63-year-old female with shortness of breath, intermittent hemoptysis, and worsening asthma attacks

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Patient Presentation

HPI: 63yo female presents with shortness of breath, intermittent hemoptysis, and worsening asthma attacks

PMH: Asthma, hypercholesterolemia

Meds: Albuterol, Fluticasone, Rosuvastatin

Allergies: Iodine, Levaquin

Vitals: T 38.6 C; SpO2 90%; all other vital signs within normal limits

Physical Exam: Within normal limits
Pertinent Labs

Complete Blood Count and Complete Metabolic Panel are within normal limits
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Procedure</th>
<th>Adult RRL</th>
<th>Peds RRL [ped]</th>
<th>Appropriateness Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma exacerbation, pneumonia or pneumothorax suspected</td>
<td>Radiography chest</td>
<td>&lt;0.1 mSv</td>
<td>&lt;0.03 mSv [ped]</td>
<td>Usually appropriate</td>
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<tr>
<td></td>
<td>CT chest with IV contrast</td>
<td>1-10 mSv</td>
<td>3-10 mSv [ped]</td>
<td>May be appropriate</td>
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<tr>
<td></td>
<td>CT chest without IV contrast</td>
<td>1-10 mSv</td>
<td>3-10 mSv [ped]</td>
<td>May be appropriate</td>
</tr>
<tr>
<td></td>
<td>US chest</td>
<td>0 mSv</td>
<td>0 mSv [ped]</td>
<td>May be appropriate</td>
</tr>
<tr>
<td></td>
<td>CT chest without and with IV contrast</td>
<td>1-10 mSv</td>
<td>3-10 mSv [ped]</td>
<td>Usually not appropriate</td>
</tr>
<tr>
<td></td>
<td>MRI chest without IV contrast</td>
<td>0 mSv</td>
<td>0 mSv [ped]</td>
<td>Usually not appropriate</td>
</tr>
<tr>
<td></td>
<td>MRI chest without and with IV contrast</td>
<td>0 mSv</td>
<td>0 mSv [ped]</td>
<td>Usually not appropriate</td>
</tr>
</tbody>
</table>

**Notes:**
- Ordered by outside facility – findings equivocal
- Ordered by outside facility after CXR
Findings: (unlabeled)
Findings: (labeled)

Mass-like consolidation with multiple cavitations demonstrating dependent air-fluid levels in the right lower lobe.
Findings: (unlabeled)
Findings: (labeled)

Subsequent CTA reveals:

*Anomalous vessel* branching off the *abdominal aorta* near the celiac trunk feeding the consolidation at the right lung base; cavitations and *calcifications* at the right lung base visualized in this section.
Findings: (unlabeled)
Findings: (labeled)

Angio and 3D-images demonstrating the lateral superior course of the anomalous vessel feeding the lower right lobe consolidation and draining into pulmonary vessels, likely veins.
Final Dx:

Bronchopulmonary Sequestration
Bronchopulmonary Sequestration

**Etiology:** Pulmonary sequestration is a rare congenital abnormality in which a portion of the lung dissociates from the bronchopulmonary tree during development and assumes aberrant vascular supply. This case is consistent with intralobar sequestration as it involves a shared visceral pleura of the ectopic region and the adjacent lobe as well as venous drainage via the pulmonary veins. The definitive etiology is currently unknown, though theories such as outpouching of an additional lung bud from the embryonic foregut have been proposed.

**Clinical Presentation:** Cough, recurrent infection, hemoptysis, and chest pain

**Differential Diagnosis:** Chronic consolidation, CPAM, pAVM
Bronchopulmonary Sequestration (cont.)

**Diagnosis:** Pulmonary angiography considered the gold standard, but studies show CT/CTA can aid in diagnosis while reducing radiation exposure; nuclear scan or sonography may also be utilized. Imaging is performed in the context of a patient presenting with pulmonary complaints such as shortness of breath, hemoptysis, and asthma exacerbation shown here.

**Treatment:** Surgical resection of the ectopic lung region is the treatment of choice. Preoperative embolization of the aberrant vasculature has also been implemented in some cases to reduce the risk of intraoperative hemorrhage.
Outcome & Significance

The outcome of this case was **embolization of the anomalous feeder vessel** by interventional radiology and **resection of the sequestration** by cardiothoracic surgery.

The significance of this case is highlighting the imaging findings of bronchopulmonary sequestration. Both clinical presentation and imaging findings of intra- vs extrapulmonary sequestration are not always clear.
References:


Tashtoush B. Pulmonary Sequestration: A 29 Patient Case Series and Review. JCDR. Published online 2015. doi:10.7860/jcdr/2015/16004.7006