

# 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 cavitory lesion, but has previously denied CT imaging due to lack of insurance
- **Past Medical History:**
  - Asthma, well controlled
  - Right lower lung cavitory lesion
- **Medications:** Fluticasone propionate, Albuterol
- **Physical Exam & Labs:** No significant findings

What Imaging Should We Order?

# Select the applicable ACR Appropriateness Criteria

**Variant 2:** Acute respiratory illnesses in immunocompetent patients with positive physical examination, abnormal vital signs, organic brain disease, or other risk factors. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
Radiography chest	Usually Appropriate	☼
US chest	May Be Appropriate	○
CT chest with IV contrast	Usually Not Appropriate	☼ ☼ ☼
CT chest without and with IV contrast	Usually Not Appropriate	☼ ☼ ☼
CT chest without IV contrast	Usually Not Appropriate	☼ ☼ ☼
MRI chest without and with IV contrast	Usually Not Appropriate	○
MRI chest without IV contrast	Usually Not Appropriate	○

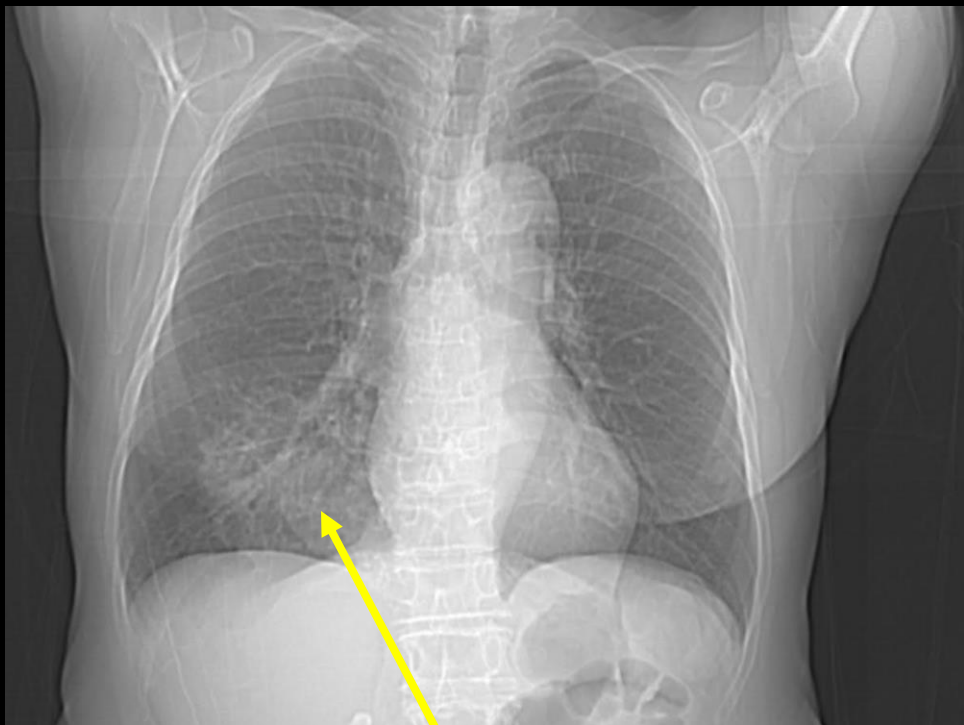
This imaging modality was ordered by the pulmonologist

# Findings (unlabeled)



- 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

**Variant 4:**

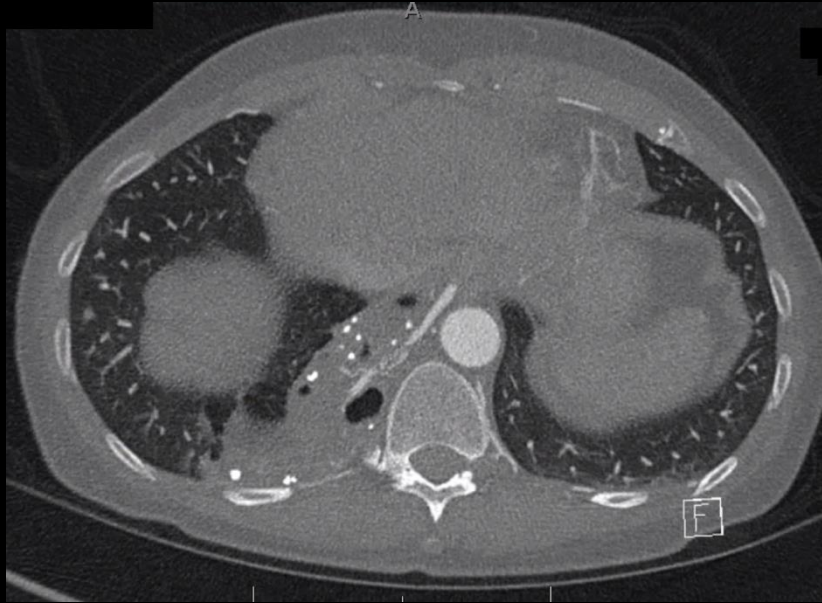
**Acute respiratory illnesses in immunocompetent patients with pneumonia complicated by suspected parapneumonic effusion or abscess on initial chest radiograph. Next imaging study.**

Procedure	Appropriateness Category	Relative Radiation Level
CT chest with IV contrast	Usually Appropriate	☼ ☼ ☼
CT chest without IV contrast	Usually Appropriate	☼ ☼ ☼
MRI chest without and with IV contrast	May Be Appropriate (Disagreement)	○
MRI chest without IV contrast	May Be Appropriate (Disagreement)	○
US chest	May Be Appropriate	○
CT chest without and with IV contrast	Usually Not Appropriate	☼ ☼ ☼

This imaging modality was ordered by the CT surgeon

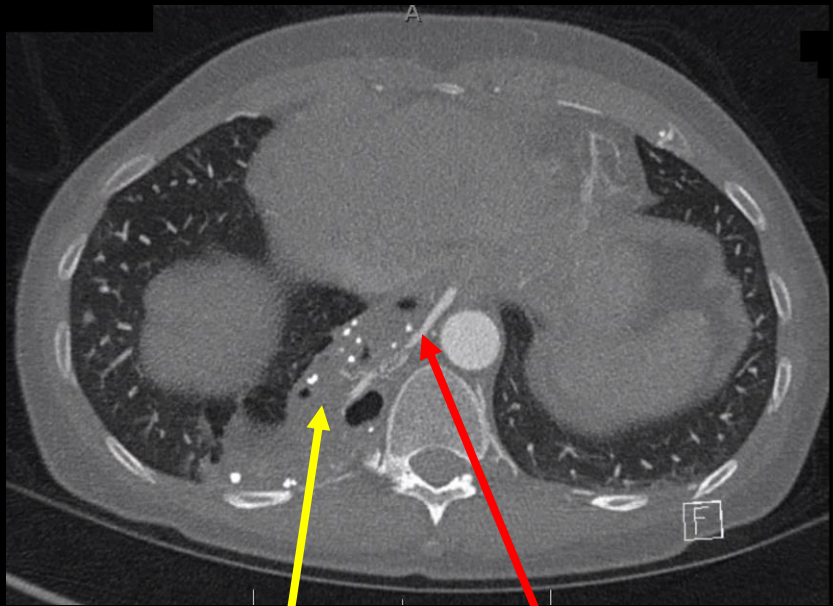


# Findings: (unlabeled)



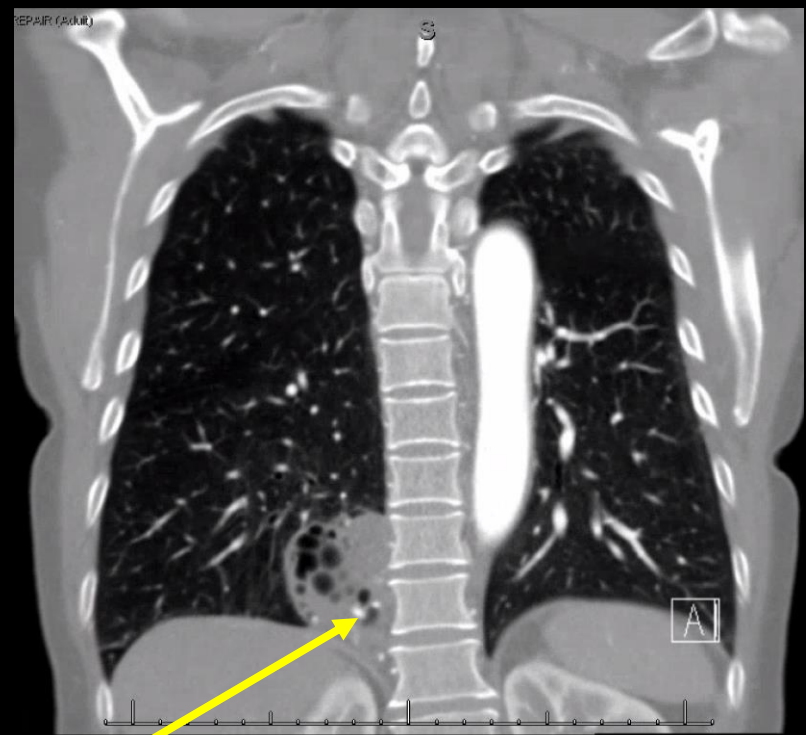


# Findings (labeled)



Artery (traced to infradiaphragmatic aorta)

Lesion with caviations



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

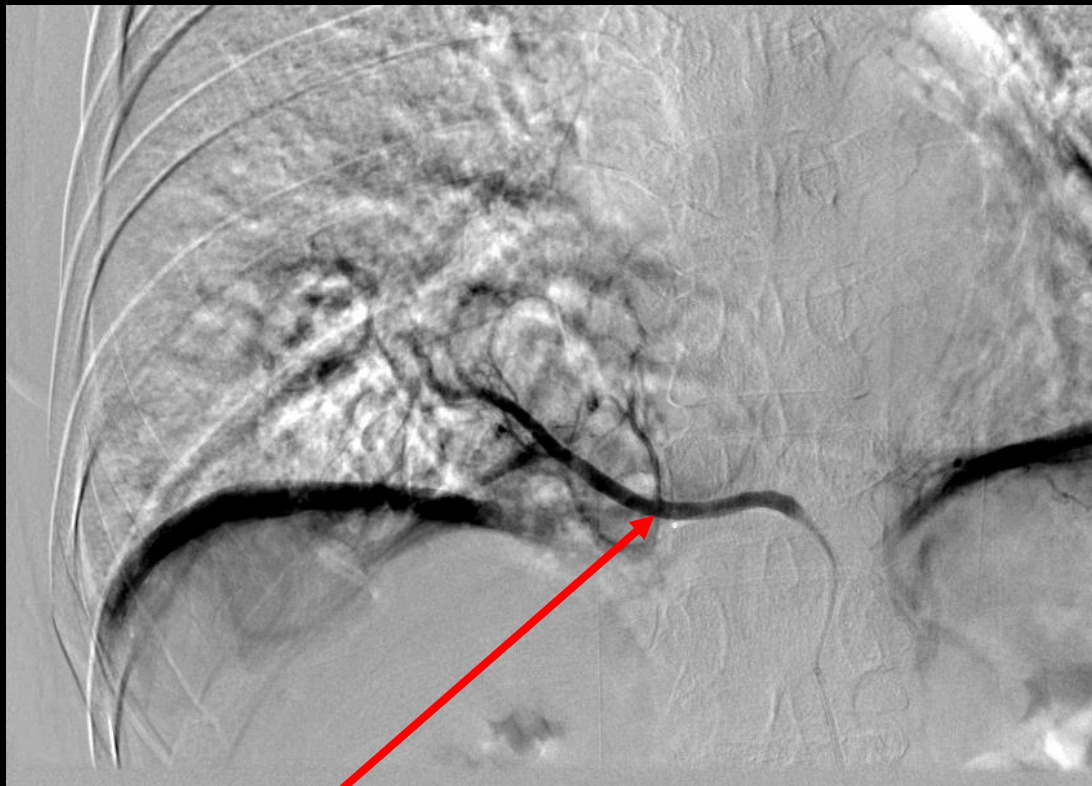
# Discussion: Clinical Presentation and Treatment

- 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
  - Thoracoscopic 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



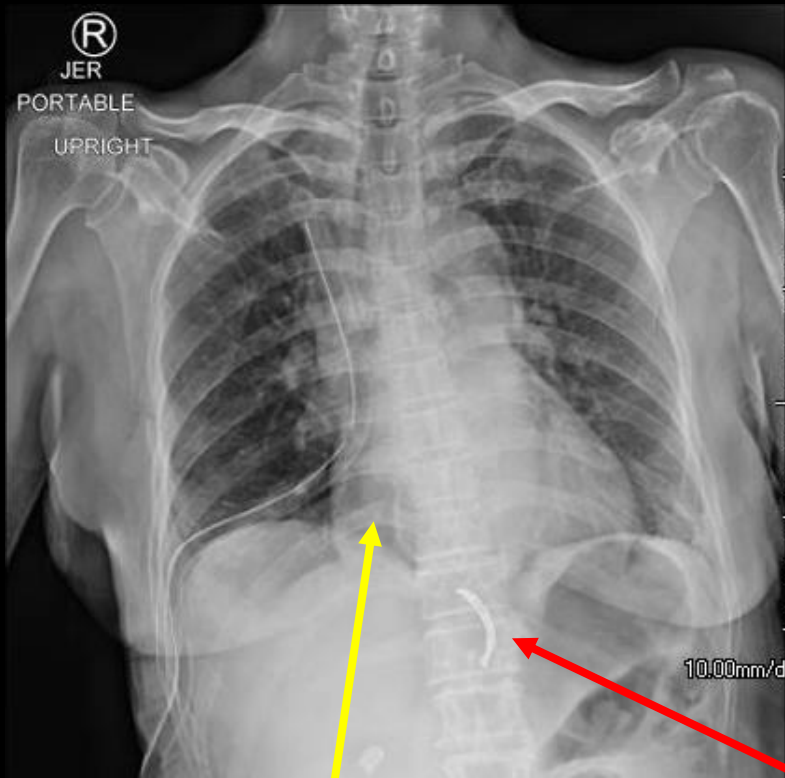
Anomalous vessel  
(pre-embolization)



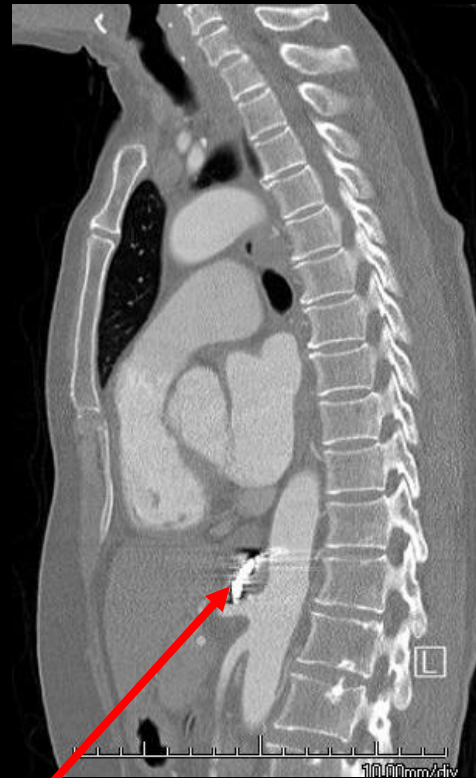
Coil embolization;  
no contrast in  
anomalous vessel



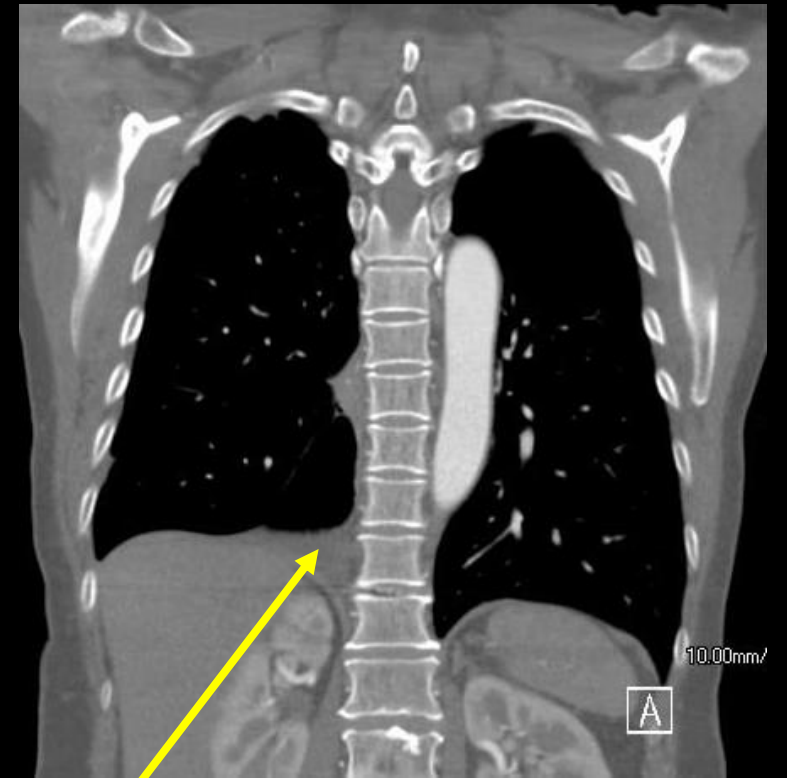
# Post-lobectomy Imaging



Site of lobectomy; pulmonary sequestration removed



Embolization Coil



Site of lobectomy; pulmonary sequestration removed



# References:

1. ACR Appropriateness Criteria: Acute Respiratory Illness in Immunocompetent Patients. American College of Radiology. <https://acsearch.acr.org/docs/69446/Narrative/>. Updated 2018.
2. Pulmonary sequestration. (n.d.). Retrieved July 15, 2020, from <https://rarediseases.info.nih.gov/diseases/4593/pulmonary-sequestration>
3. Chakraborty RK, Modi P, Sharma S. Pulmonary Sequestration. [Updated 2020 Jun 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK532314/>