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

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
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</thead>
<tbody>
<tr>
<td>Radiography area of interest</td>
<td>Usually Appropriate</td>
<td>Varies</td>
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<tr>
<td>US area of interest</td>
<td>May Be Appropriate</td>
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<tr>
<td><strong>CT area of interest with IV contrast</strong></td>
<td>May Be Appropriate</td>
<td>Varies</td>
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<tr>
<td>CT area of interest without and with IV contrast</td>
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<td>US area of interest with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>0</td>
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<tr>
<td>Image-guided biopsy area of interest</td>
<td>Usually Not Appropriate</td>
<td>Varies</td>
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<td>Image-guided fine needle aspiration area of interest</td>
<td>Usually Not Appropriate</td>
<td>Varies</td>
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<tr>
<td>MRI area of interest without and with IV contrast</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>MRI area of interest without IV contrast</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>FDG-PET/CT area of interest</td>
<td>Usually Not Appropriate</td>
<td>0</td>
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</tbody>
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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

  • 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 acoustics\(^2\)

• 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:

