AMSER Case of the Month: December 2018

Widened Mediastinum on CXR

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Patient Presentation

• 57 y/o M presents to the ED for 3 days of cough, subjective fever, and pleuritic chest pain.

• PMHx:
  • CAD with NSTEMI and 3 vessel PCI (refused CABG) in 2003
  • HTN, HLD

• SHx: Alcohol use disorder (5 drinks nightly), cocaine use, active ½ ppd smoker with 30 pack year history

• FHx: Non-contributory

• Physical Exam: T 37.1, HR 71, BP 149/92, RR 16, SpO2 96%
  • No positive physical exam findings
What Imaging Should We Order?
**Select the applicable ACR Appropriateness Criteria**

**American College of Radiology**
**ACR Appropriateness Criteria®**
**Acute Respiratory Illness in Immunocompetent Patients**

**Variant 1:** Acute respiratory illness in immunocompetent patients with negative physical examination, normal vital signs, and no other risk factors. Initial imaging.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiography chest</td>
<td>Usually Appropriate</td>
<td><img src="https://via.placeholder.com/15" alt="Low Radiation" /></td>
</tr>
<tr>
<td>CT chest with IV contrast</td>
<td>Usually Not Appropriate</td>
<td><img src="https://via.placeholder.com/15" alt="Medium Radiation" /></td>
</tr>
<tr>
<td>CT chest without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td><img src="https://via.placeholder.com/15" alt="Medium Radiation" /></td>
</tr>
<tr>
<td>CT chest without IV contrast</td>
<td>Usually Not Appropriate</td>
<td><img src="https://via.placeholder.com/15" alt="Medium Radiation" /></td>
</tr>
<tr>
<td>MRI chest without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td><img src="https://via.placeholder.com/15" alt="High Radiation" /></td>
</tr>
<tr>
<td>MRI chest without IV contrast</td>
<td>Usually Not Appropriate</td>
<td><img src="https://via.placeholder.com/15" alt="High Radiation" /></td>
</tr>
<tr>
<td>US chest</td>
<td>Usually Not Appropriate</td>
<td><img src="https://via.placeholder.com/15" alt="High Radiation" /></td>
</tr>
</tbody>
</table>

This imaging modality was ordered by the ER physician.
Findings (labeled)

Widened mediastinum (11.1cm)

Ectatic Aorta

Clear lung fields

Is additional imaging needed?
Select the applicable ACR Appropriateness Criteria

Complaint of chest pain and widened mediastinum on CXR raised suspicion of aortic dissection

This imaging modality was ordered by the ER physician

<table>
<thead>
<tr>
<th>Clinical Condition: Acute Chest Pain — Suspected Aortic Dissection</th>
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<tbody>
<tr>
<td>Radiologic Procedure</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>X-ray chest</td>
</tr>
<tr>
<td>CTA chest and abdomen with IV contrast</td>
</tr>
<tr>
<td>MRA chest and abdomen without and with IV contrast</td>
</tr>
<tr>
<td>US echocardiography transesophageal</td>
</tr>
<tr>
<td>MRA chest and abdomen without IV contrast</td>
</tr>
<tr>
<td>Aortography chest and abdomen</td>
</tr>
<tr>
<td>US echocardiography transthoracic resting</td>
</tr>
<tr>
<td>FDG-PET/CT skull base to mid-thigh</td>
</tr>
</tbody>
</table>

Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

*Relative Radiation Level
Findings
Findings

Proximal Descending Aorta = 5.4 cm

Hypoperfusion of the right kidney in early arterial phase

Intimal flap

Dissection extends to just above renal arteries
Final Dx:
Dissecting type B Aortic Aneurysm
Case Discussion: Aortic Dissection

• Typical presentation: sharp, sudden onset, tearing chest pain and hemodynamic instability
• Pathophysiology: A tear in the aortic intima allowing for blood to pass through tear into the media or “false lumen”
• Classification: Stanford type A (ascending aorta and arch) or B (descending aorta)
• Risk Factors: Hypertension, connective tissue disorders (Marfan’s, Ehler Danlos, preexisting aortic aneurysm, aortic coarctation
• Imaging DDX: Must differentiate from intramural hematoma (better visualized on non-contrast CT which will show hyperattenuating crescent and no intimal flap)
• Treatment: Type A: endovascular repair. Type B: medical management
References: