AMSER Case of the Month: January 2019

Mediastinal Mass

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Patient Presentation

- HPI: 82 yo M admitted as a transfer from OSH for SOB, CHF and CP. Recently placed IABP. Denies N/V, fevers, chills, weight loss, difficulty swallowing.
- PMHx: essential HTN, nodular goiter, CHF, CAD
- PSHx: no past surgical history
- FHx: Mother: heart disease (unspecified), Father: cancer (unspecified)
- SHx: lives alone, relatively active, never smoker, denies smokeless tobacco use, denies alcohol use, denies drug use
- Meds: ASA, lisinopril
What Imaging Should We Order?
### ACR Appropriateness Criteria

**Dyspnea—Suspected Cardiac Origin**

#### Variant 1:

Dyspnea due to heart failure. Ischemia not excluded.

<table>
<thead>
<tr>
<th>Radiologic Procedure</th>
<th>Rating</th>
<th>Comments</th>
<th>RRL*</th>
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<tbody>
<tr>
<td>X-ray chest</td>
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<td>US echocardiography transesophageal</td>
<td>9</td>
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<td>US echocardiography transthoracic stress</td>
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<td>Tc-99m SPECT MPI rest and stress</td>
<td>9</td>
<td>★★★★</td>
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<tr>
<td>Rb-82 PET heart stress</td>
<td>8</td>
<td>★★★</td>
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<td>MRI heart function and morphology without and with IV contrast</td>
<td>8</td>
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<td>MRI heart with function and vasodilator stress perfusion without and with IV contrast</td>
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<td>CTA coronary arteries with IV contrast</td>
<td>8</td>
<td>★★★★</td>
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<td>Angiography coronary with ventriculography</td>
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<td>★★★</td>
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<tr>
<td>MRI heart with function and inotropic stress without and with IV contrast</td>
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<td>US echocardiography transesophageal</td>
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<td>O</td>
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<tr>
<td>CT heart function and morphology with IV contrast</td>
<td>5</td>
<td>★★★★</td>
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<tr>
<td>CT coronary calcium</td>
<td>5</td>
<td>★★★</td>
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</table>

**Rating Scale:** 1-2.3 Usually not appropriate; 4.5-6 May be appropriate; 7.8-9 Usually appropriate

*Relative Radiation Level*
Findings (unlabeled)
Findings: (labeled)

Large opacification of right upper lobe/paratracheal region. Trachea is deviated to the right.

Note the IABP lead (yellow circle).
CT w/o contrast obtained to further evaluate findings on plain film.

**no contrast used due to patient’s age.
Findings (unlabeled)
Findings: (labeled)

Mass effect on trachea (*) and esophagus (^)

Large mass in the mediastinum measuring 7.7 x 14.4 cm. Note the calcifications and continuity with the left lobe of the thyroid (L).
Final Dx

Mediastinal goiter with extension from the left lobe of the thyroid gland
Case Discussion

• Mediastinal Mass
  • Various pathologies can arise from structures normally found in mediastinum which can be divided into anterior, middle, and posterior compartments

Most common anterior mediastinal masses (like our case) can be remembered with the 4 T mnemonic
  4 T mnemonic
  Thyroid goiter
  Thymoma
  Terrible Lymphoma
  Teratoma (look for fat)
Thyroid Goiter

• Initial presentation
  • Incidentally identified on imaging studies performed for other reasons
  • May also present with symptoms related to the mass
    • Local symptoms due to compression of mediastinal structures (eg. shortness of breath, dysphagia, etc.)

• Imaging modalities
  • Plain film radiography: Findings can vary from subtle to the presence of a widened mediastinum or mass effect on the trachea
  • CT: can be used to delineate the anatomy, look for connecting structures, and delineate mass effect on other structures such as the airway
  • US: Great modality that does not use radiation that can measure the size of the thyroid gland
References:


