AMSER Rad Path
Case of the Month September 2018

77-year-old man with dyspepsia and dysphagia

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Patient Presentation

HPI:

- 77yo man presents with 7 weeks of increasing dyspepsia despite antacid use, and retrosternal dysphagia (food felt “stuck”). Denies odynophagia or vomiting.
- Eating smaller portions and less frequently. Reports 10-15 pound weight loss during the past 2 months.

PMH: Chronic hiatal hernia, GERD. Denies tobacco/alcohol use.

Medications: Amantadine, docusate, simvastatin, vitamin D supplements.

Family History: Colorectal cancer (mother, uncle), melanoma (sister, daughter), breast cancer (aunt).

Physical Exam: Unremarkable.

Vitals: T 98.5°F, HR 90, BP 129/78, RR 18, O_2 sat 96% on room air.

EKG: Normal sinus rhythm.

Pertinent Labs

CBC, CMP, coagulation labs, and LFTs are all within normal limits.

What imaging to order?

American College of Radiology
ACR Appropriateness Criteria®

Clinical Condition: **Dysphagia**

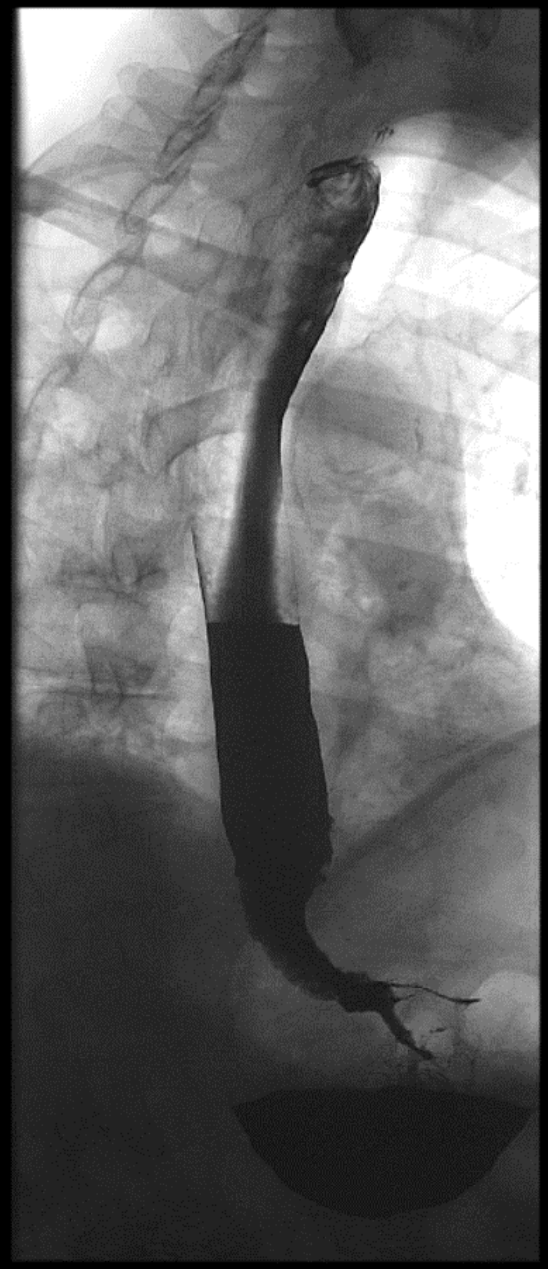
Variant 3: **Retrosternal dysphagia in immunocompetent patients.**

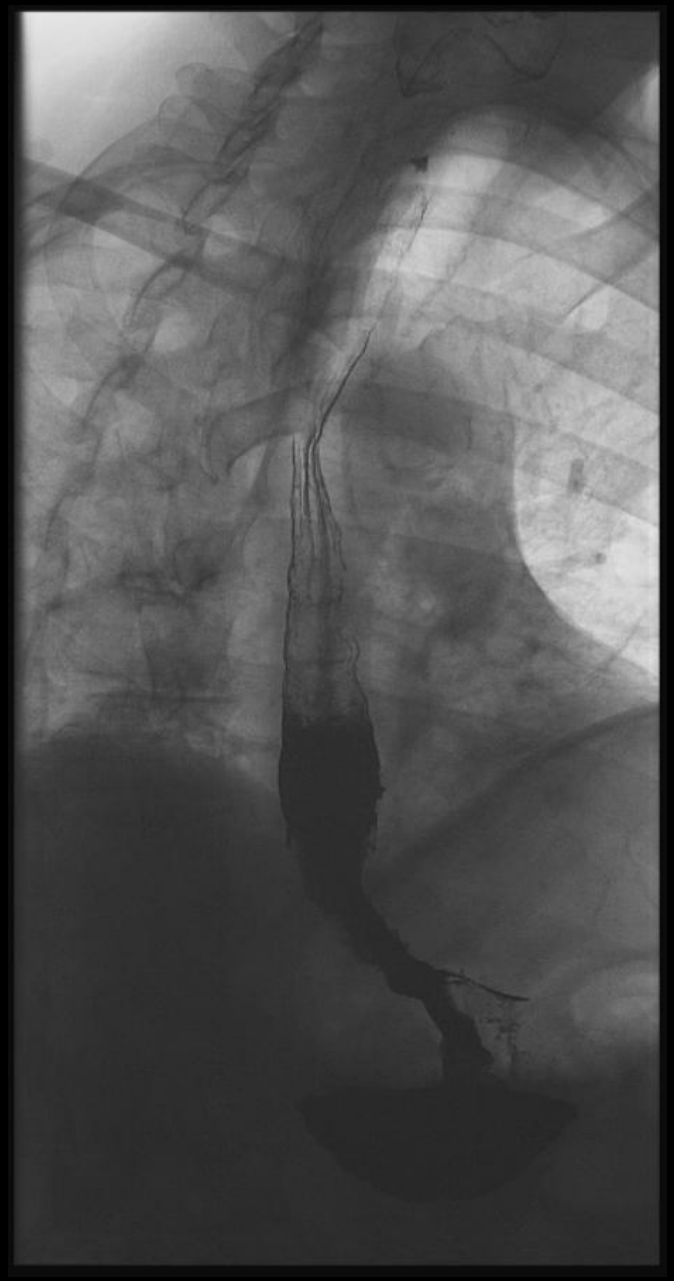
Radiologic Procedure	Rating	Comments	RRL*
X-ray biphasic esophagram	8	Endoscopy and biphasic esophagram are both excellent diagnostic tests in this setting.	☢ ☢ ☢
X-ray barium swallow single contrast	6	This procedure is probably indicated if the patient is not capable of doing anything except swallowing.	☢ ☢ ☢
X-ray barium swallow modified	4		☢ ☢ ☢
X-ray pharynx dynamic and static imaging	4	Esophageal examination is also necessary.	☢ ☢ ☢
Tc-99m transit scintigraphy esophagus	4		☢ ☢ ☢
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level

This imaging modality was ordered by the physician.

https://acsearch.acr.org/docs/69471/Narrative/

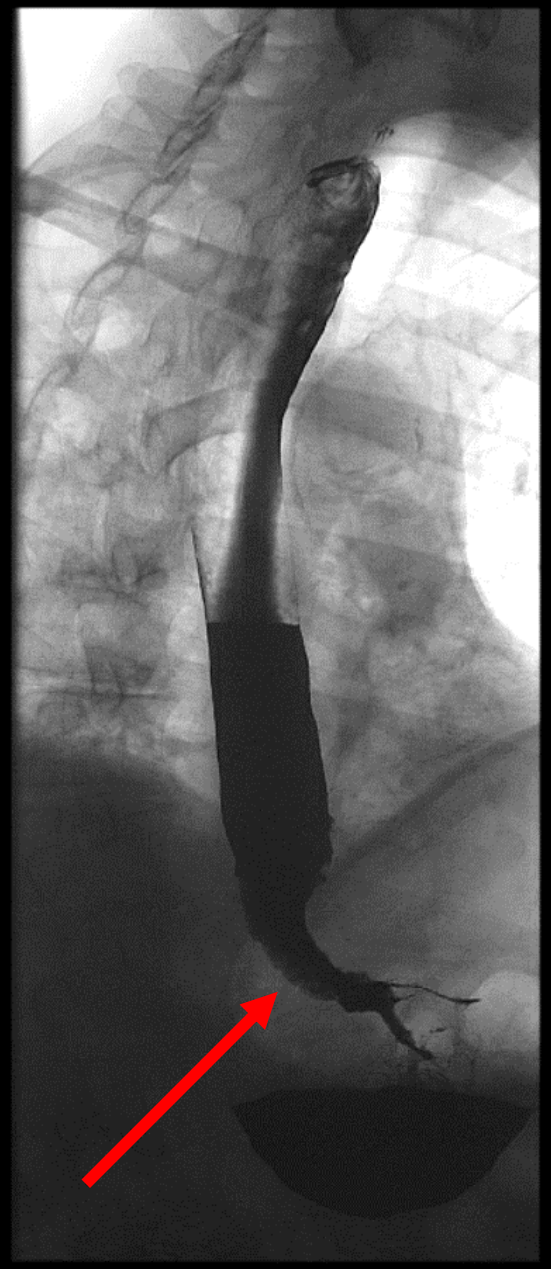
Fluoroscopic Barium Swallow

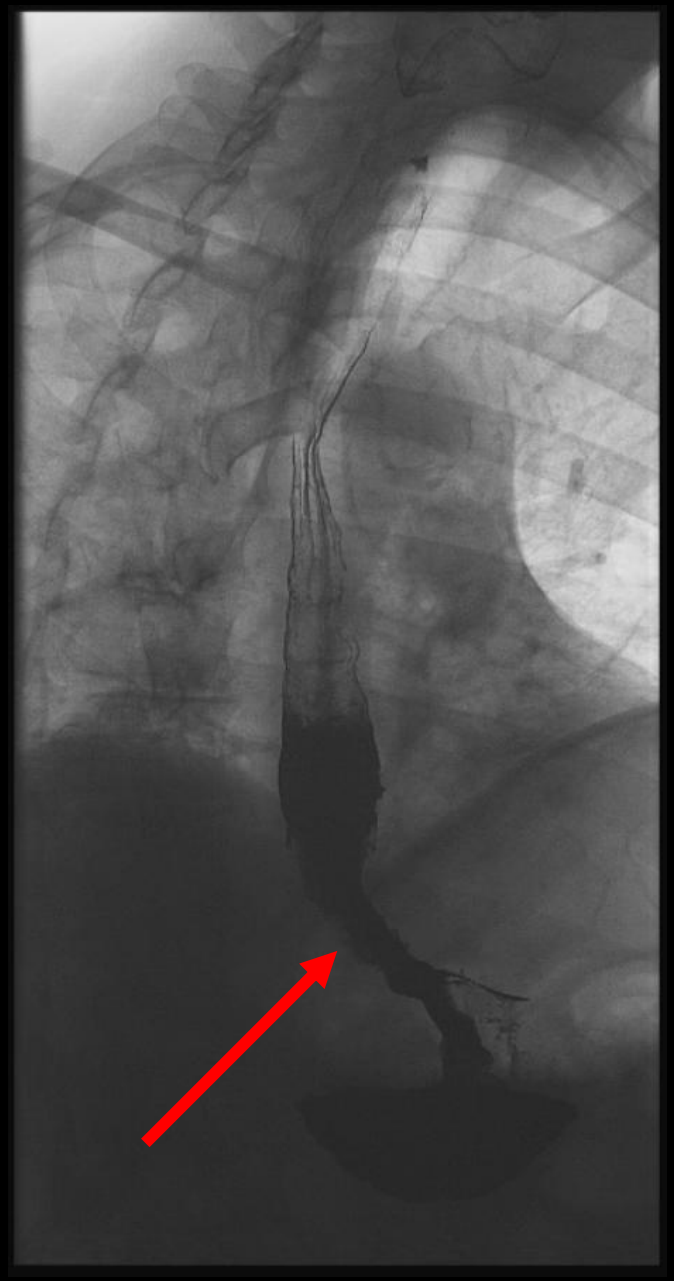




Fluoroscopic Barium Swallow

Mild narrowing with luminal irregularity at the GE junction without tight stricture.



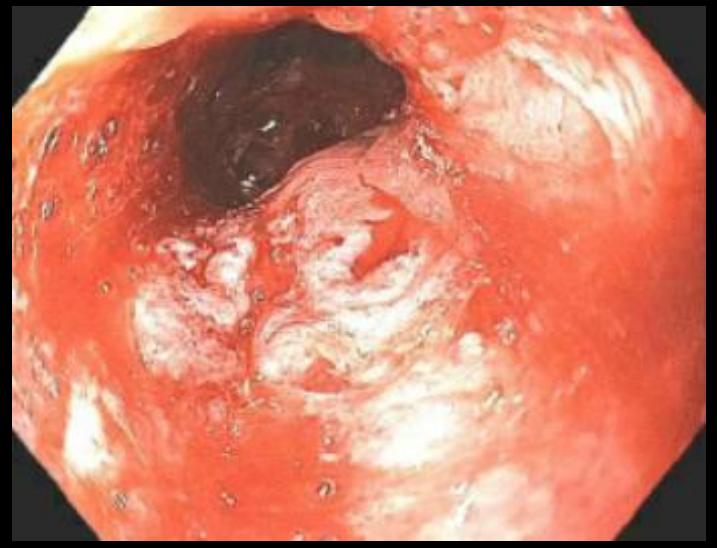


DDX Based on Initial Imaging

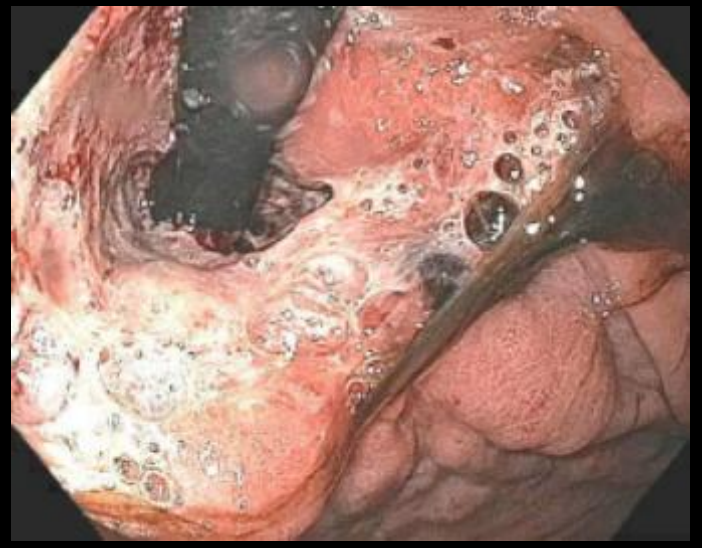
- Primary esophageal neoplasm (adenocarcinoma vs SCC)
- Stricture (reflux induced)
- Leiomyoma
- Metastases

Upper GI Endoscopy

Middle third of esophagus



Lower third of esophagus



Gastroesophageal junction

Large, fungating, submucosal, and ulcerating mass in the lower third of the esophagus and at the gastroesophageal junction, partially obstructing and circumferential.

Tissue Biopsy: Invasive adenocarcinoma, poorly differentiated, with signet-ring-cell features.

What additional imaging studies are warranted at this time?

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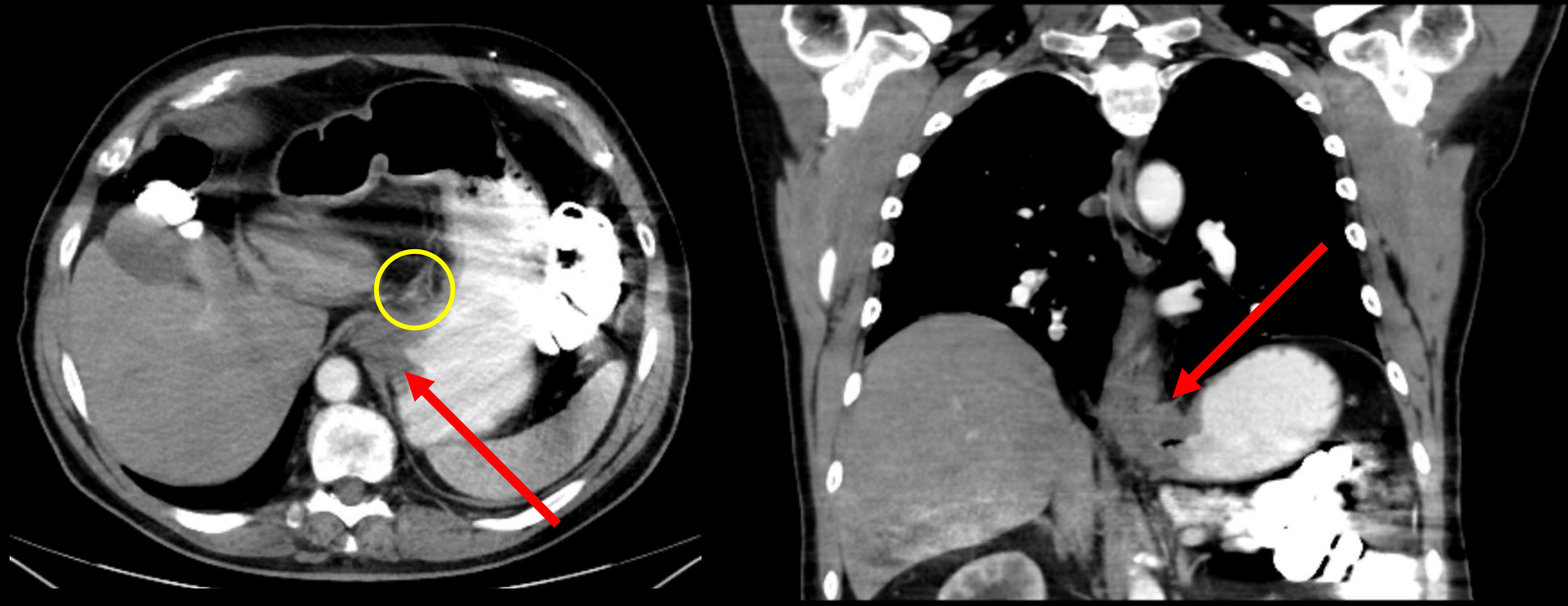
CT Chest/Abdomen/Pelvis

For assessment of the mass and to look for nodal involvement.



- Distal gastroesophageal junction mass (red arrow).
- At least one enlarged gastrohepatic lymph node (yellow circle).

NB: The streak artifacts from his colon are due to the barium contrast that he swallowed for the fluoroscopy the day prior. It decreased the sensitivity of this exam for metastatic disease.

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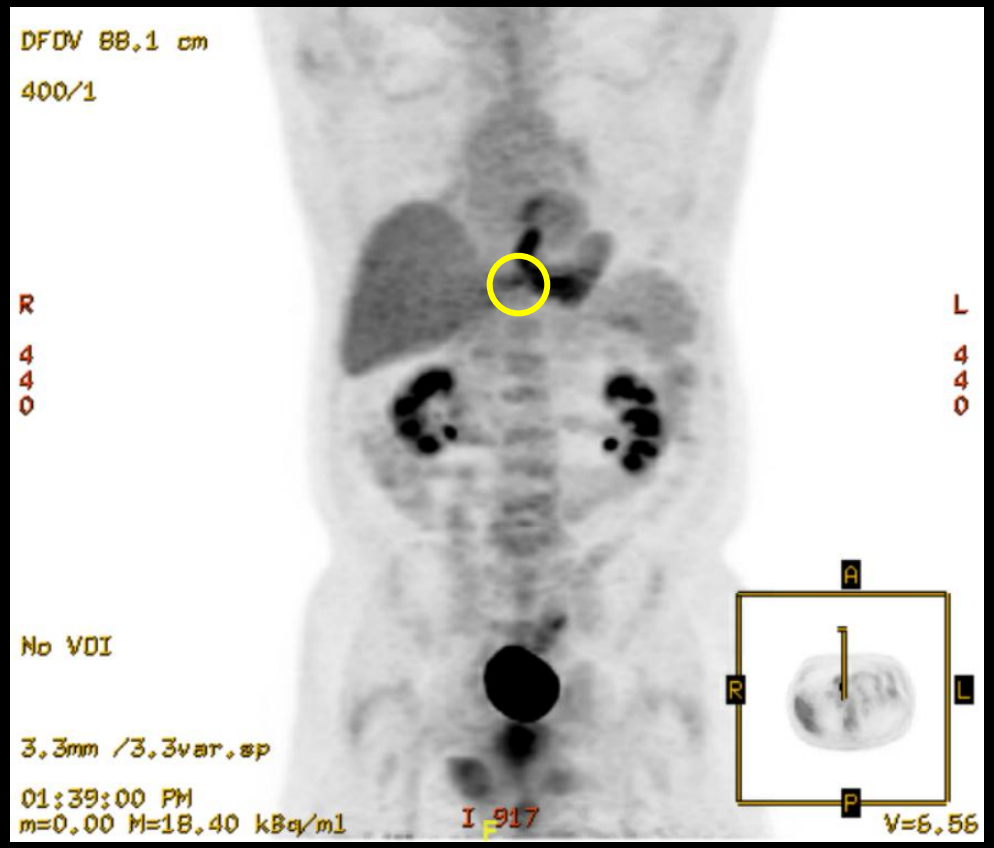
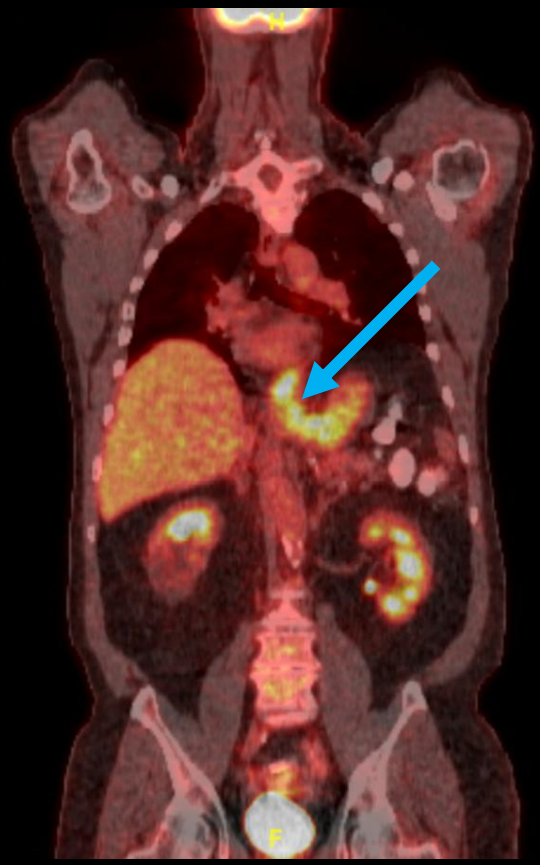
PET/CT

For assessment of potential metastasis.





- FDG-avid thickening of the distal esophagus and gastric cardia (blue arrow).
- Mildly FDG-avid enlarged perigastric lymph node (yellow circle).
- No other evidence of metastasis.

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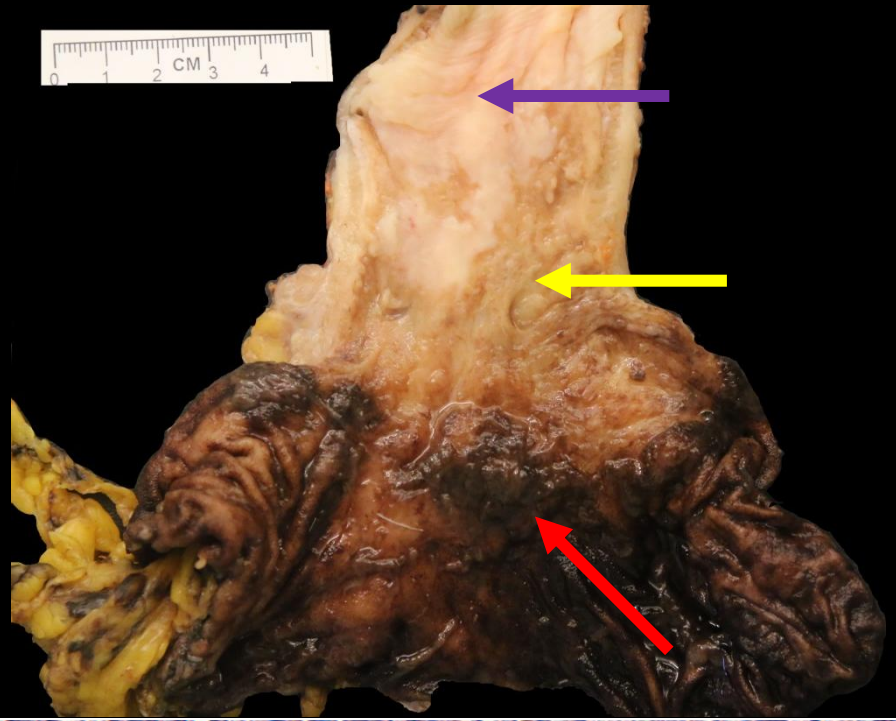
Final Dx:

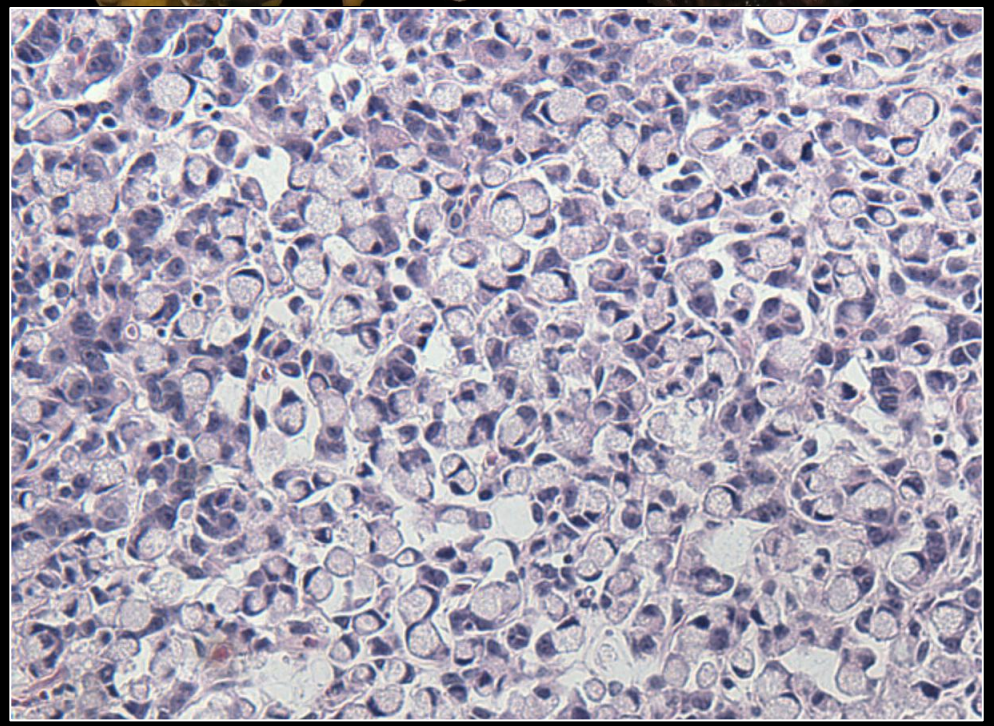
Adenocarcinoma of the Gastroesophageal Junction



Pathology

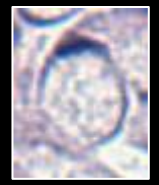
Can identify both normal esophageal tissue (purple) and Barrett's mucosa (yellow).

Resected tumor shows involvement of the distal esophagus and gastric cardia (red), likely responsible for the patient's dysphagia.



Tissue biopsy at the time of diagnosis showed invasive adenocarcinoma with signet-ring-cell features:

- Sheets of poorly-differentiated cells with no clear organization
- Mucin-filled vacuoles push the nucleus to the periphery → "Signet ring"



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Esophageal Cancer

- The two predominant types of esophageal cancer are squamous cell carcinoma (SCC) and adenocarcinoma.
- SCC is more common globally. Risk factors include smoking and alcohol use, and the disease tends to affect the middle esophagus.
- Adenocarcinoma is more common in the US (>60% of esophageal cancers). Most cases derive from Barrett's esophagus (due to chronic GERD), and hence are more likely to involve the distal esophagus and gastric cardia.
- Esophageal cancer often presents with progressive dysphagia (from solids to liquids), retrosternal discomfort, increasing reflux, and weight loss. Anemia may result from chronic GI blood loss.

Esophageal Cancer

- Endoscopic identification of a large mucosal mass can be pathognomonic of esophageal cancer, but a biopsy is needed to confirm the diagnosis and to identify tumor markers.
- Once diagnosed, pre-treatment staging includes evaluation for both local disease and distant metastases. An endoscopic ultrasound can be the best choice for local extent of disease, while CT and PET/CT are more useful to assess for local regional lymph nodes and metastases.
- In adenocarcinoma, early lymph node metastases tend to occur to adjacent or regional lymph nodes (celiac and perihepatic) because of the tumor's location at the gastroesophageal junction.
- Distant metastatic sites include the lung, liver, bones, adrenal glands, and brain.

References

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