

AMSER Case of the Month

June 2024

61y Female with PMH of metastatic esophageal adenocarcinoma who presented to the ED with SIRS criteria, chronic cough, and progressive loss of voice

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Patient Presentation

- Chief Complaint: Initially presented to the ED from infusion center due to low K+, Na+, and hypotension. Reportedly having leg numbness, nausea, cough, and **progressive voice loss**. Admitted with SIRS criteria. CT Chest showed bilateral pleural effusions, heterogenous parenchymal abnormalities of left lobe with ground glass abnormalities, **extensive mediastinal, supraclavicular, and neck base lymph node enlargement**
- Past Medical History: **Metastatic esophageal adenocarcinoma** (status post radiation, on chemo without response and increased liver metastases)
- Past Surgical History: Jejunostomy
- Medications: FOLFOX, nivolumab, Compazine, metaclopramide, B12

Pertinent Labs

- CBC: leukocytosis of 29.59 with 24.18 absolute count neutrophils, normocytic anemia with Hgb of 8.7
- BMP: Na⁺ of 133, K⁺ of 3.4, Cr 0.4
- LDH: 8266
- Ferritin: 4058
- Vitamin B12: >2000
- Microbiology: Negative Blood Cultures

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

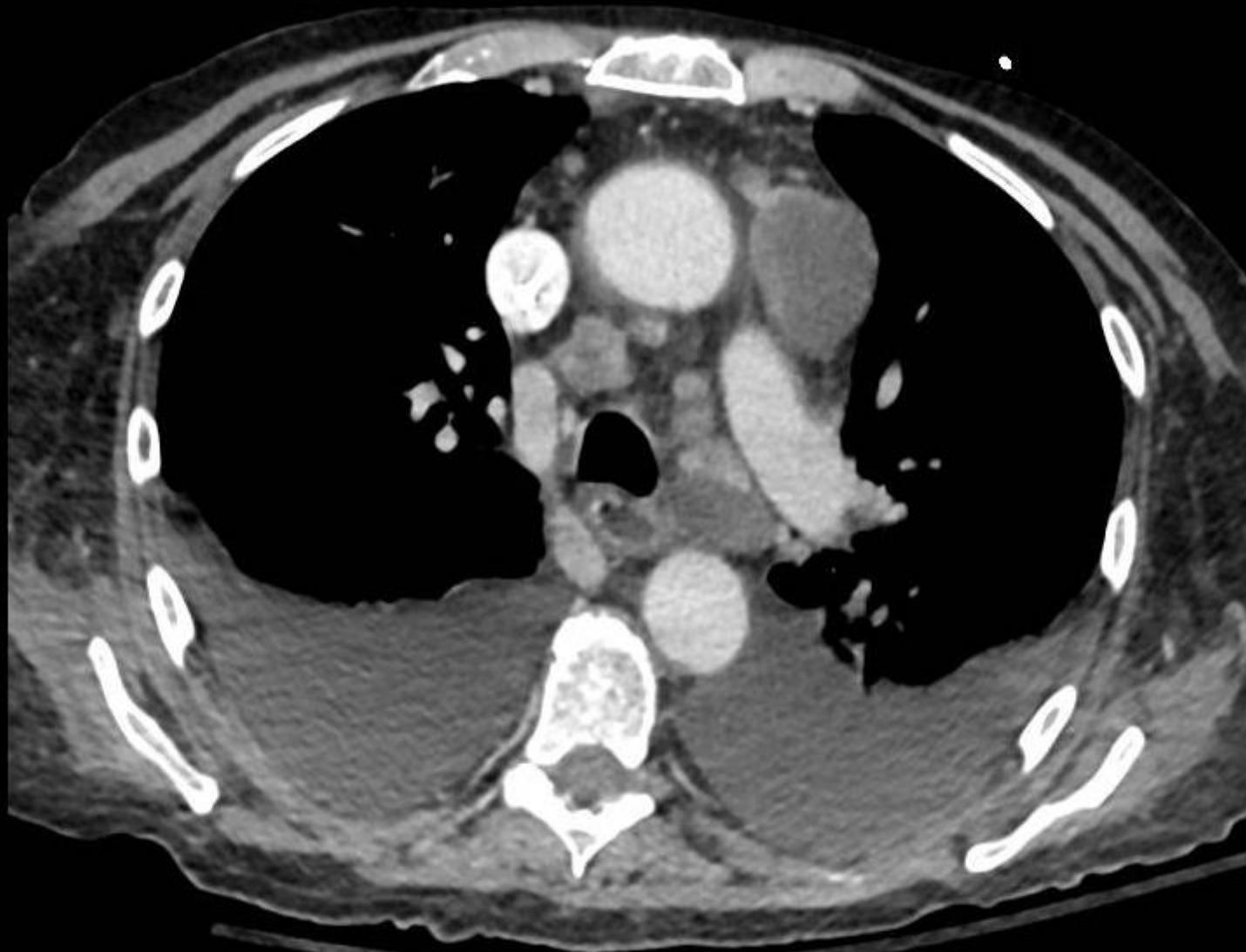
Variant 2:

Nonsuperficial (deep) soft tissue mass. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
Radiography area of interest	Usually Appropriate	Varies
US area of interest	May Be Appropriate	0
CT area of interest with IV contrast	May Be Appropriate	Varies
CT area of interest without and with IV contrast	May Be Appropriate	Varies
CT area of interest without IV contrast	May Be Appropriate	Varies
US area of interest with IV contrast	Usually Not Appropriate	0
Image-guided biopsy area of interest	Usually Not Appropriate	Varies
Image-guided fine needle aspiration area of interest	Usually Not Appropriate	Varies
MRI area of interest without and with IV contrast	Usually Not Appropriate	0
MRI area of interest without IV contrast	Usually Not Appropriate	0
FDG-PET/CT area of interest	Usually Not Appropriate	⊕⊕⊕⊕

This imaging modality was ordered by the oncologist

Findings (unlabeled)



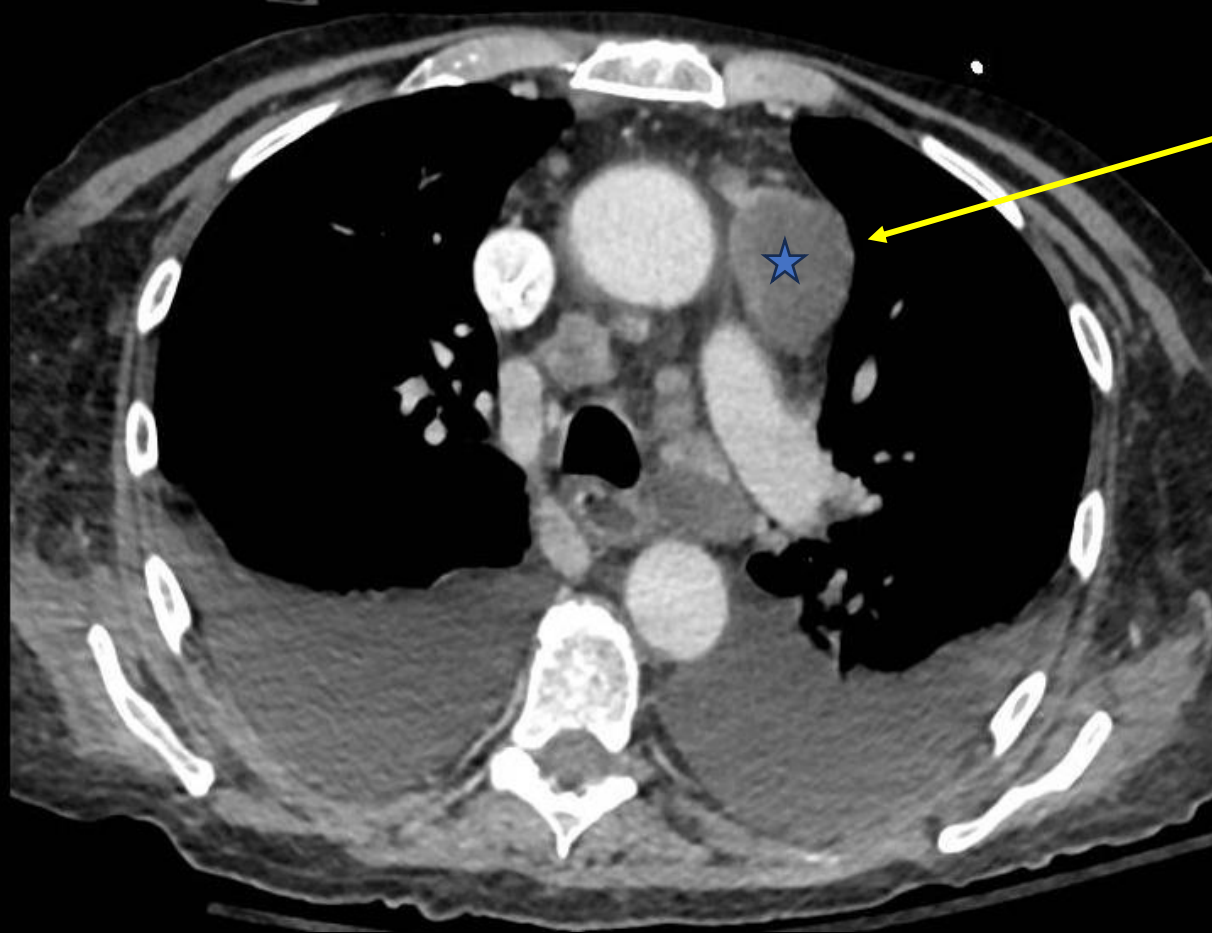
Findings (unlabeled)



Findings (unlabeled)

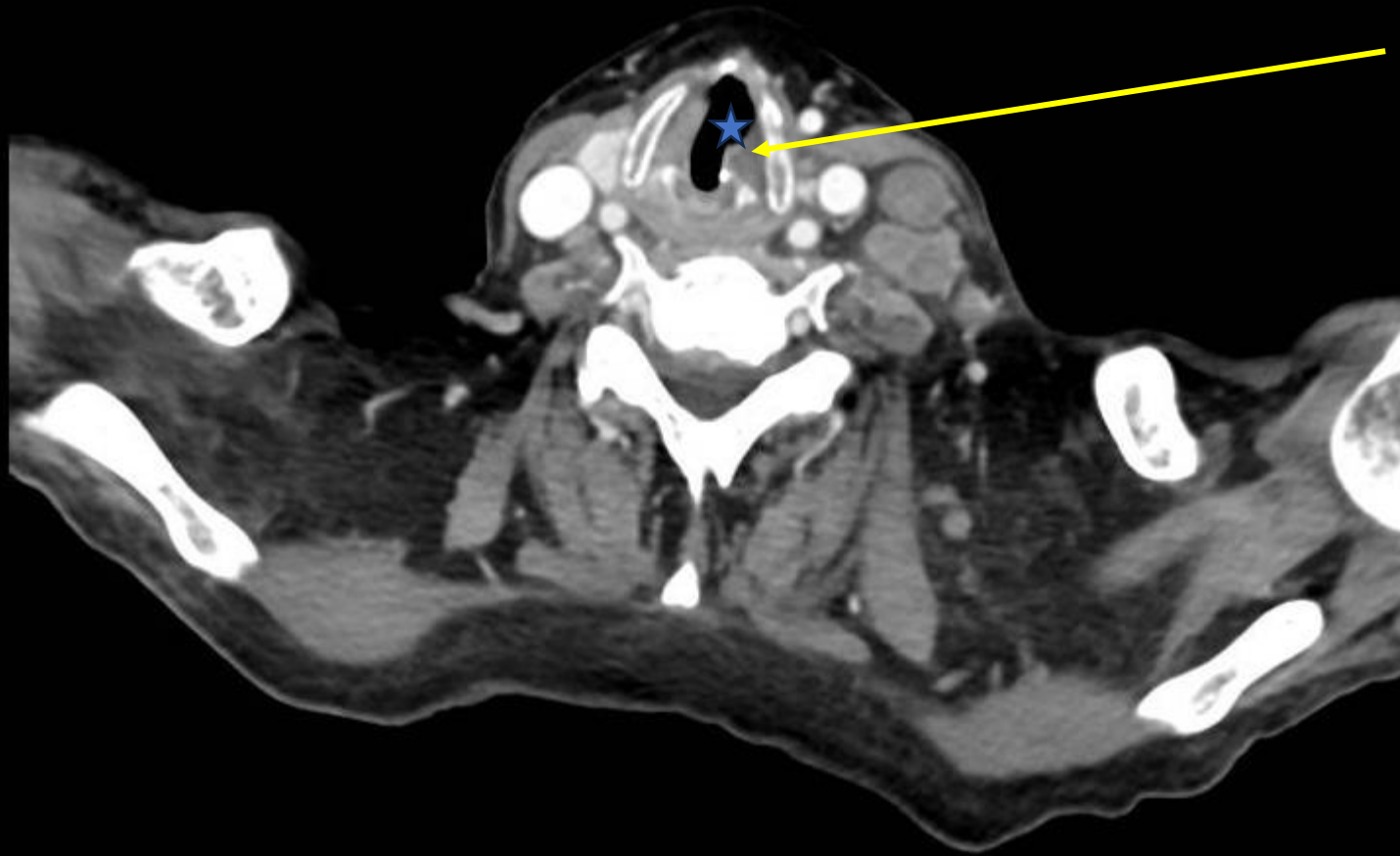


Findings (labeled)



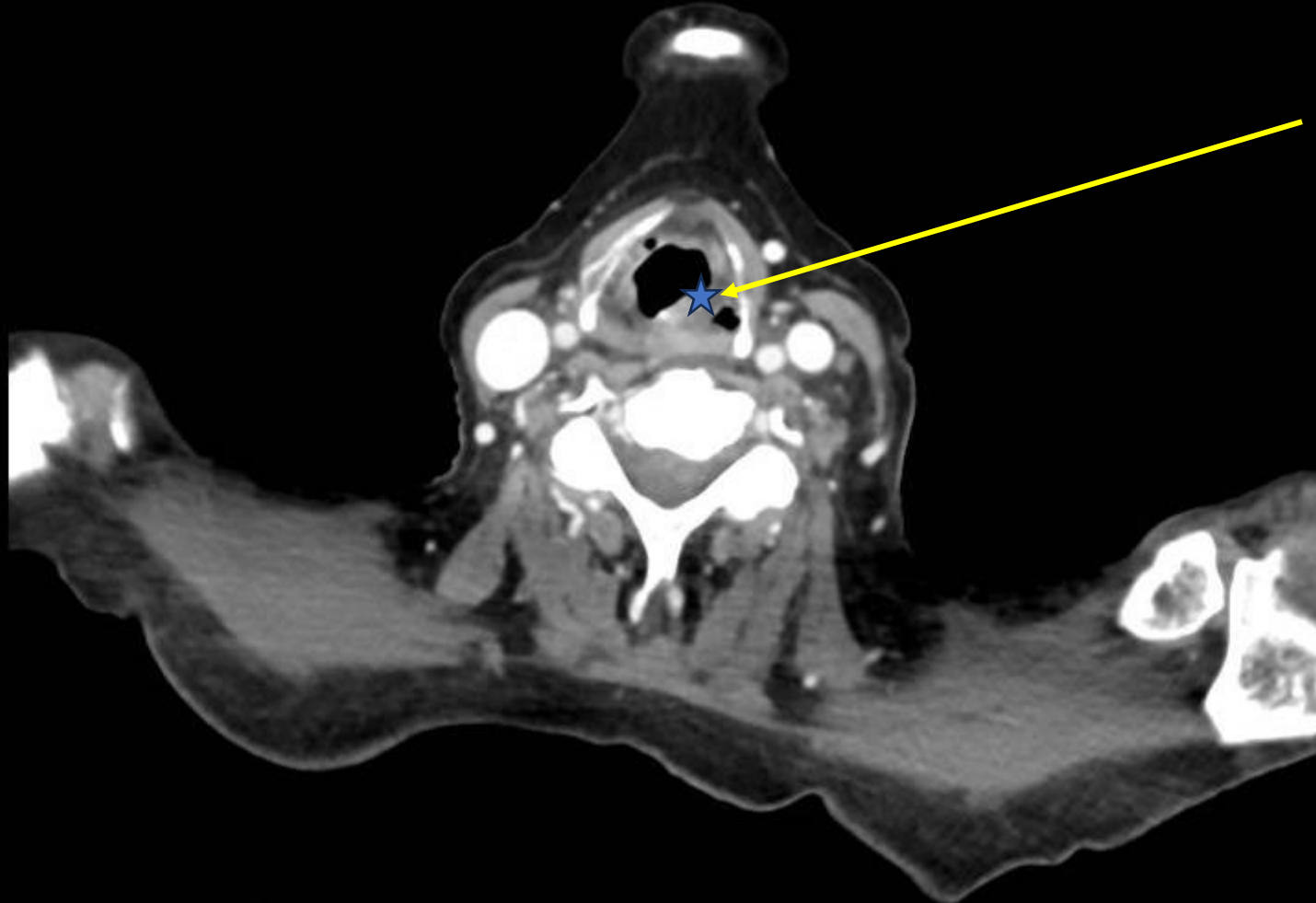
Prevascular
mediastinal
lymph node
enlargement

Findings (labeled)



Sail sign:
unilateral
dilation of the
laryngeal
ventricle

Findings (labeled)



Medialization
and thickening
of left
aryepiglottic
fold

Final Dx:

Left Vocal Cord paralysis

Asymmetric volume loss of the left vocal cord, prominence of the left aryepiglottic fold and enlargement of left pyriform sinus suggesting left vocal cord paralysis, likely due to recurrent laryngeal nerve involvement from the mediastinal nodal disease

Case Discussion

- Patient reportedly had less dysphonia over the next 3 days, although developed C-diff with continued up-trending leukocytosis and neutrophil counts. Plan is for ENT and oncology follow-up
- Bronchoalveolar lavage later showed neutrophil predominance with 2+ oral pharyngeal flora and 2+ yeast
- Pleural fluid and blood cultures continued to show no growth

Case Discussion

- Unilateral Vocal Cord Paralysis ¹
 - Wide variety of causes: Surgery, trauma, stroke, myasthenia gravis, MS, sarcoid, SLE, varicella infection, Lyme disease, malignancy
 - Result of damage to recurrent laryngeal nerve (CN X)
 - Loops under arch of aorta on the **left** and subclavian artery on the **right**
 - Provides sensation to glottis and sub-glottis and motor function of the vocal cords
 - Often diagnosed by ENT via laryngoscopy
 - Presents with dysphonia, swallowing difficulties, and shortness of breath
 - Role of imaging
 - CT is of the neck to include the aortic arch to evaluate for lesions along the path of the nerve. MRI can be used as a complementary study for problem solving.
 - Treatment
 - Injection thyroplasty, Type 1 Isshiki thyroplasty, and laryngeal reinnervation

Case Discussion

- Vocal rehabilitation is also an option with voice therapy with a speech pathologist. This can improve acoustics²
- It has been shown that injection laryngoplasty can assist in vocal cord rehabilitation and improve quality of life.³
 - This can improve dysphonia, weak cough, airway protection, and prevent aspiration if a result of unilateral vocal cord paralysis
 - It is possible this patient's pneumonia is secondary to aspiration, in part related to damage of the left recurrent laryngeal nerve, so could be considered by primary team

References:

1. Williamson AJ, Shermetaro C. Unilateral Vocal Cord Paralysis. In: StatPearls. <https://www.ncbi.nlm.nih.gov/books/NBK535420/>; Updated 2023 Aug 8
2. Barcelos CB, Silveira PAL, Guedes RLV, Gonçalves AN, Slobodtsov LDS, Angelis EC. Multidimensional effects of voice therapy in patients affected by unilateral vocal fold paralysis due to cancer. *Braz J Otorhinolaryngol.* 2018;84(5):620-629. doi:10.1016/j.bjorl.2017.07.012
3. Kupferman ME, Acevedo J, Hutcheson KA, Lewin JS. Addressing an unmet need in oncology patients: rehabilitation of upper aerodigestive tract function. *Ann Oncol.* 2011;22(10):2299-2303. doi:10.1093/annonc/mdq733