AMSER Case of the Month: August 2019

Dyspnea

Bushra Z. Manzar, MS4
University of Kentucky College of Medicine

Andres R. Ayoob, MD
University of Kentucky

Patient Presentation

36 year-old Caucasian male presented to the emergency department with a five-day history of acute onset of dyspnea

•PMHx: dyspnea, recent bilateral pneumonia

•Social Hx:

- 15 pack-year smoking history, quit 2 years ago. Currently vapes
- Work: exposure to concrete and wood dust
- No alcohol use or recent travel

Additional Workup

•Spirometry – Restrictive pathology

•Bronchoscopy

- Biopsy → Non-caseating granulomatous inflammation
- BAL → Macrophage predominant. Gram stain negative for organisms. No malignancy. Acid fast stain negative.

•Histoplasma UAT – negative

•HIV – non-reactive

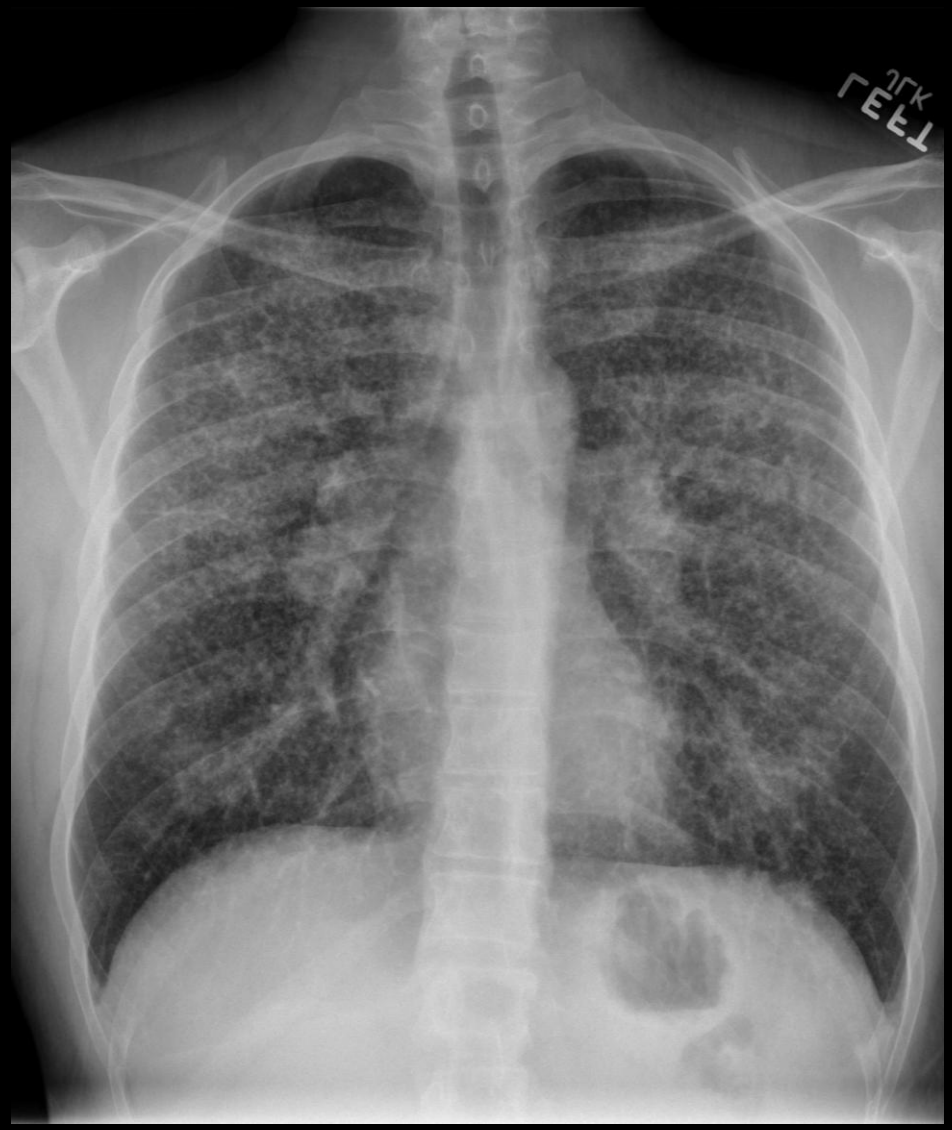
What Imaging Should We Order?
ACR Appropriateness Criteria

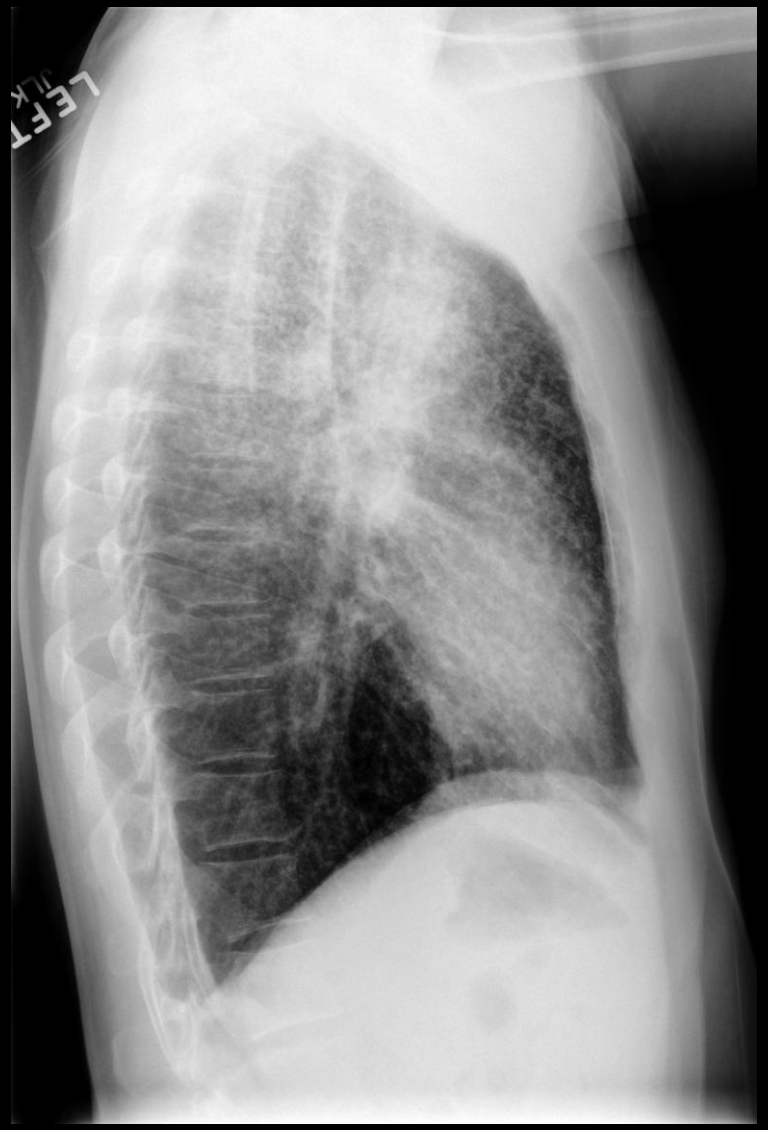
Variant 4: **Chronic dyspnea. Suspected interstitial lung disease. Initial imaging.**

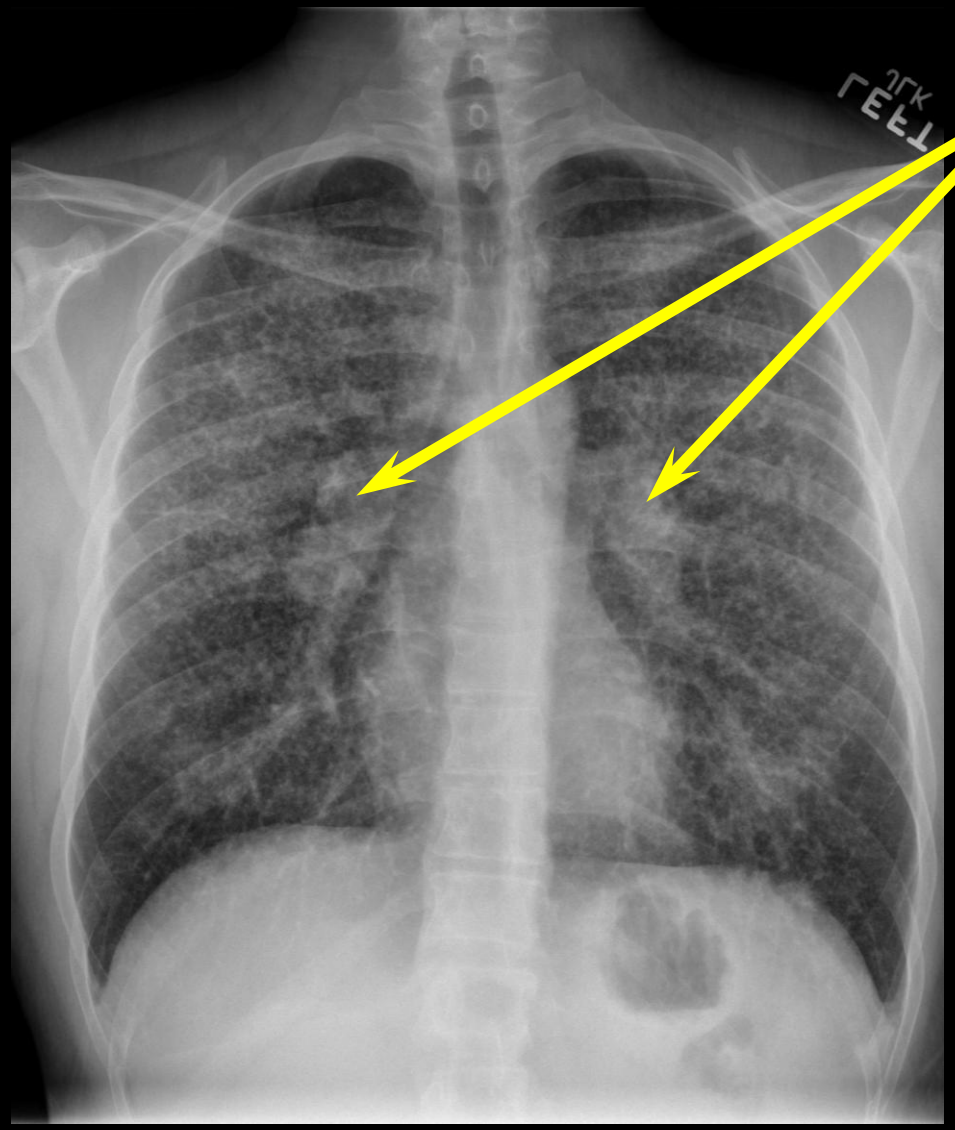
Procedure	Appropriateness Category	Relative Radiation Level
CT chest without IV contrast	Usually Appropriate	☢☢☢
Radiography chest	Usually Appropriate	☢
CT chest with IV contrast	May Be Appropriate (Disagreement)	☢☢☢
MRI chest without and with IV contrast	Usually Not Appropriate	O
MRI chest without IV contrast	Usually Not Appropriate	O
US chest	Usually Not Appropriate	O
CT chest without and with IV contrast	Usually Not Appropriate	☢☢☢
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	☢☢☢☢

Radiography was performed followed by Chest CT without IV contrast.

AMSER

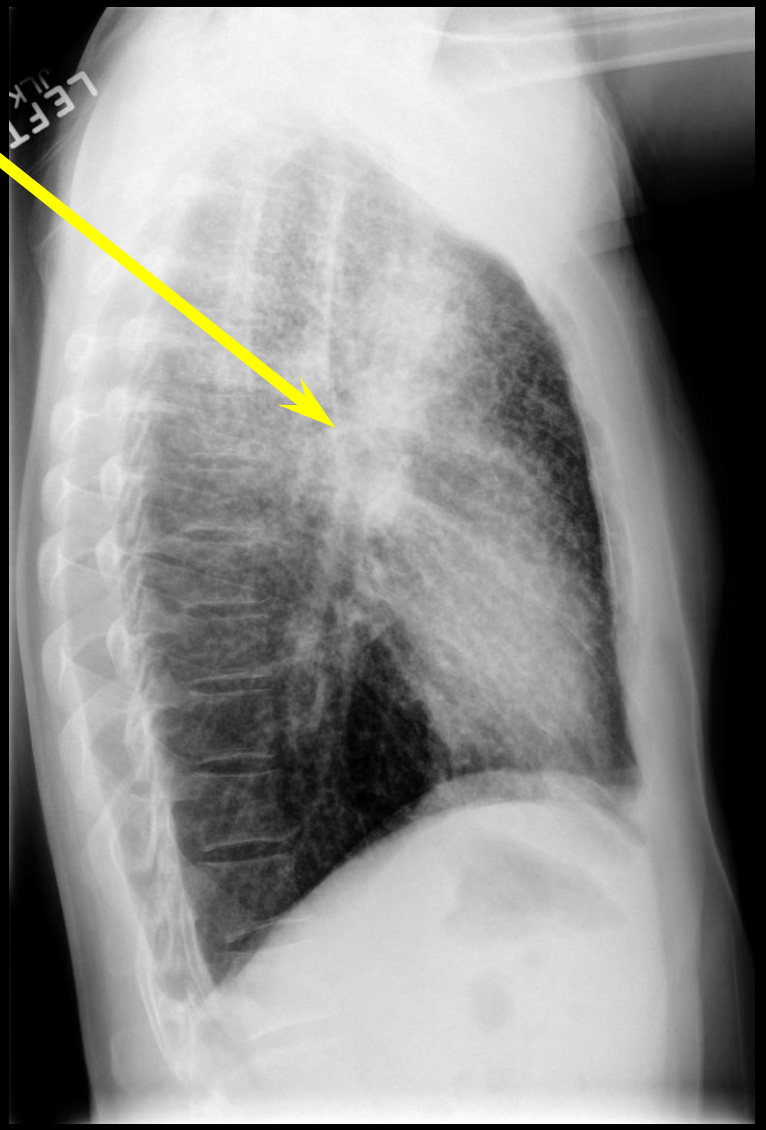




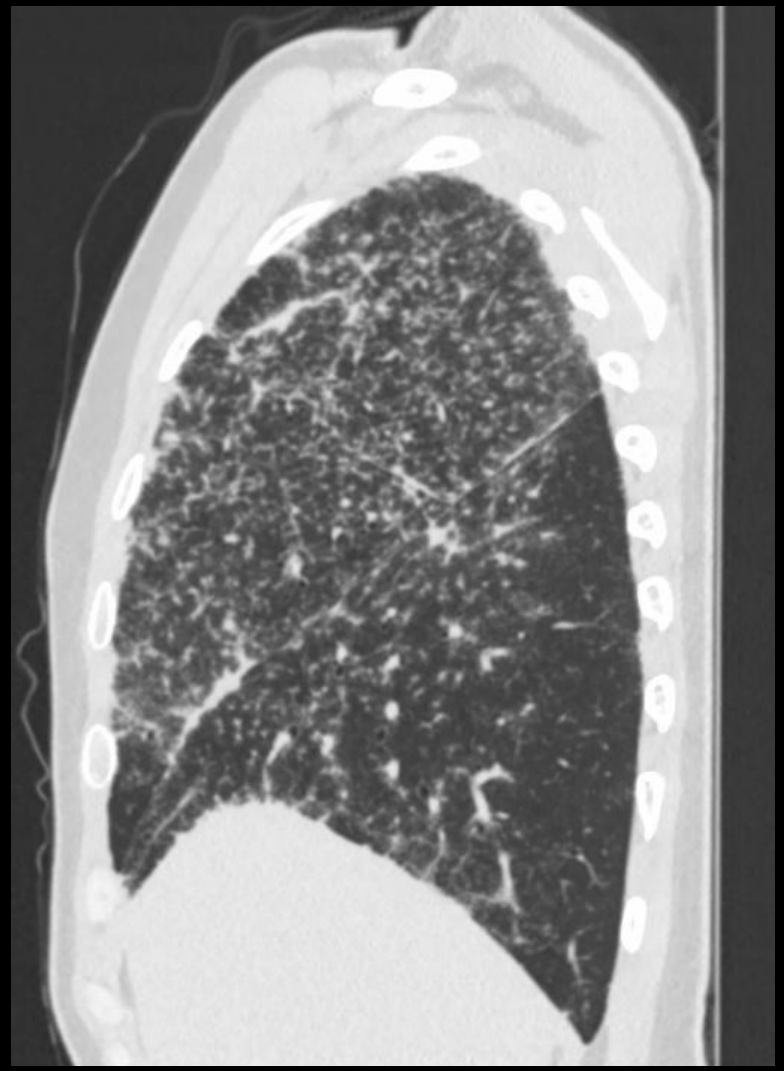


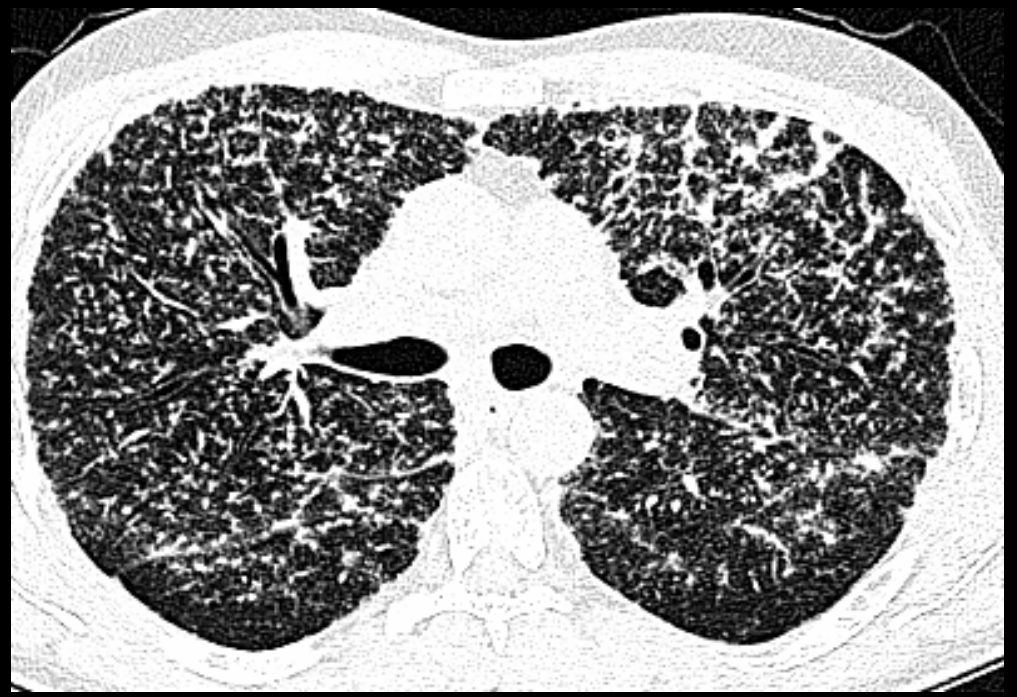
Bilateral hilar adenopathy

Tiny nodules in both lungs with upper lung predominance



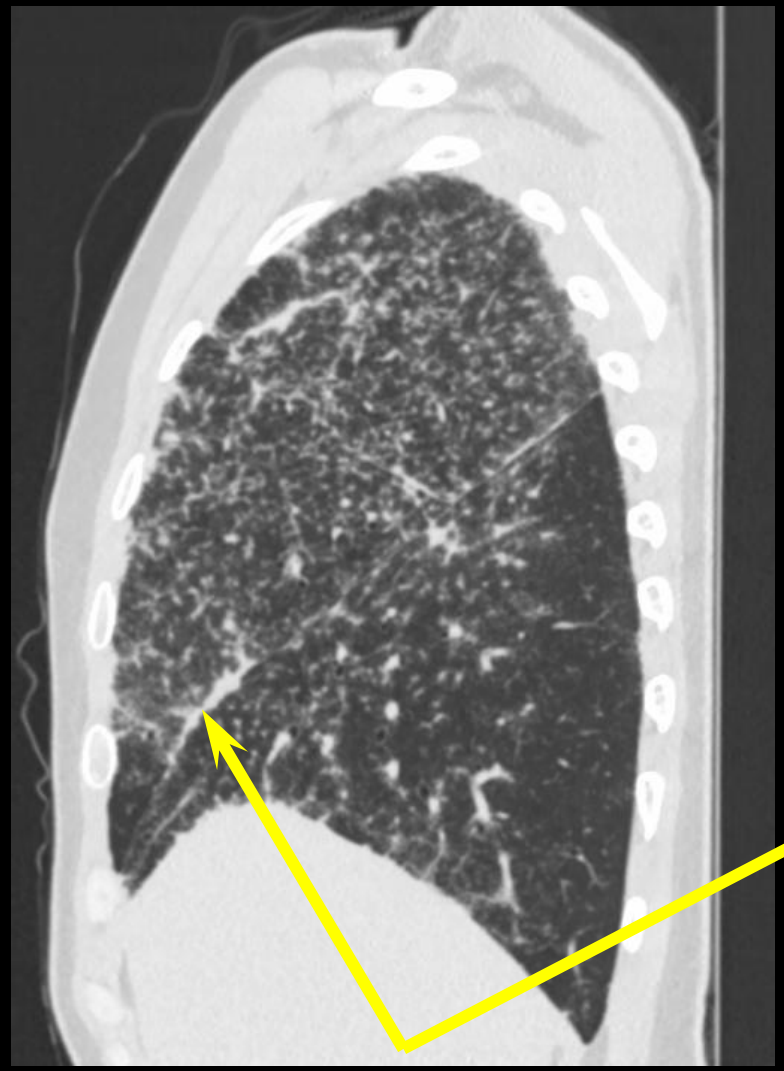
Chest CT without IV contrast





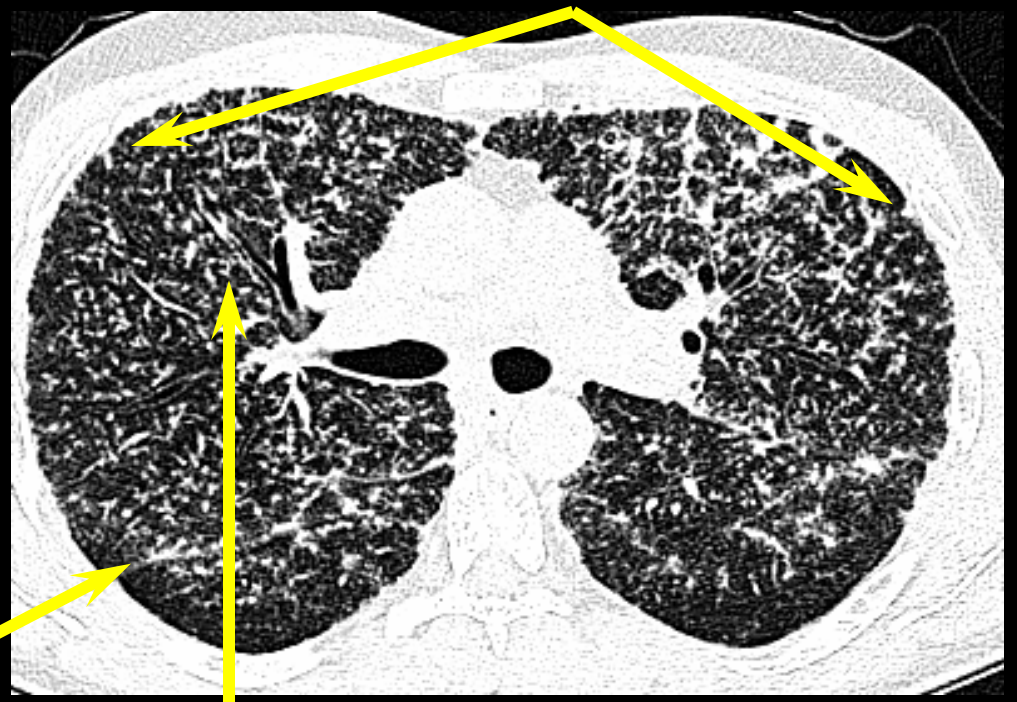
Chest CT without IV contrast

Upper lobe predominance



Nodules located at pleural surfaces (lung fissures)

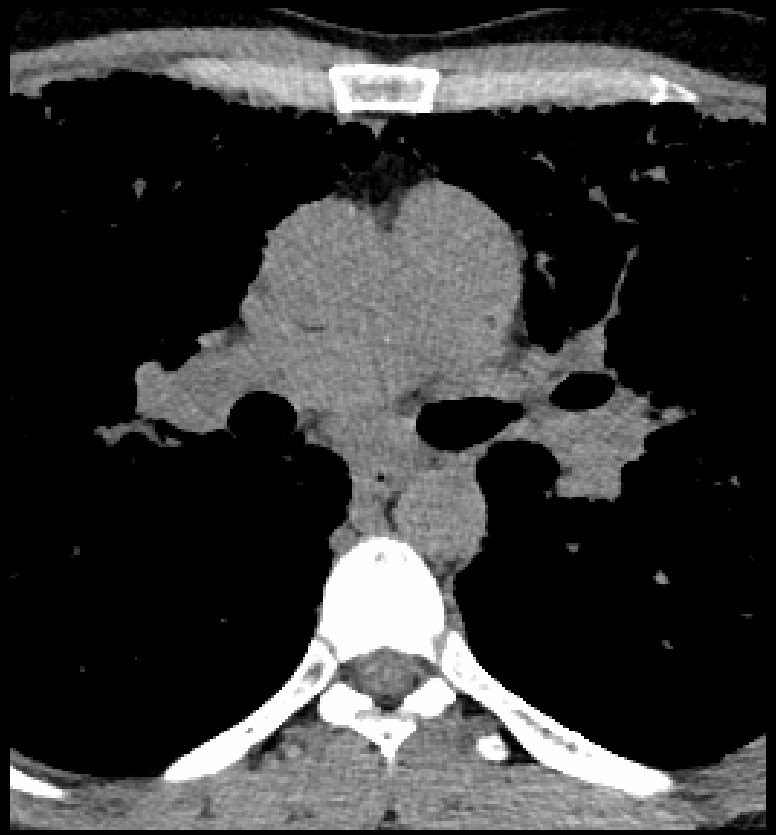
Nodules located at pleural surfaces

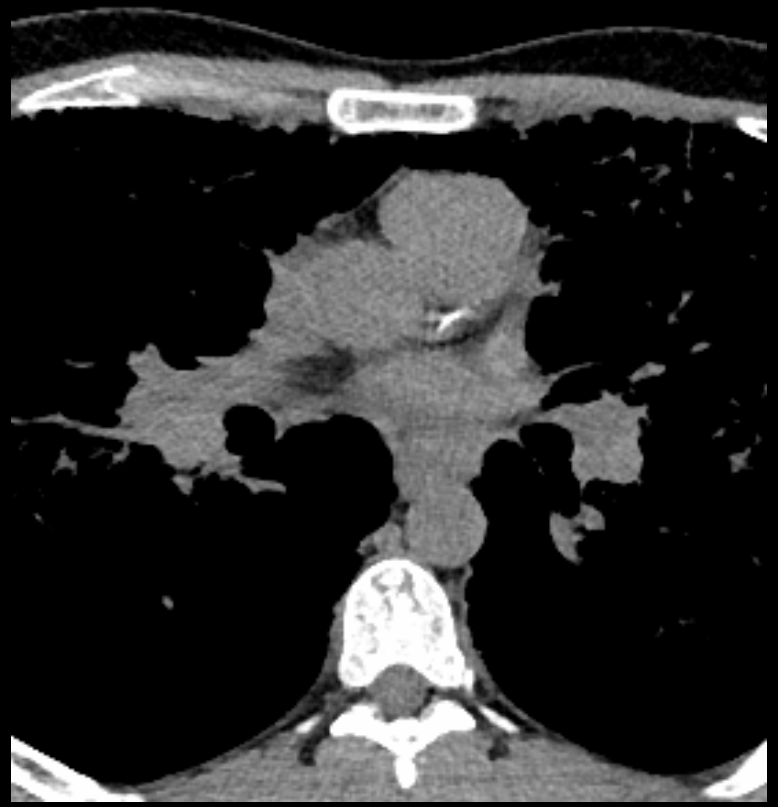


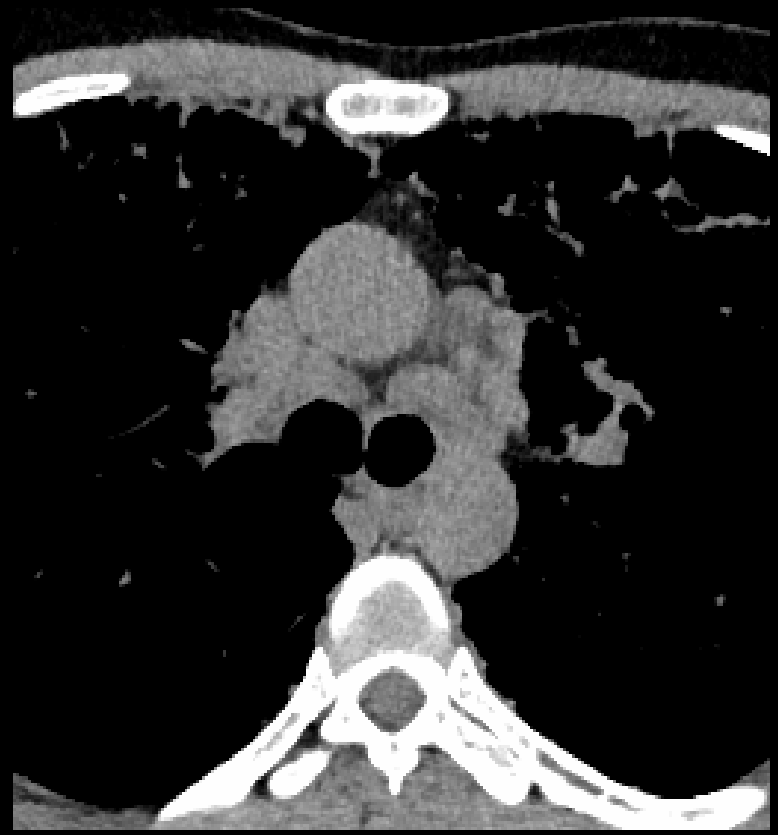
Nodules located along bronchovascular bundle

AMSER

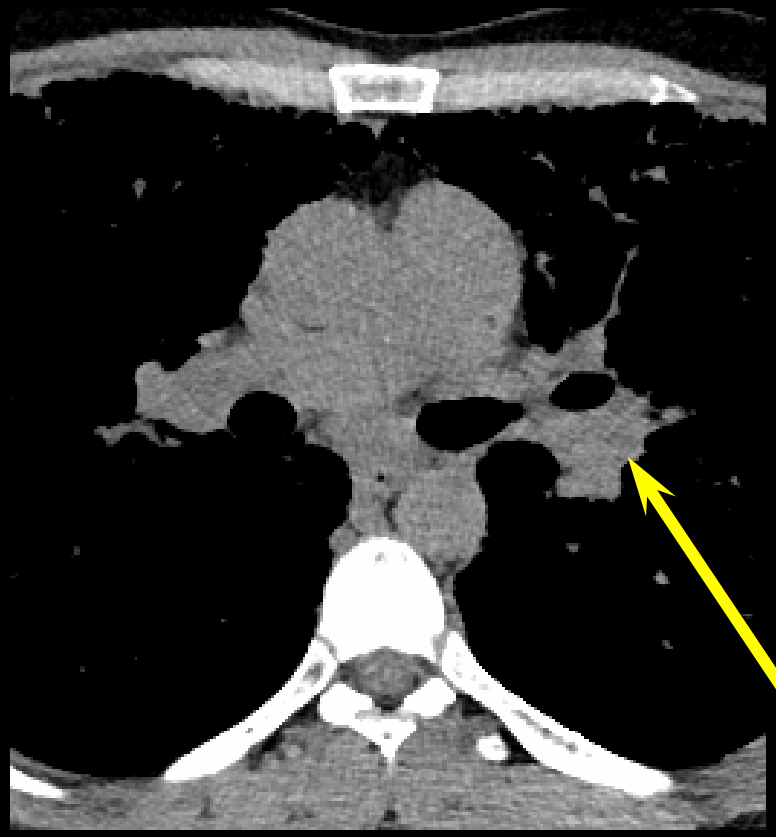
Chest CT without IV contrast

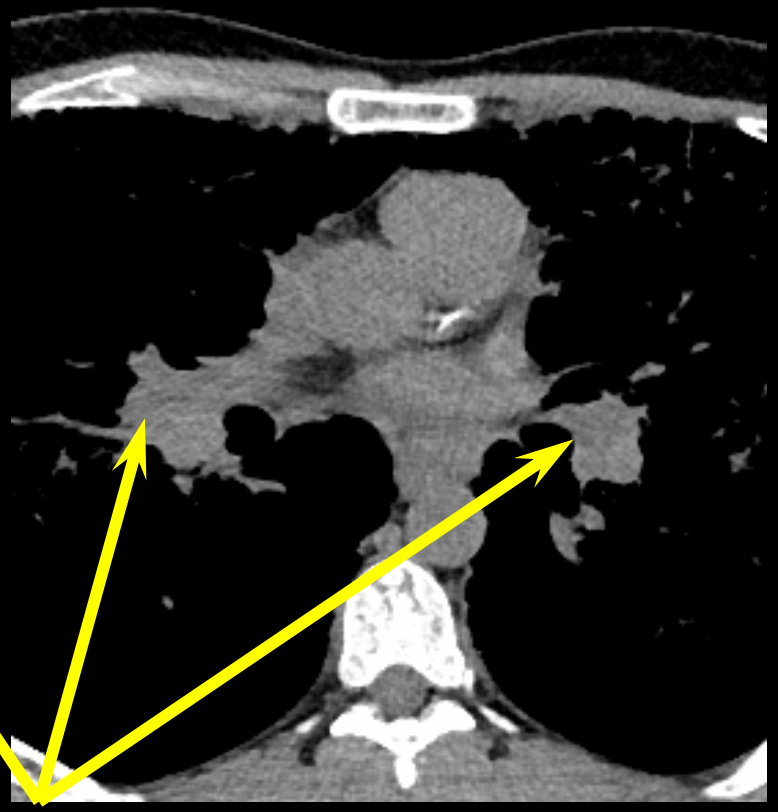




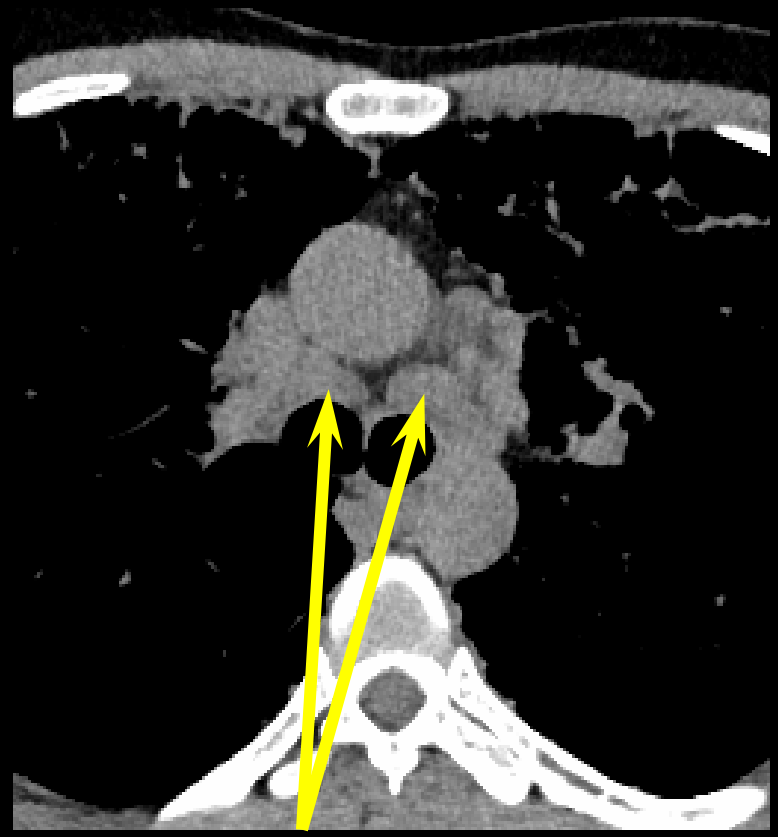


Chest CT without IV contrast





Symmetric hilar lymph nodes



Enlarged mediastinal lymph nodes

Final Diagnosis:

Sarcoidosis

Case Discussion

Primary differential diagnosis:

- Pneumoconiosis
  - Coal Worker's
  - Silicosis
- Disseminated infection
  - Miliary tuberculosis
  - Histoplasma

- Imaging findings suggestive of sarcoidosis
  - Bilateral 1-3 mm nodules
  - Upper and middle lung predominance
  - Perilymphatic distribution: at pleural surfaces (especially the fissures) and along the bronchovascular bundles
  - Hilar (classically, bilateral and symmetric) and mediastinal adenopathy

- Initial management: glucocorticoids

References

1. Chong, S., Lee, K. S., Chung, M. J., Han, J., Kwon, O., & Kim, T. S. (n.d.). Pneumoconiosis: Comparison of Imaging and Pathologic Findings. Retrieved from https://pubs.rsna.org/doi/full/10.1148/rg.261055070

2. Conces, D. J., Stockberger, S. M., Tarver, R. D., & Wheat, L. J. (n.d.). Disseminated histoplasmosis in AIDS: Findings on chest radiographs. : American Journal of Roentgenology : Vol. 160, No. 1 (AJR). Retrieved from https://www.ajronline.org/doi/abs/10.2214/ajr.160.1.8416614

3. Smithuis, R., Van Delden, O., & Schaefer-Prokop, C. (n.d.). Lung - HRCT Common diseases. Retrieved from http://www.radiologyassistant.nl/en/p46b480a6e4bdc/lung-hrct-common-diseases.html