AMSER Case of the Month
August 2020

64-year-old female with recurrent cough and respiratory infections

Haigreeva Yedla
Shaaima Fadhl, M.D.
Peter J. Haar, M.D., Ph.D
Virginia Commonwealth University
Patient Presentation

• HPI:
  • 64-year-old female emigrated from the Philippines 30 years ago
  • Presents to pulmonologist with 6-day history of productive cough of foul smelling, yellow sputum
  • No history of Tuberculosis, never smoker
  • Recurrent cough and infections, treated with antibiotics
  • No hemoptysis, chest pain, wheezing
  • Known right lower lung cavitary lesion, but has previously denied CT imaging due to lack of insurance

• Past Medical History:
  • Asthma, well controlled
  • Right lower lung cavitary lesion

• Medications: Fluticasone propionate, Albuterol

• Physical Exam & Labs: No significant findings
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>
</tr>
</thead>
<tbody>
<tr>
<td>Radiography chest</td>
<td>Usually Appropriate</td>
<td>![辐射水平图标]</td>
</tr>
<tr>
<td>US chest</td>
<td>May Be Appropriate</td>
<td>![辐射水平图标]</td>
</tr>
<tr>
<td>CT chest with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>![辐射水平图标]</td>
</tr>
<tr>
<td>CT chest without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>![辐射水平图标]</td>
</tr>
<tr>
<td>CT chest without IV contrast</td>
<td>Usually Not Appropriate</td>
<td>![辐射水平图标]</td>
</tr>
<tr>
<td>MRI chest without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>![辐射水平图标]</td>
</tr>
<tr>
<td>MRI chest without IV contrast</td>
<td>Usually Not Appropriate</td>
<td>![辐射水平图标]</td>
</tr>
</tbody>
</table>

This imaging modality was ordered by the pulmonologist.
The patient’s initial radiographs were obtained at an outside hospital and are not available.

These topogram scout images from an unenhanced CT study, also obtained at an outside hospital, illustrate the initial radiographic findings.
Findings (unlabeled)

Opacity of the right cardiophrenic angle, suspicious for an abscess, mass, or cyst
Select the applicable ACR Appropriateness Criteria

This imaging modality was ordered by the CT surgeon.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT chest with IV contrast</td>
<td>Usually Appropriate</td>
<td></td>
</tr>
<tr>
<td>CT chest without IV contrast</td>
<td>Usually Appropriate</td>
<td></td>
</tr>
<tr>
<td>MRI chest without and with IV contrast</td>
<td>May Be Appropriate (Disagreement)</td>
<td>O</td>
</tr>
<tr>
<td>MRI chest without IV contrast</td>
<td>May Be Appropriate (Disagreement)</td>
<td>O</td>
</tr>
<tr>
<td>US chest</td>
<td>May Be Appropriate</td>
<td>O</td>
</tr>
<tr>
<td>CT chest without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td></td>
</tr>
</tbody>
</table>

Variant 4: Acute respiratory illnesses in immunocompetent patients with pneumonia complicated by suspected parapneumonic effusion or abscess on initial chest radiograph. Next imaging study.
Findings: (unlabeled)
Lesion with cavitations

Artery (traced to infradiaphragmatic aorta)
Final Dx:

Pulmonary Sequestration
Discussion: Background

• Segment or lobe of dysplastic lung tissue with no communication with the rest of the tracheobronchial tree and receives an anomalous systemic vascular supply, separate from the rest of the lung.
• Nonfunctional tissue
• Rare congenital malformation; derived from primitive foregut
  • Accounts for 0.15% to 6.40% of all congenital lung malformations
• Formation of an accessory lung bud below the normal lung bud that continues to migrate caudally
Discussion: Clinical Presentation and Treatment

- Clinical Presentation
  - Frequently asymptomatic; discovered incidentally in chest CT
  - If symptomatic, recurrent pneumonia

- Usual treatment
  - Pulmonary lobectomy is the treatment of choice
  - Recommended even in asymptomatic patients to avoid infection and progressive inflammation of the lung parenchyma
Discussion: Our patient’s course

• Interventional Radiology
  • Embolization coil of anomalous vessel done 1 day before lobectomy

• CT Surgery
  • Thoracosscopic right lower lobectomy
  • Discharged on post-op day #4
  • No complications

• At 6 month follow up visit with CT Surgery, patient denies chest pain and reports better controlled asthma

• Patient now being followed for pulmonary nodules
Interventional Embolization Imaging

Anomalous vessel (pre-embolization)

Coil embolization; no contrast in anomalous vessel
Post-lobectomy Imaging

Site of lobectomy; pulmonary sequestration removed

Embolization Coil

Site of lobectomy; pulmonary sequestration removed
References: