

## Learning Objectives

1. Discuss a masquerader of fungal pneumonia on imaging
2. Review the importance of avoiding preliminary closure and maintaining a broad differential diagnosis

## Background and Case Presentation

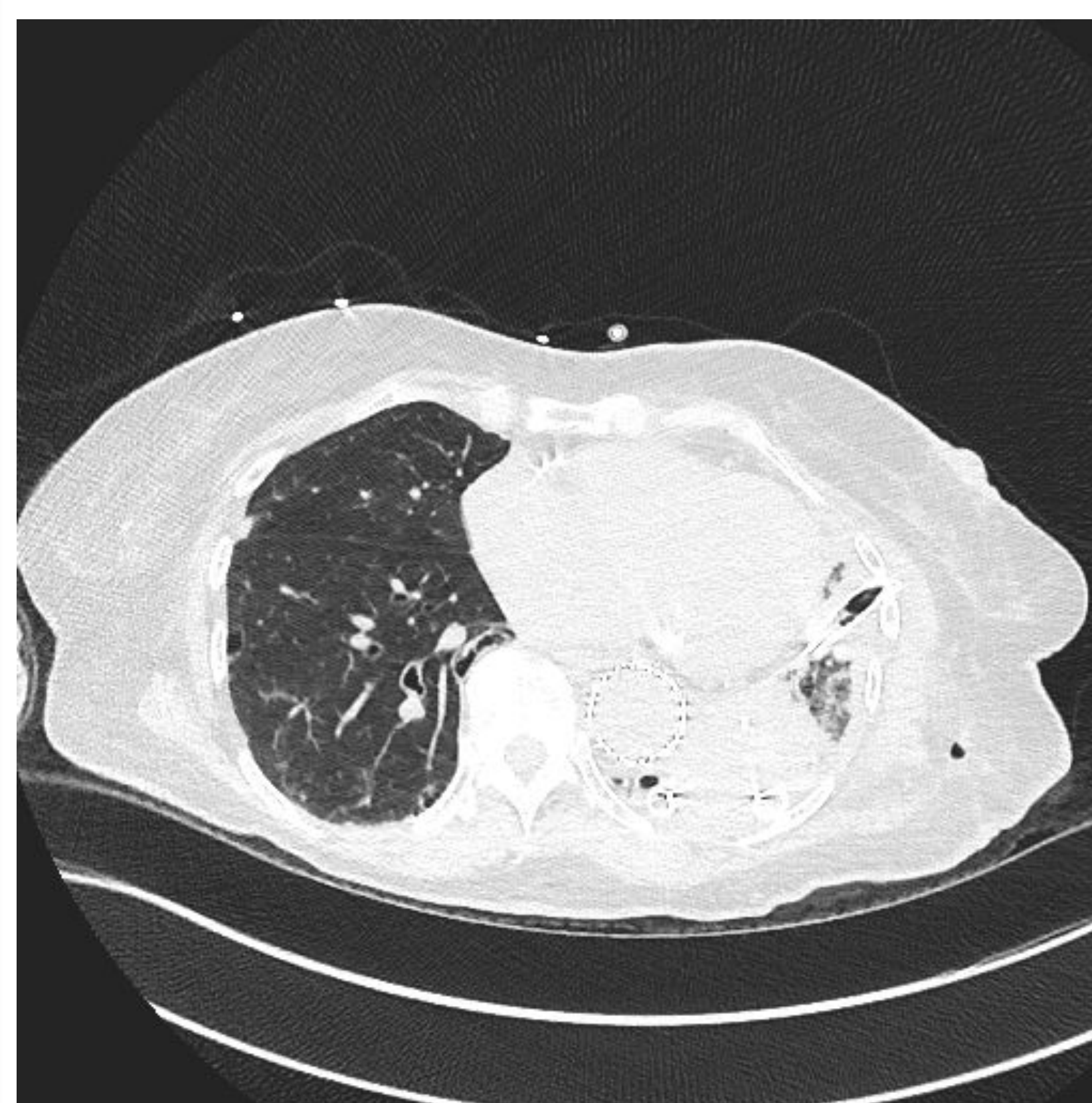
**84-year-old female w/ a history of aortic ulcer post-TEVAR, CAD, and untreated rheumatoid arthritis presenting with chronic hemoptysis.**

- **December 2023:**
  - Patient first noticed an isolated occurrence of small-volume hemoptysis without additional symptoms.
  - Patient deferred medical evaluation.
- **May 2024:**
  - Patient reports second instance of hemoptysis with teaspoon-sized volume of blood.
  - Patient denied infectious symptoms, marked changes in her respiratory status/functional baseline, and signs of significant anemia, but she presented to the ED for evaluation.
- **Hospitalization in May 2024:**
  - CT chest revealed lower lobe cystic changes w/ surrounding groundglass opacities, raising concern for a chronic fungal infection.
  - Despite negative Aspergillus IgG and no clinical improvement with empiric antimicrobial treatment, the characteristic “halo sign” on imaging sustained high suspicion for fungal infection.
  - With no further hemoptysis during her inpatient stay, she opted for discharge and outpatient surveillance with serial lung CT scans.
- **July 2024:**
  - After discharge, the patient experienced another episode of 2 oz hemoptysis, prompting readmission.
  - CT imaging showed increased consolidation within cystic spaces, suggestive of a progressive fungal infection.
  - She remained hemodynamically stable with unchanged hemoglobin, and she denied significant systemic symptoms.

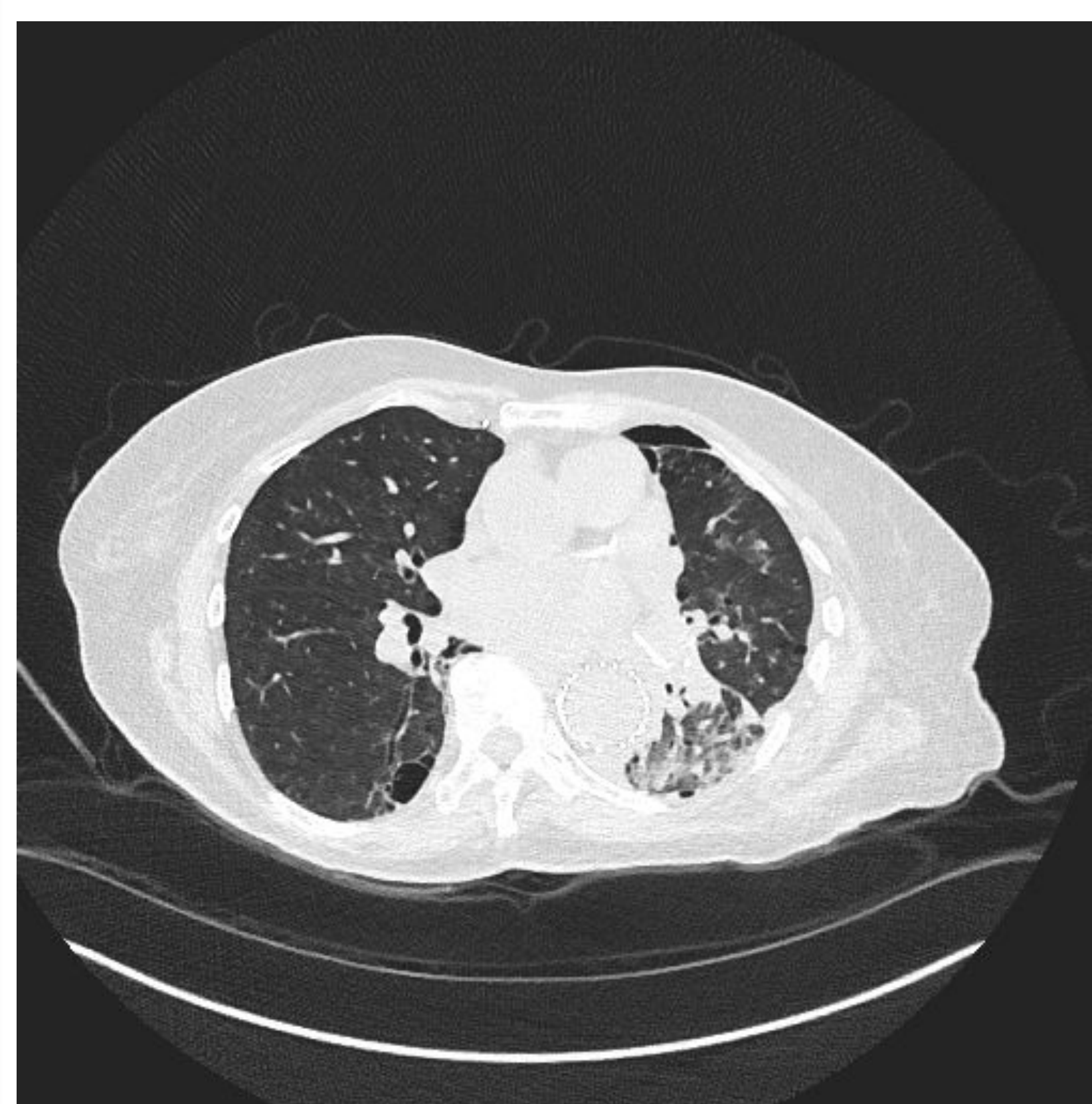
## Imaging



**Fig 1.** 5/13/24 CTPE protocol with diffuse, lower lobe predominant regions of subpleural cystic change, which may be manifestations of rheumatoid-related or other interstitial lung disease. More focal region of cystic change at the left lung base with internal solid component can be seen in the setting of neoplastic or atypical/fungal infectious processes.



**Fig 2.** 7/4/24 CT w/o contrast with postsurgical changes of recent left lower lobe basilar segmentectomy resection of prior mycetoma. Evidence of occlusion of the distal left mainstem bronchus with complete atelectasis vs. consolidation of the residual left lower lobe.



**Fig 3.** 7/12/24 CT w/o contrast with improved aeration of the left lower lobe, but there is nonetheless persistent rounded atelectasis and surrounding groundglass change/consolidation along with small left pleural effusion. This likely represents improving infection/pneumonia. No evidence of cavitory lesion.

## Clinical Course

- Given the recurrent hemoptysis and progressive imaging findings, she was started on empiric PO posaconazole.
- Interventional Radiology (IR) was consulted for intracavitary amphotericin injection versus bronchial artery embolization.
- After discussions, the team opted for a surgical consultation for pathological confirmation, leading to a left lower lobe segmentectomy.
- Surprisingly, surgical pathology revealed no fungal infection but rather intralobar bronchopulmonary sequestration, a rare congenital anomaly where nonfunctional pulmonary tissue develops separately from the functional tracheobronchial tree and may present as hemoptysis in older adults.

## Discussion

- This case exemplifies the diagnostic challenges in managing hemoptysis, especially with complex patient histories and suspicious imaging findings.
- Initial imaging and clinical presentation strongly suggested a fungal etiology, guiding treatment toward empiric antifungal therapy and potential intracavitary intervention.
  - Intracavitary amphotericin was first discussed by Hargis et al. in 1980; in a small case series of 6 patients, 4 demonstrated radiographic improvement with this therapeutic approach [1].
- The decision to pursue surgical intervention over intracavitary amphotericin was pivotal. Sole reliance on the initial fungal hypothesis could have led to unnecessary iatrogenic risks without discovering the true pathology.

## References

- [1] James L. Hargis, Roger C. Bone, Jerry Stewart, Nancy Rector, F.Charles Hiller, Intracavitary amphotericin B in the treatment of symptomatic pulmonary aspergillomas, The American Journal of Medicine, Volume 68, Issue 3, 1980, Pages 389-394, ISSN 0002-9343.