked tobacco from ages approximately 14-40, stopped drinking alcohol about 2 years ago per patient.

Pertinent Labs

Component Ref Range & Units (hover)	4/4/25 1327
WBC	4.81
RBC	3.94 ↓
HEMOGLOBIN	12.8 ↓
HEMATOCRIT	37.3 ↓
MCV	94.7
MCH	32.5 ↑
MCHC	34.3
RDW	15.8 ↑
PLATELET COUNT	195
MPV	11.5 ↑
NRBC	0.0
DIFFERENTIAL TYPE	AUTOMATED DIFFERENTIAL

Component Ref Range & Units (hover)	4/4/25 1327
GLUCOSE	95
BUN	25 ↑
CREATININE	0.82
SODIUM	145
POTASSIUM	3.0 ↓
CHLORIDE	112 ↑
CO2	22
CALCIUM	9.0
ANION GAP	11
eGFRu	87

Component Ref Range & Units (hover)	4/4/25 1457
PHOSPHORUS	3.3

Component Ref Range & Units (hover)	4/4/25 1457
LIPASE	12 ↓

Component Ref Range & Units (hover)	4/4/25 1457
MAGNESIUM	2.1

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What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Dysphagia, retrosternal, not immunocompromised	3074198	Fluoroscopy biphasic esophagram	1-10 mSv ☢☢☢		Usually appropriate
		Fluoroscopy barium swallow modified	1-10 mSv ☢☢☢		May be appropriate
		Fluoroscopy single contrast esophagram	1-10 mSv ☢☢☢		May be appropriate
		Esophageal transit nuclear medicine scan	1-10 mSv ☢☢☢		May be appropriate
		Fluoroscopy pharynx dynamic and static imaging	1-10 mSv ☢☢☢		Usually not appropriate
		CT neck and chest with IV contrast	10-30 mSv ☢☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		CT neck and chest without and with IV contrast	10-30 mSv ☢☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		CT neck and chest without IV contrast	10-30 mSv ☢☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate

This imaging modality was ordered by the ER physician

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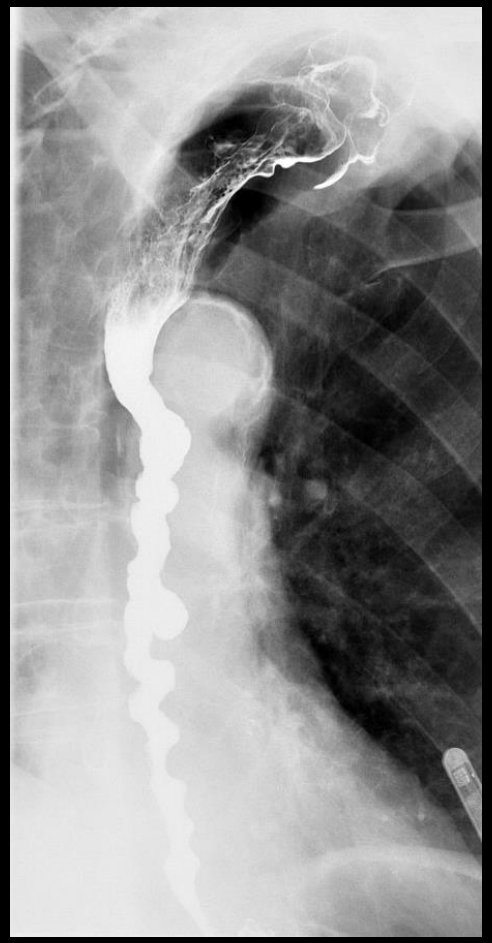
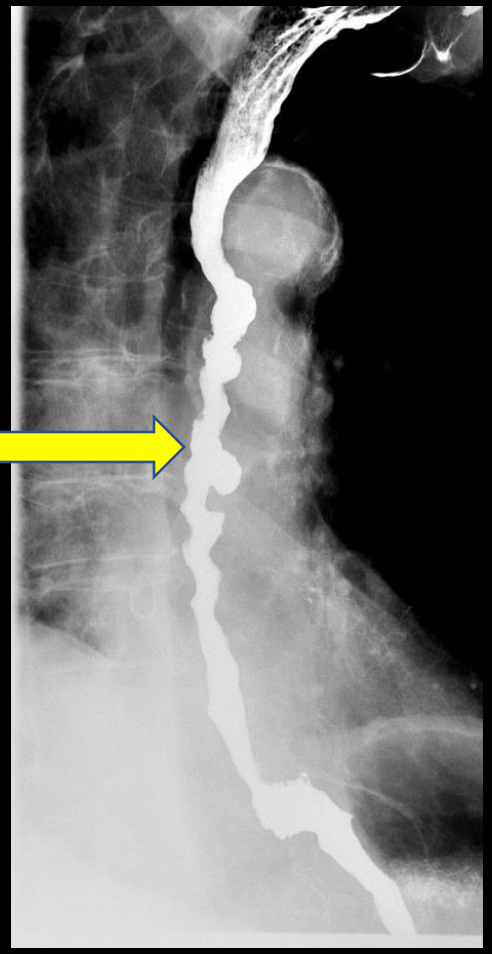
Findings (unlabeled)

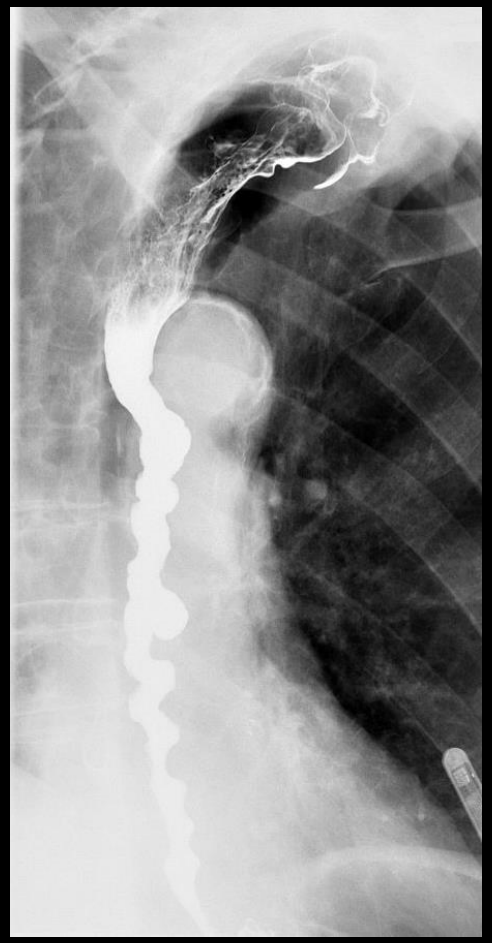


Findings (unlabeled)

Findings: (labeled)

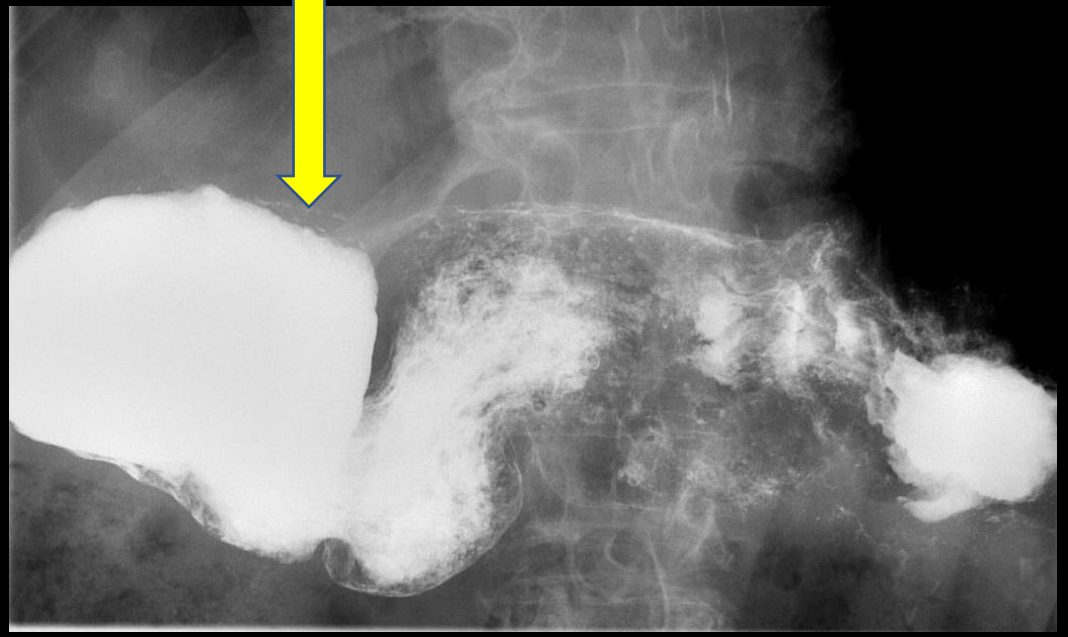
Corkscrew Esophagus[1]





Findings: (labeled)

Organoaxial rotation of the stomach[2]



Normal anatomy

Final Dx:

Distal Esophageal Spasm (Diffuse Esophageal Spasm)
Organoaxial rotation of the stomach without obstruction

Case Discussion: Distal Esophageal Spasm

- **Presentation:**[3] Dysphagia, regurgitation, and squeezing retrosternal chest pain during meals.
- **Pathophysiology:**[3] Disorganized esophageal motility caused by Impaired inhibitory innervation that is characterized by repetitive, uncoordinated, nonprogressive contraction waves of the esophagus.
- **Approach**[4,5]**:** Rule out life-threatening causes of chest pain if present (e.g. cardiac workup) followed by **upper endoscopy, esophageal barium swallow, and eventually manometry if diagnosis remains unclear**
  - **EGD:** Unremarkable/nonspecific findings
  - **Esophageal barium swallow: C**haracteristic corkscrew or rosary beads appearance, which reflects abnormal contractions that leads to compartmentalization and curling of the esophagus
  - **Esophageal Manometry**
    1. Aperistalsis in greater than 30% of the wet swallows
    2. 20% simultaneous contractions
    3. The amplitude of the contractions in the distal three-fifths of the esophagus is greater than 30%.

Case Discussion: Distal Esophageal Spasm

- **Management**[5]
  - **Lifestyle modifications:** Taking smaller bites, chewing thoroughly, eating slowly
  - **Pharmacologic intervention:**
    - Nitrates (isosorbide dinitrate)
    - PDE5 inhibitors (sildenafil)
    - Calcium channel blockers (nifedipine, dilitiazem)
- **Future Directions**
  - **High-resolution manometry and High-resolution esophageal pressure topography**[6,7]
    - Utilizes high-resolution catheter to transmit intraluminal pressure data that is subsequently converted into dynamic esophageal pressure topography plots
    - **Protocol:** Baseline phase and a series of ten wet swallows in the supine position.
    - **Chicago Classification v3.0**
      - ≥ 20% premature contractions in a context of normal esophago-gastric junction relaxation
      - Presence of at least two premature contractions with a distal latency of under 4.5 seconds

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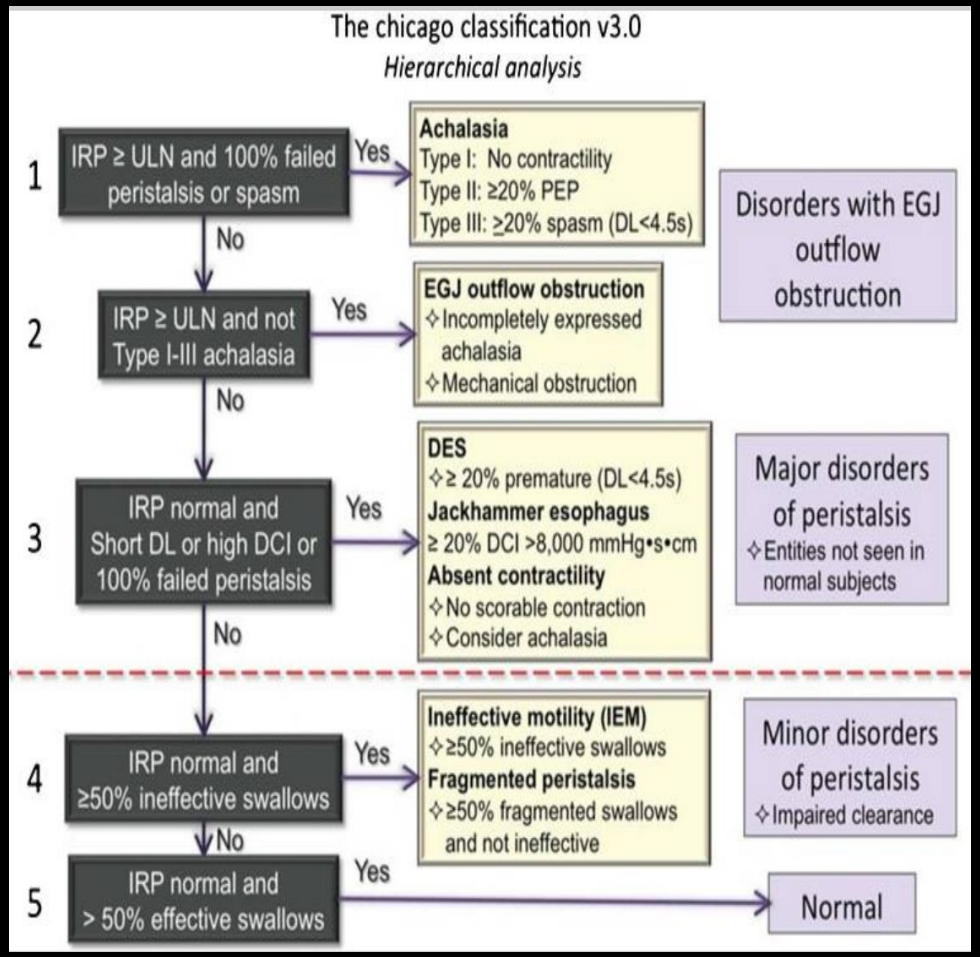
Case Discussion:
Distal Esophageal Spasm



Hierarchical Approach
In the diagnosis of esophageal dysmotility

Step 1: Integrated Relaxation Pressure (IRP) is **greater** than the upper limit of normal (ULN), suggestive of insufficient lower esophageal sphincter relaxation

- Identify type of achalasia/obstruction from there using:
  - Premature Esophageal Pressurization (PEP): Refers to pressurization of the esophageal body prior to the lower esophageal sphincter (LES) fully relaxes; elevation correlates to **Type II achalasia**
  - Distal Latency (DL): Refers to the time interval from the start of a swallow (measured at the upper esophageal sphincter) to the contractile deceleration point in the distal esophagus; a shortened DL correlates to **Type III achalasia**
  - Absence of any peristalsis/contractility correlates to **Type I achalasia**
- If IRP is elevated but without any other findings and does not fit an achalasia category, consider a **mechanical obstruction**

Step 2: IRP is **normal** but…

- DL is shortened (<4.5s): consider **Distal Esophageal Spasm (DES)**
- Distal Contractile Integral (DCI) is elevated: consider **Jackhammer esophagus**
  - DCI: Quantifies amplitude, duration, and length of the esophageal contraction in the distal esophagus.

Step 3: IRP is **normal** in the presence of ineffective swallows with on other findings, consider **Ineffective Motility (IEM)**

(6) Kahrilas PJ, Bredenoord AJ, Fox M, Gyawali CP, Roman S, Smout AJ, Pandolfino JE; International High Resolution Manometry Working Group. The Chicago Classification of esophageal motility disorders, v3.0. Neurogastroenterol Motil. 2015 Feb;27(2):160-74. doi: 10.1111/nmo.12477. Epub 2014 Dec 3. PMID: 25469569; PMCID: PMC4308501.

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2. Bauer K, Keller C. Organoaxial gastric volvulus: a rare cause of an acute abdomen. GMS Interdiscip Plast Reconstr Surg DGPW. 2019 Mar 25;8:Doc04. doi: 10.3205/iprs000130. PMID: 30984512; PMCID: PMC6441817.
3. Grübel C, Borovicka J, Schwizer W, Fox M, Hebbard G. Diffuse esophageal spasm. Am J Gastroenterol. 2008 Feb;103(2):450-7. doi: 10.1111/j.1572-0241.2007.01632.x. Epub 2007 Nov 15. PMID: 18005367.
4. Burmeister S. Review of current diagnosis and management of diffuse esophageal spasm, nutcracker esophagus/spastic nutcracker and hypertensive lower esophageal sphincter. Curr Opin Otolaryngol Head Neck Surg. 2013 Dec;21(6):543-7. doi: 10.1097/MOO.0000000000000002. PMID: 24157634.
5. Valdovinos MA, Zavala-Solares MR, Coss-Adame E. Esophageal hypomotility and spastic motor disorders: current diagnosis and treatment. Curr Gastroenterol Rep. 2014 Nov;16(11):421.
6. Kahrilas PJ, Bredenoord AJ, Fox M, Gyawali CP, Roman S, Smout AJ, Pandolfino JE; International High Resolution Manometry Working Group. The Chicago Classification of esophageal motility disorders, v3.0. Neurogastroenterol Motil. 2015 Feb;27(2):160-74. doi: 10.1111/nmo.12477. Epub 2014 Dec 3. PMID: 25469569; PMCID: PMC4308501.
7. Achem SR, Gerson LB. Distal esophageal spasm: an update. Curr Gastroenterol Rep. 2013 Sep;15(9):325. doi: 10.1007/s11894-013-0325-5. PMID: 23892829.

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