

# AMSER Case of the Month

## February 2023

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

Scenario	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Asthma exacerbation, pneumonia or pneumothorax suspected	Radiography chest	<0.1 mSv ⊕	<0.03 mSv [ped] ⊕	Usually appropriate
	CT chest with IV contrast	1-10 mSv ⊕⊕⊕	3-10 mSv [ped] ⊕⊕⊕⊕	May be appropriate
	CT chest without IV contrast	1-10 mSv ⊕⊕⊕	3-10 mSv [ped] ⊕⊕⊕⊕	May be appropriate
	US chest	0 mSv ○	0 mSv [ped] ○	May be appropriate
	CT chest without and with IV contrast	1-10 mSv ⊕⊕⊕	3-10 mSv [ped] ⊕⊕⊕⊕	Usually not appropriate
	MRI chest without IV contrast	0 mSv ○	0 mSv [ped] ○	Usually not appropriate
	MRI chest without and with IV contrast	0 mSv ○	0 mSv [ped] ○	Usually not appropriate

Ordered by outside facility – findings equivocal

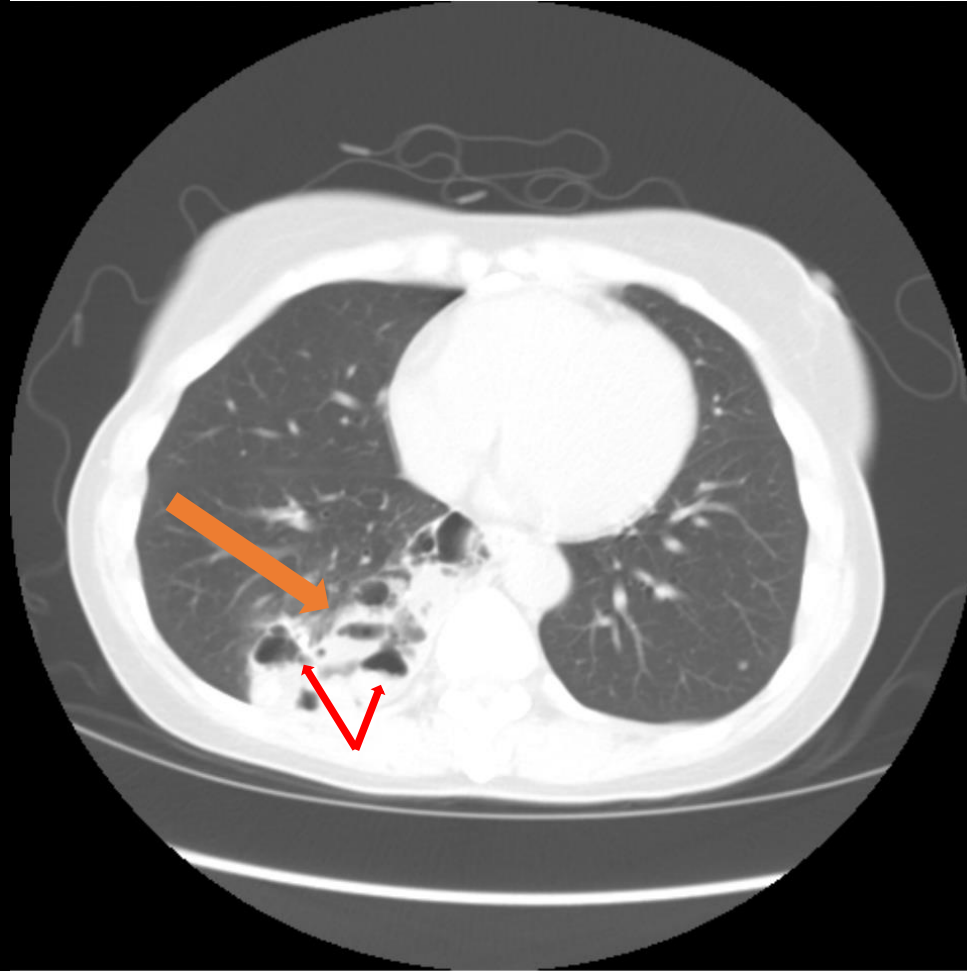
Ordered by outside facility after CXR

Findings: (unlabeled)



# Findings: (labeled)

Mass-like consolidation with multiple **cavitations** demonstrating dependent air-fluid levels in the right lower lobe



Findings: (unlabeled)

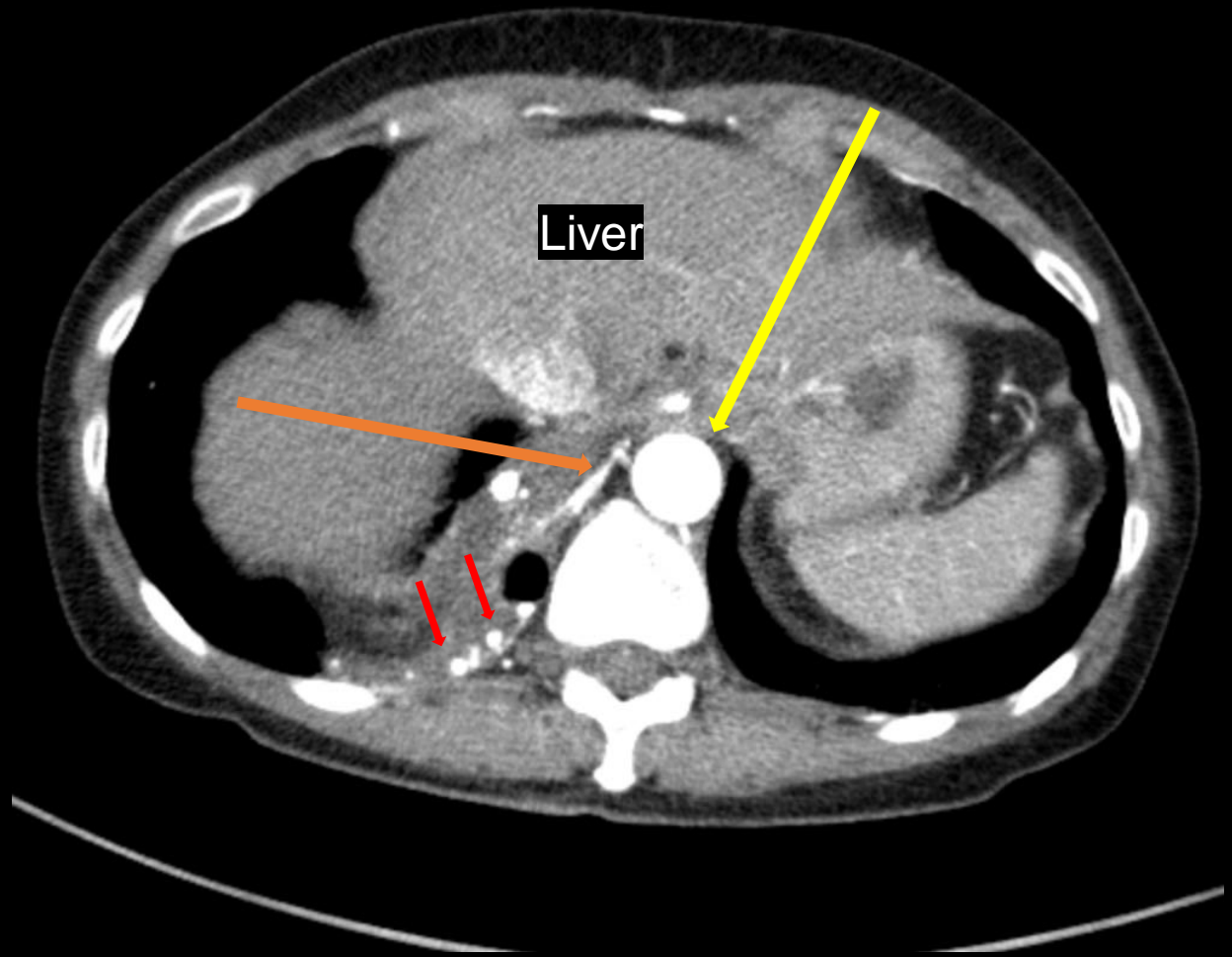




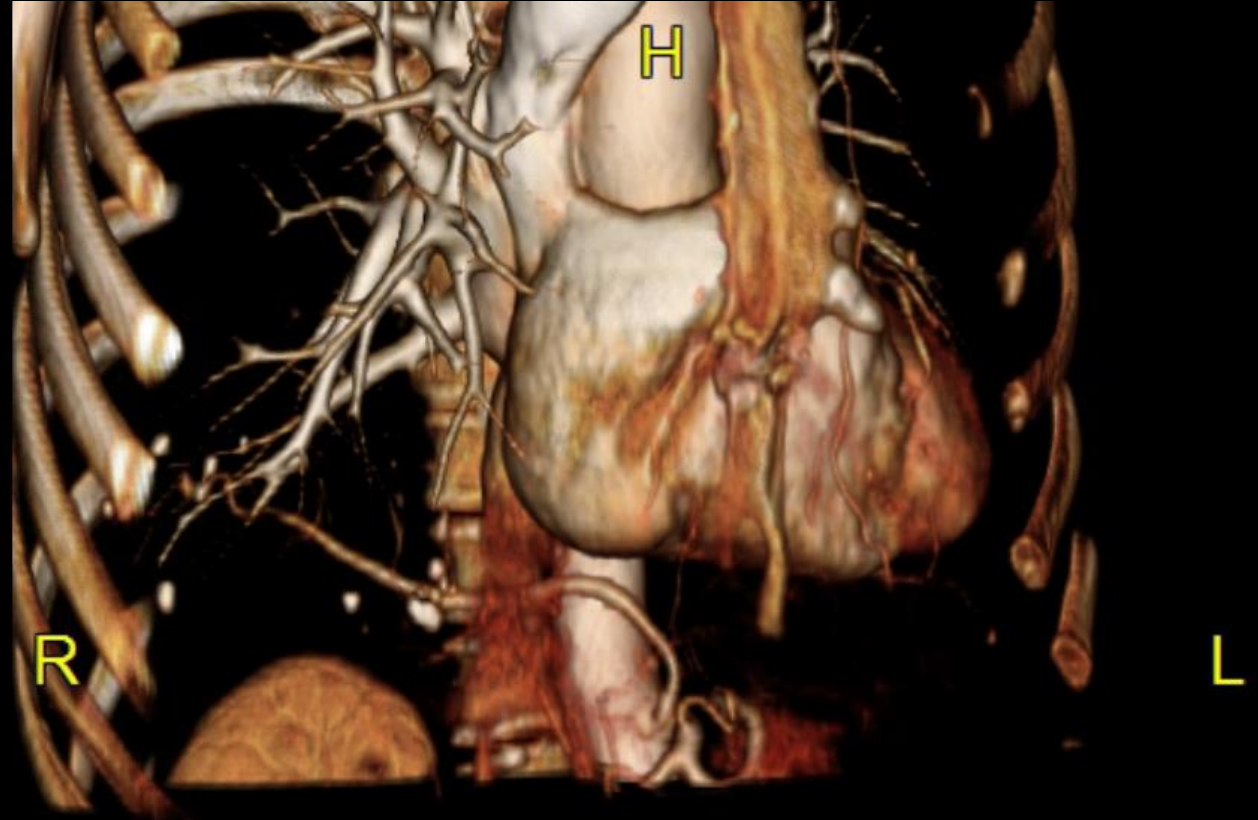
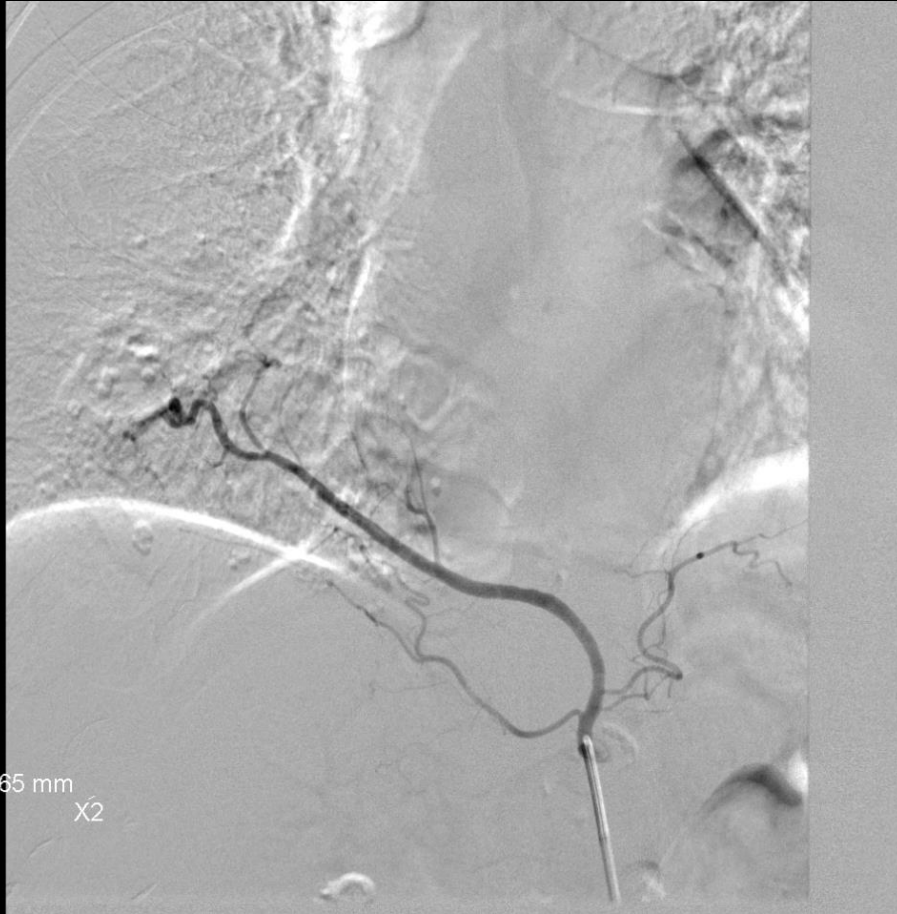
# Findings: (labeled)

Subsequent CTA reveals:

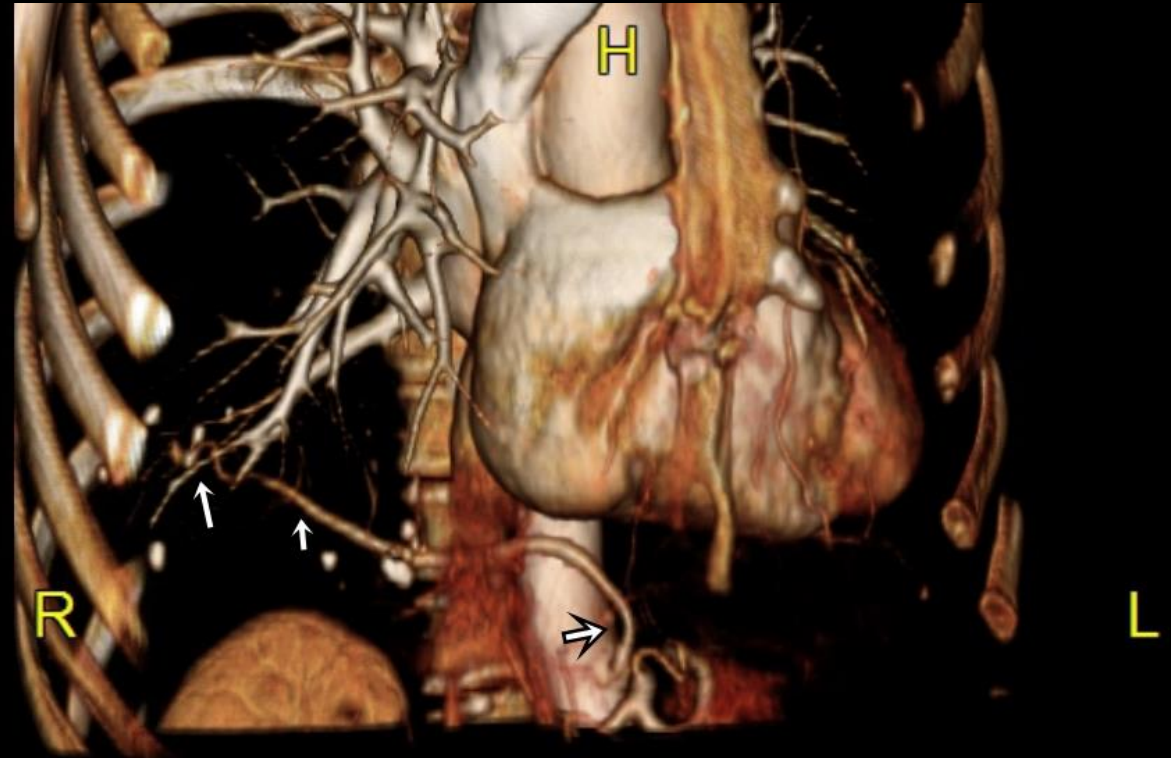
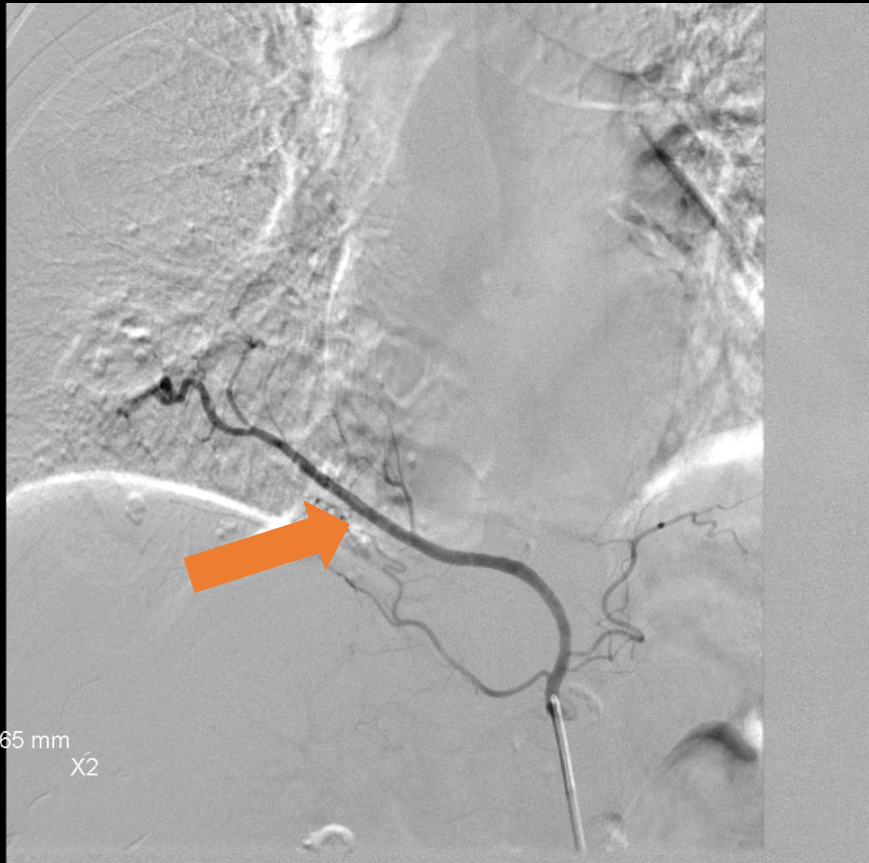
**Anomalous vessel** branching off the **abdominal aorta** near the celiac trunk feeding the consolidation at the right lung base; **cavitations and calcifications at the right lung base** visualized in this section



# 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:

Abbey P, Das C, Pangtey G, Seith A, Dutta R, Kumar A. Imaging in bronchopulmonary sequestration. *Journal of Medical Imaging and Radiation Oncology*. 2009;53(1):22-31. doi:10.1111/j.1754-9485.2009.02033.x

Avsenik J, Štupnik T, Popovič P. Endovascular embolization prior to surgical resection of symptomatic intralobar pulmonary sequestration in an adult. *European Journal of Radiology Open*. 2016;3:12-15. doi:10.1016/j.ejro.2015.11.001

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