

Department of Radiology – Case of the Month #4

Part 1 – Identifying Abnormalities

75-year-old female patient with SOB and exertional dyspnea. A chest x-ray is ordered (Figures 1 and 2):

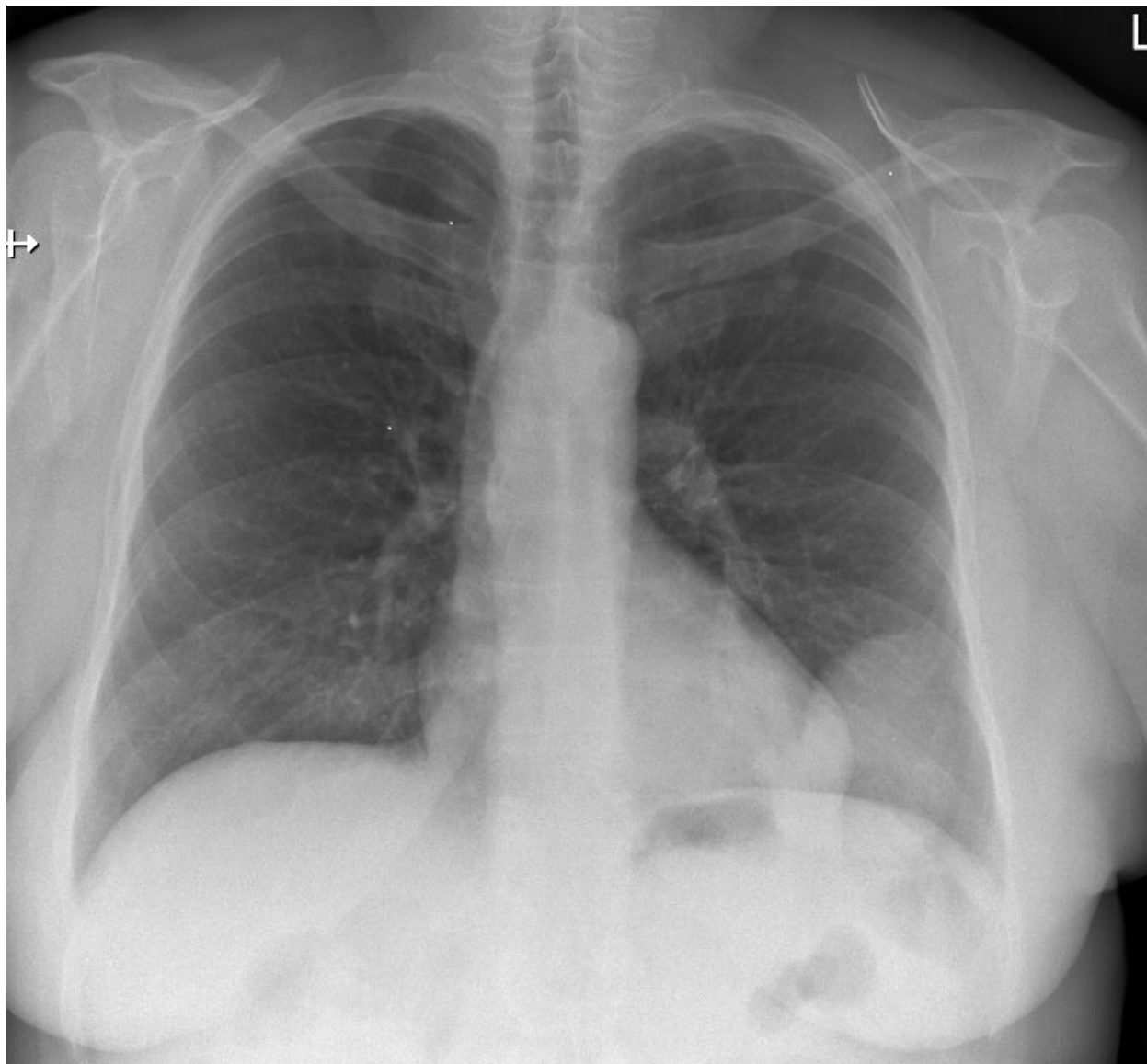


Figure 1: PA View



Figure 2: Lateral View

Prompting Questions:

- 1) Can you identify any abnormalities in the above scans?
- 2) How would you characterize the abnormality/abnormalities?
-too white or too black? Shape? Borders?
- 3) Can you localize the abnormality?
-what are the possible locations?
-is a definitive localization possible with these two scans?

Part 2 – Characterization and Localization

Examination reveals the following principal finding, outlined below:

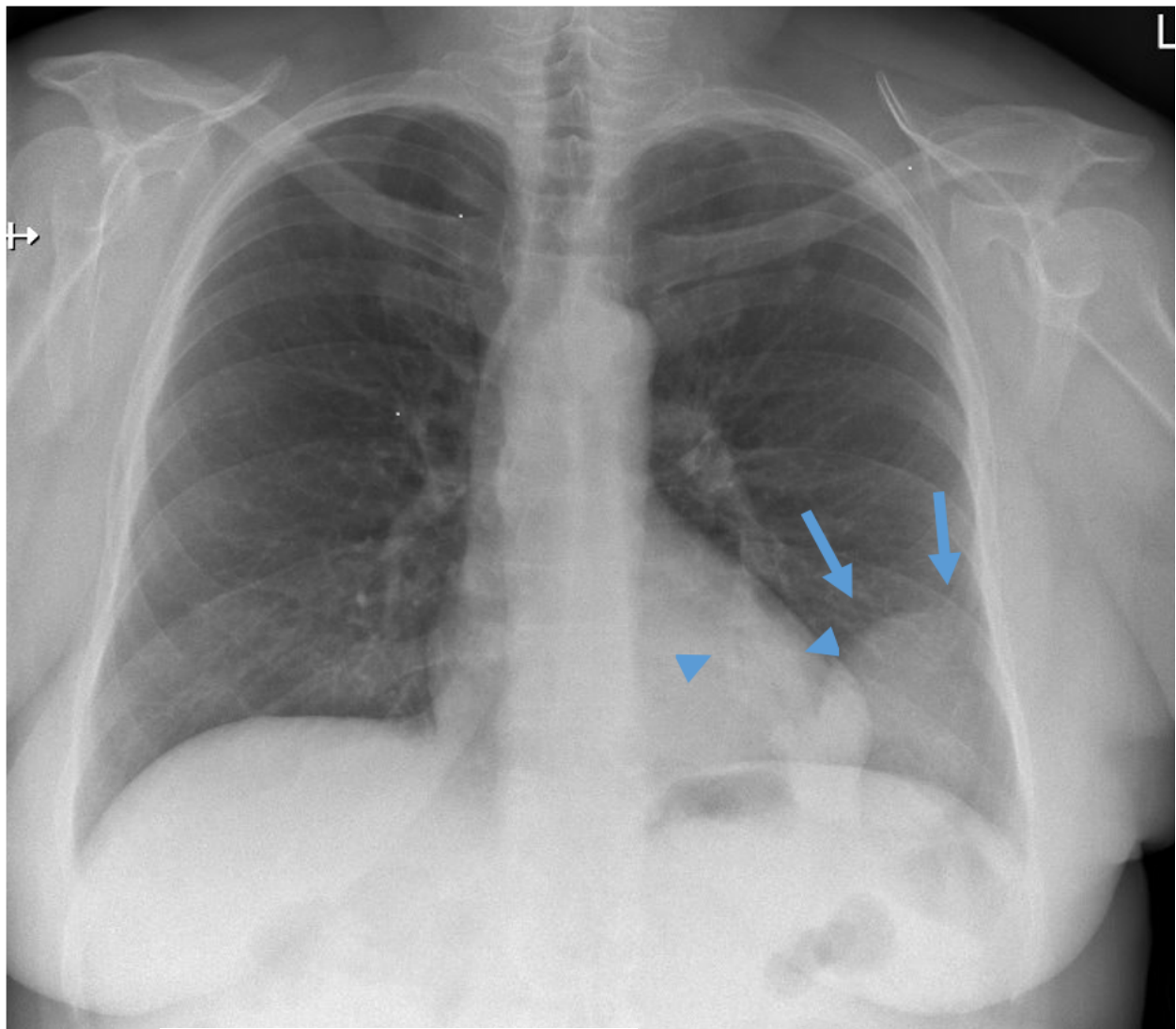


Figure 3: A well-circumscribed, non-calcified mass (arrow) which lies within the left lung. Tubular elongated structures (arrowheads) are seen extending from the mass coursing towards the left hilum.

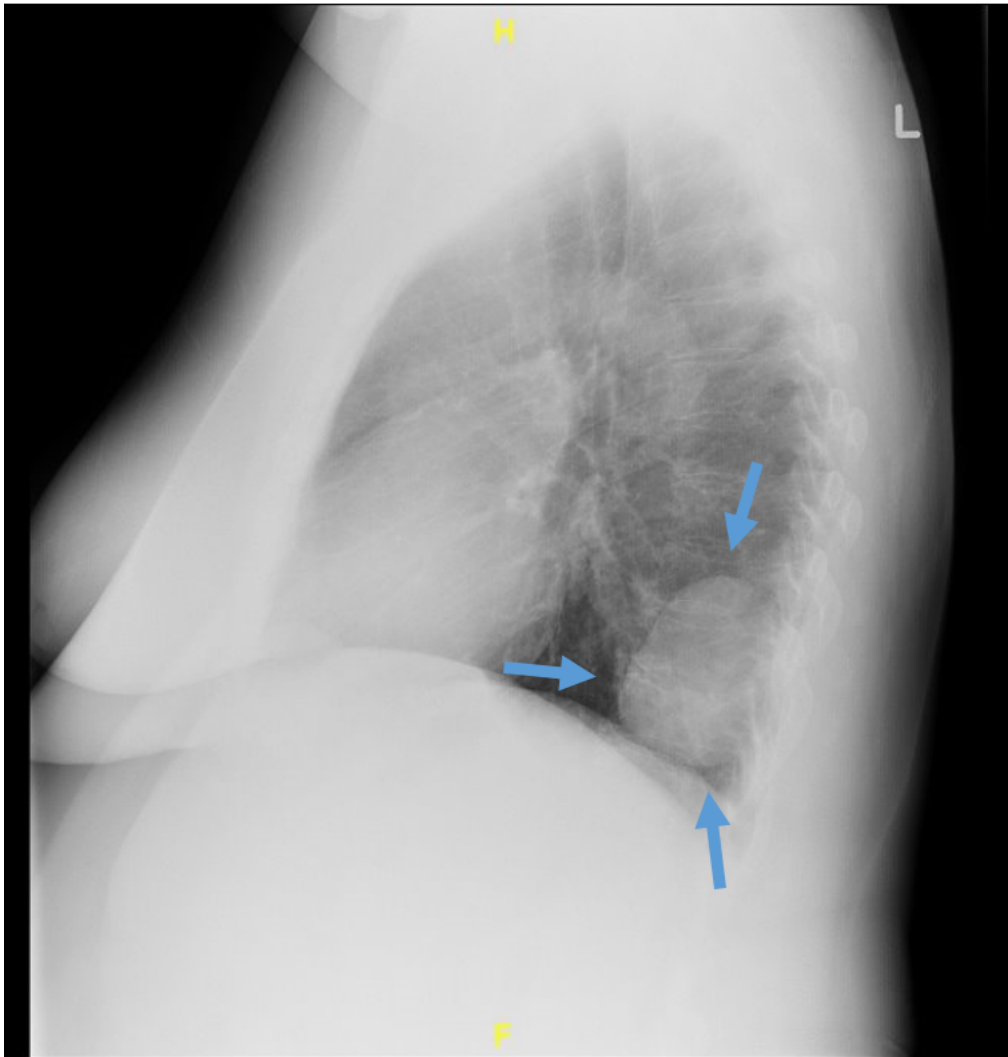


Figure 4: Lateral Chest X-ray. A well-circumscribed, non-calcified mass (arrows) lies posteriorly within the left lung.

The PA X-ray shows a large well-circumscribed, non-calcified mass (Fig. 3) overlying the inferior left side of the chest. There are tubular elongated structures that appear to emanate from the mass coursing towards the left hilum. On first glance, you may think that this mass is associated with the left breast. However, when you look on the lateral x-ray (Fig. 4) you can see that this mass (arrows) lies posterior and by process of elimination can only lie within the left lung.

Prompting Questions:

- 1) What is on your differential diagnosis at this point?
 - how does the clinical history inform our differential?
 - how does the shape / character / potential location of the abnormality help us refine our differential?
- 2) How do we know this mass is “non-calcified?”
 - what is the significance of this finding?
 - how does this refine our differential?
- 3) What do you think the tubular elongated structures emanating from the mass are?
 - how does their presence help refine our differential?
- 4) What are the next steps?

Part 3 – CT Correlation

To further characterize the abnormality, a Chest CT scan was performed (Figures 5 and 6):

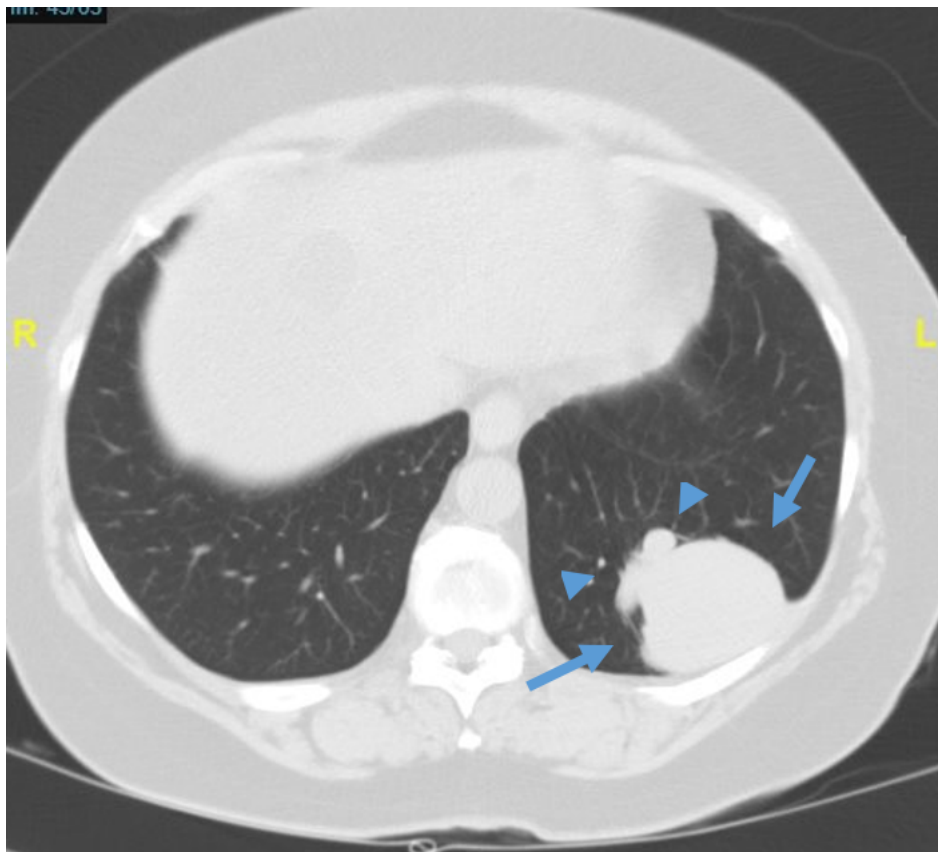


Figure 5: Axial CT scan. A well-circumscribed, non-calcified mass (arrows) is confirmed within the left lung. Tubular elongated structures (arrowheads) are seen extending from the mass.

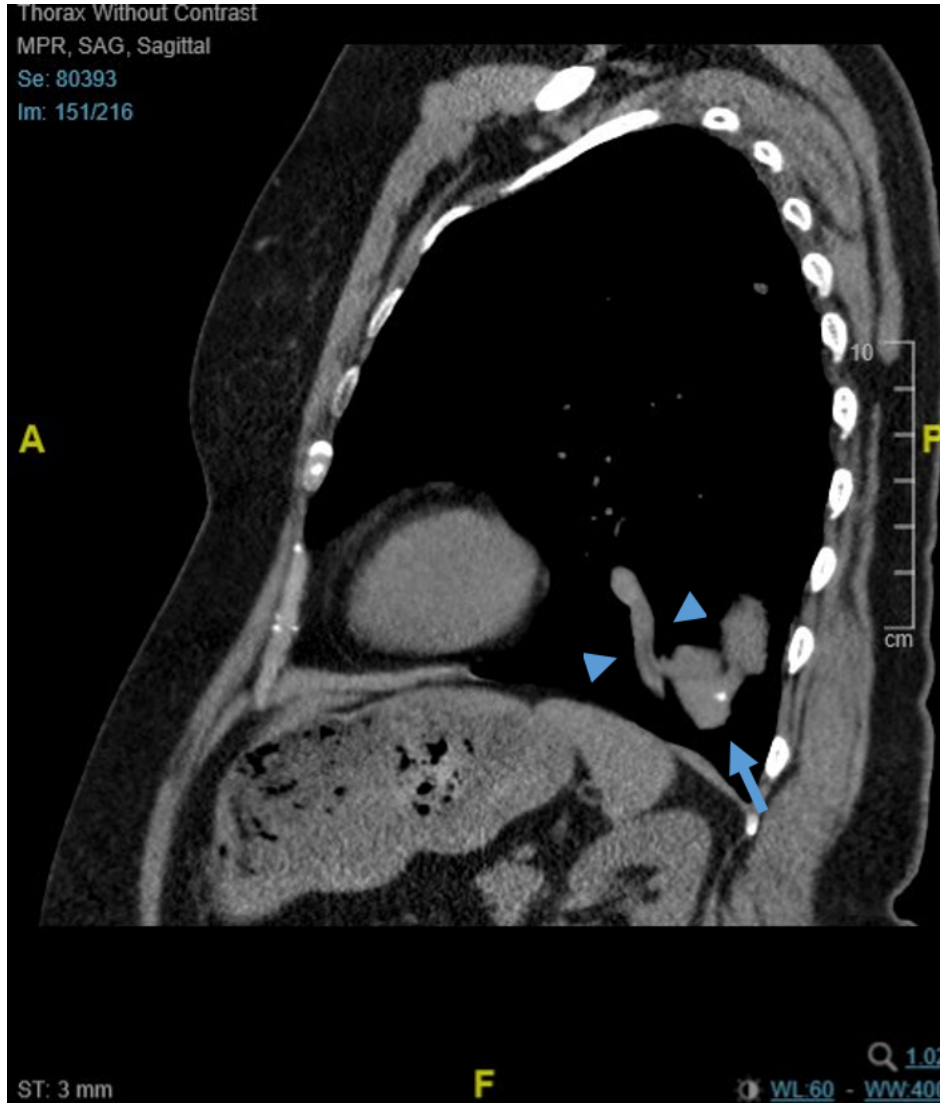


Figure 6: Sagittal CT scan. Tubular elongated structures (arrowheads) are seen extending from the mass (arrows). Note the presence of a small focal area of calcification within the mass (phlebolith).

Prompting Questions:

- 1) Why was the CT ordered?
- 2) What new information has it given us?
- 3) What is the definitive location of the abnormality and what is your diagnosis?
- 4) Next steps for diagnosis and management?

Commentary:

75-year-old female patient who presents with exertional dyspnea. The CXR and CT scan shows a smooth, well-defined lesion in the left lower lobe, with pulmonary arterial branches extending into the lesion and pulmonary veins extending out of the lesion.

Diagnosis:

Pulmonary Arteriovenous Malformation

This was successfully treated by pulmonary angiogram (Fig. 7 and 8) and embolization with coils (Fig. 9) by Interventional radiology. The follow-up chest Xray (Fig. 10) shows complete resolution of the PAVM. The patient's symptoms completely resolved a few weeks after the procedure.



Figure 7: Pulmonary Angiogram. Pulmonary artery injection of contrast shows blood vessels (arrow) leading into a large blood-filled space (arrowheads).



Figure 8: Delayed images show large veins (arrow) draining from the lesion into the left hilum.



Figure 9: Post-embolization images show coils (arrows) within the arterial portion of the Pulmonary Arteriovenous Malformation.

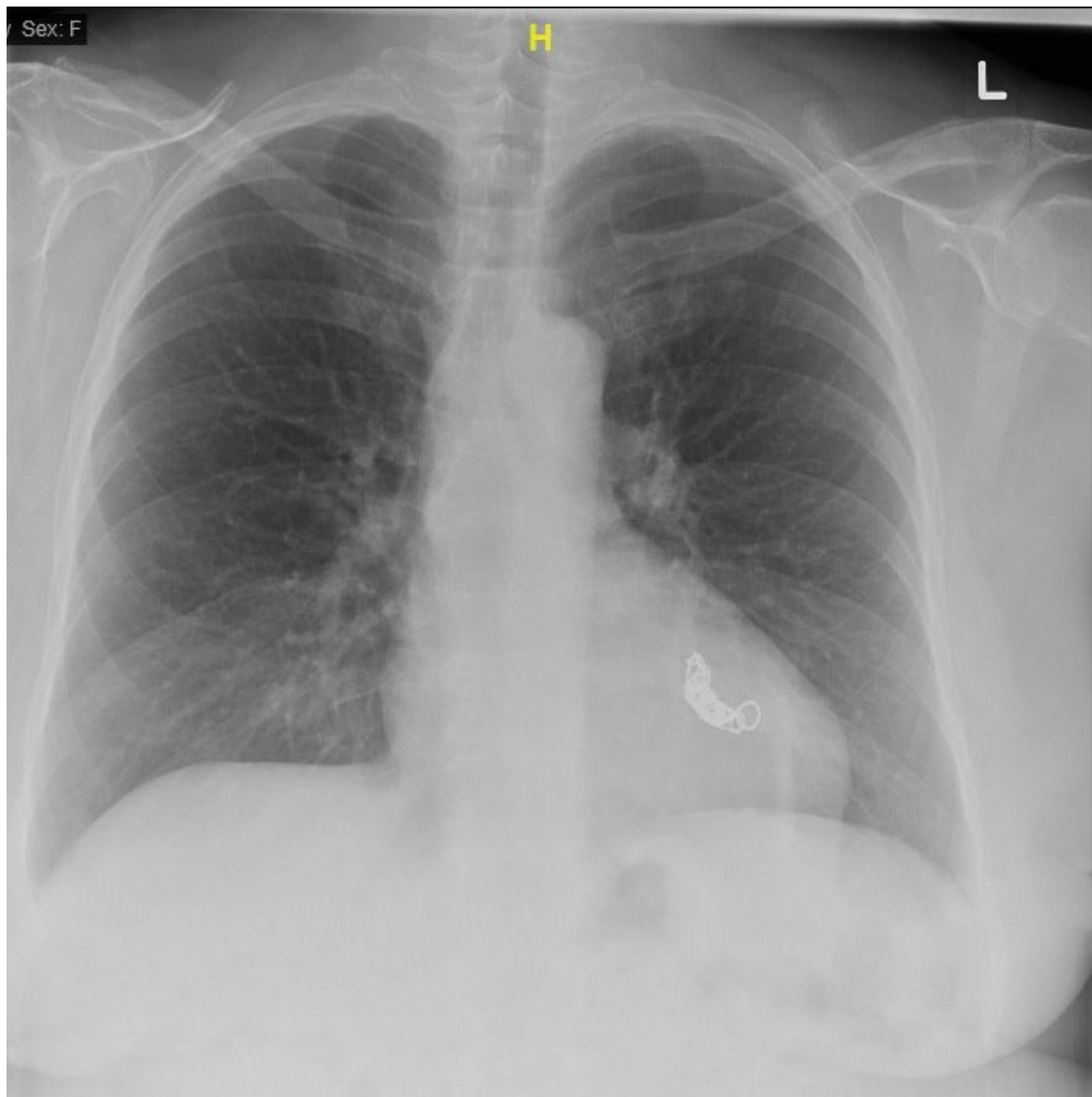


Figure 10: PA Chest X-ray. The follow-up post-embolization chest Xray shows complete resolution of the PAVM.