

# AMSER Case of the Month

## October 2022

57y F presenting with an incidental right upper lobe pulmonary nodule

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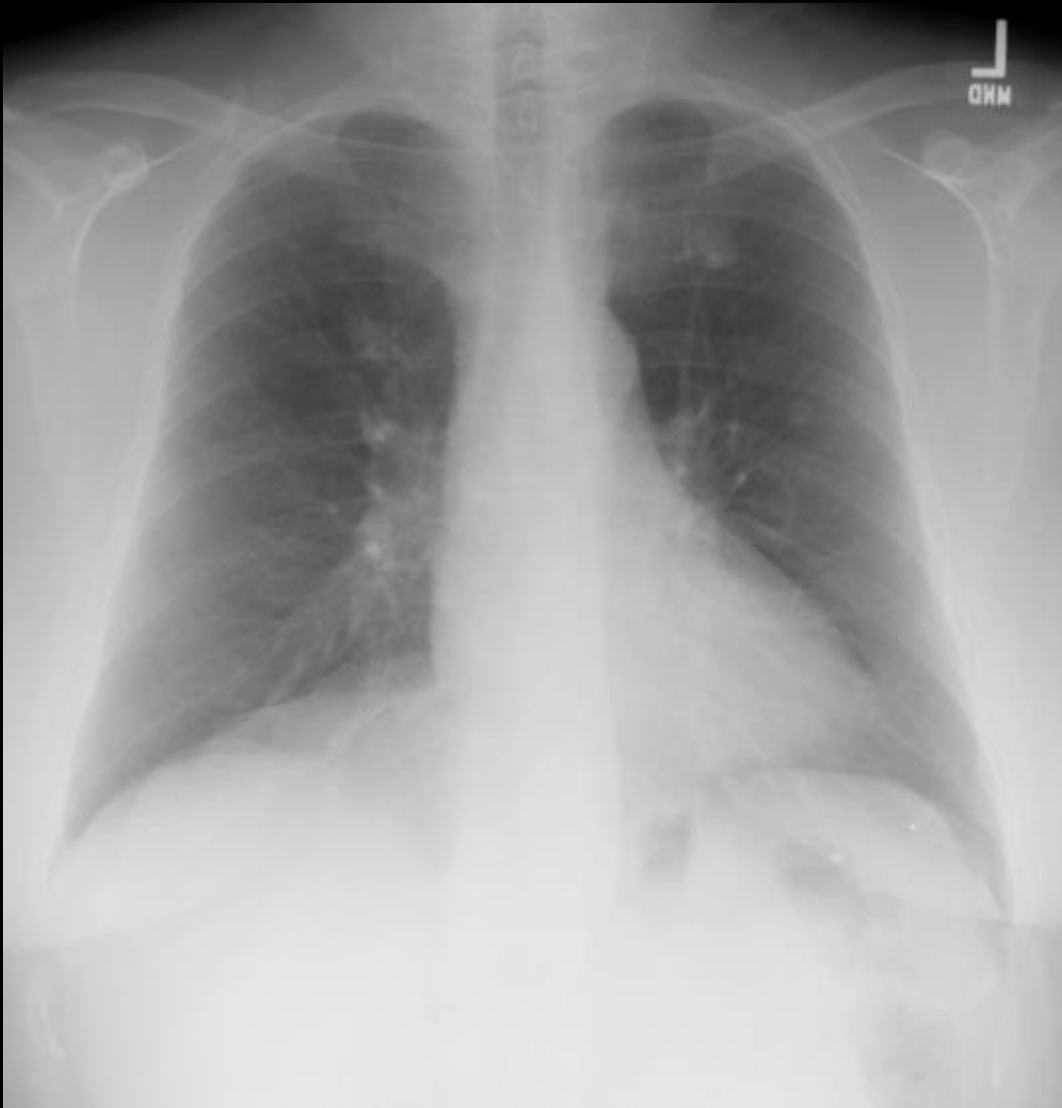
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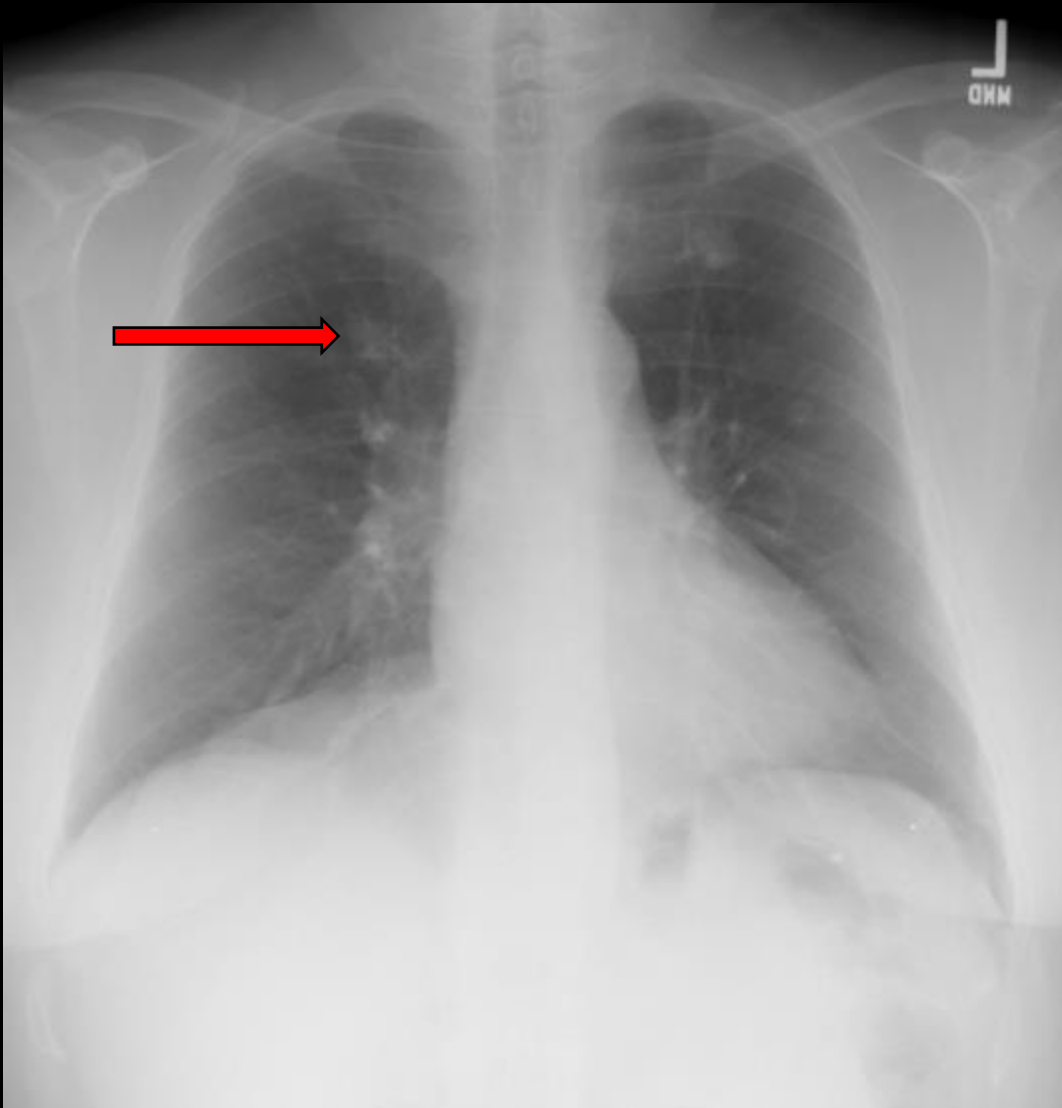
# Patient Presentation

- **HPI:** 57yo F with rib pain, dyspnea on exertion, productive cough and an unplanned 16 pound weight loss in the last 4 months
- **PMH/PSH:** COPD, GERD, HLD, HTN, cholecystectomy, hysterectomy
- **Social History:** Current smoker (47 pack years), 12 alcoholic drinks/week
- **Family History:** Sister-> Lung Cancer, Brother->Thyroid Cancer, Mother -> COPD
- **Vitals:** T: 36.8 °C; BP 129/89; HR 59; RR 16; SpO2 96%
- **Physical exam:** No significant findings
- **Labs:** Normal complete blood count, normal comprehensive metabolic panel
- **Other:** Pulmonary function tests: moderately severe airway obstruction

# Initial CXR



# Initial CXR



Findings: **Right upper lung pulmonary nodule** (arrow) hard to appreciate on lateral view

What Imaging Should We Order?

# ACR Appropriateness Criteria

**Clinical Condition:** Radiographically Detected Solitary Pulmonary Nodule

**Variant 2:** Solid nodule  $\geq 1$  cm, moderate to high clinical suspicion for cancer.

Radiologic Procedure	Rating	Comments	RRL*
CT chest without IV contrast	8	To detect occult calcifications, fat, bronchus sign, etc.	☼☼☼
FDG-PET/CT whole body	8	If nodule is indeterminate on HRCT.	☼☼☼☼
Transthoracic needle biopsy	8	If nodule shows contrast enhancement or PET scan is positive.	Varies
CT chest with IV contrast	6	Probably not indicated if PET is performed.	☼☼☼
CT chest without and with IV contrast	6	Can look at washout.	☼☼☼
Watchful waiting with CT follow-up	2		Varies
MRI chest without IV contrast	2	Limited data.	0
MRI chest without and with IV contrast	2	Limited data.	0

**Rating Scale:** 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

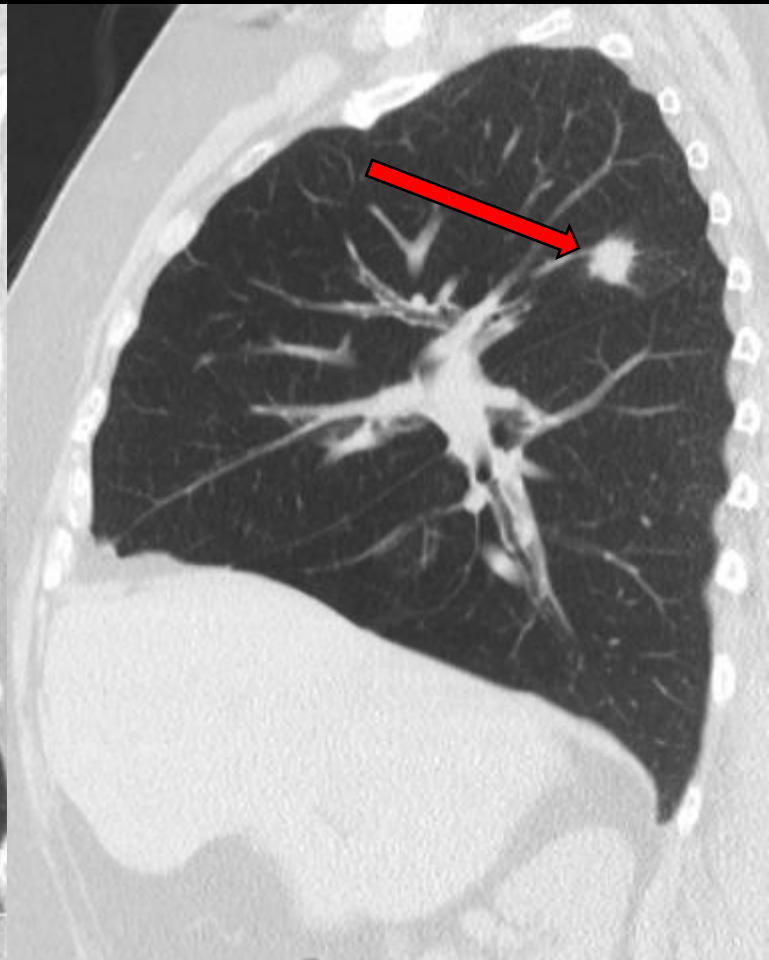
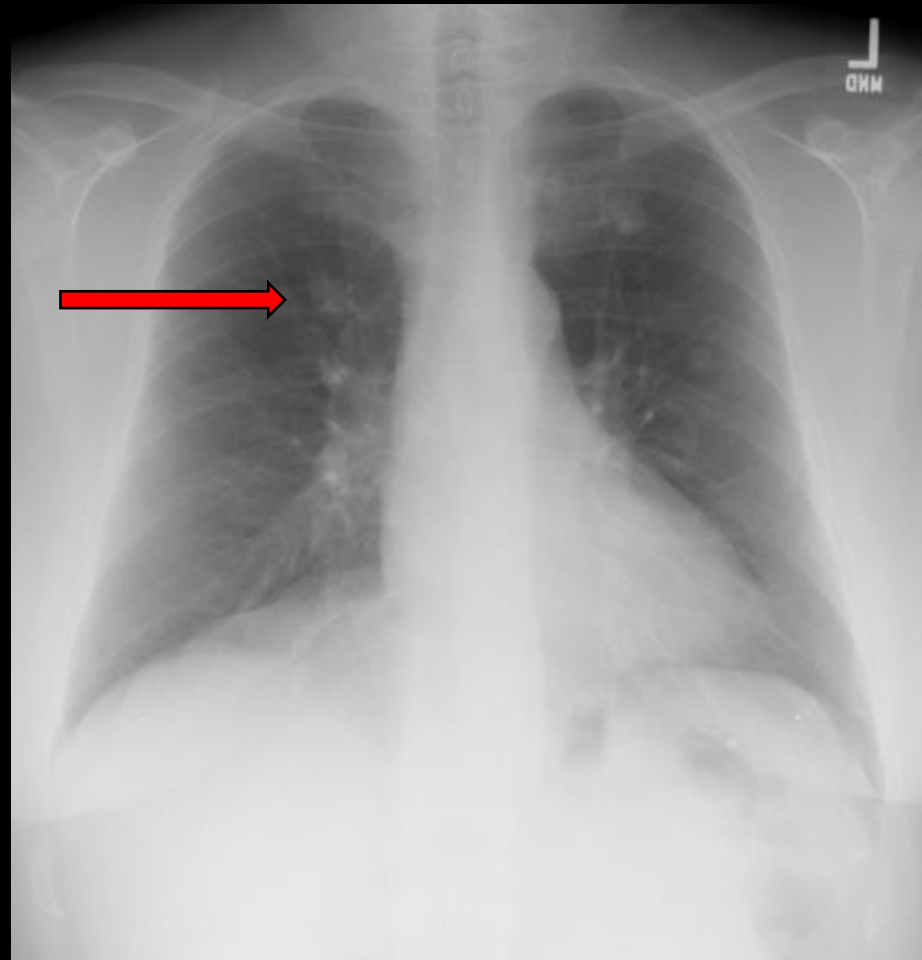
\*Relative Radiation Level

CT chest without IV contrast was ordered first.

# Findings Noncontrast CT (Unlabeled)



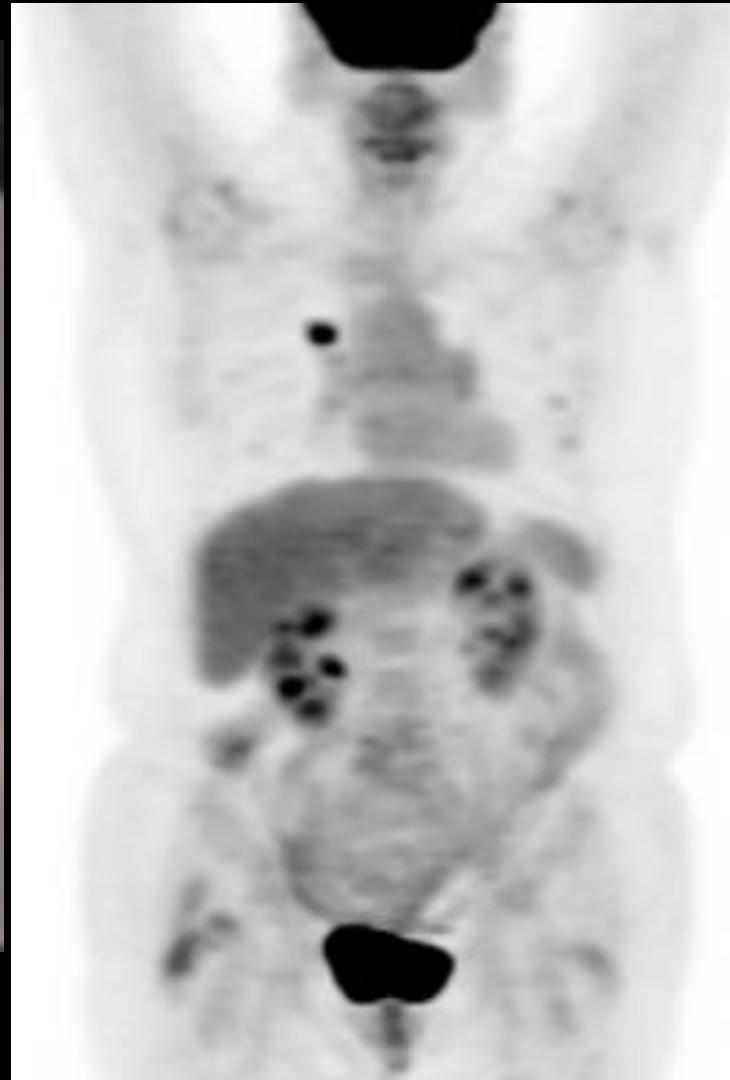
# Findings Noncontrast CT (Labeled)



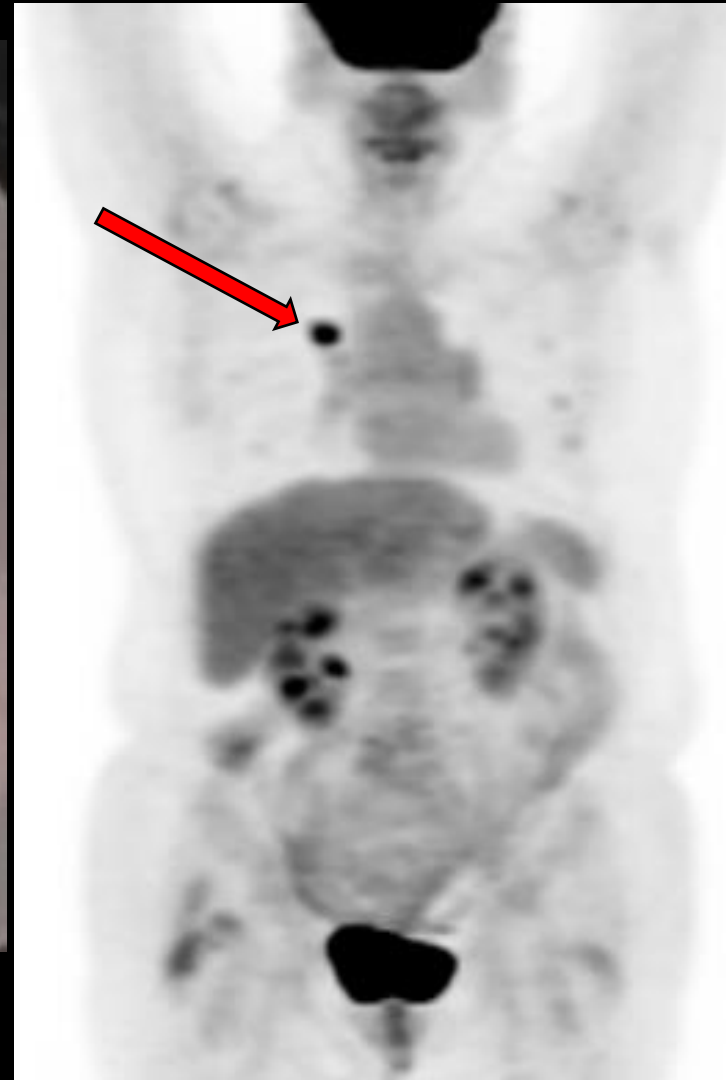
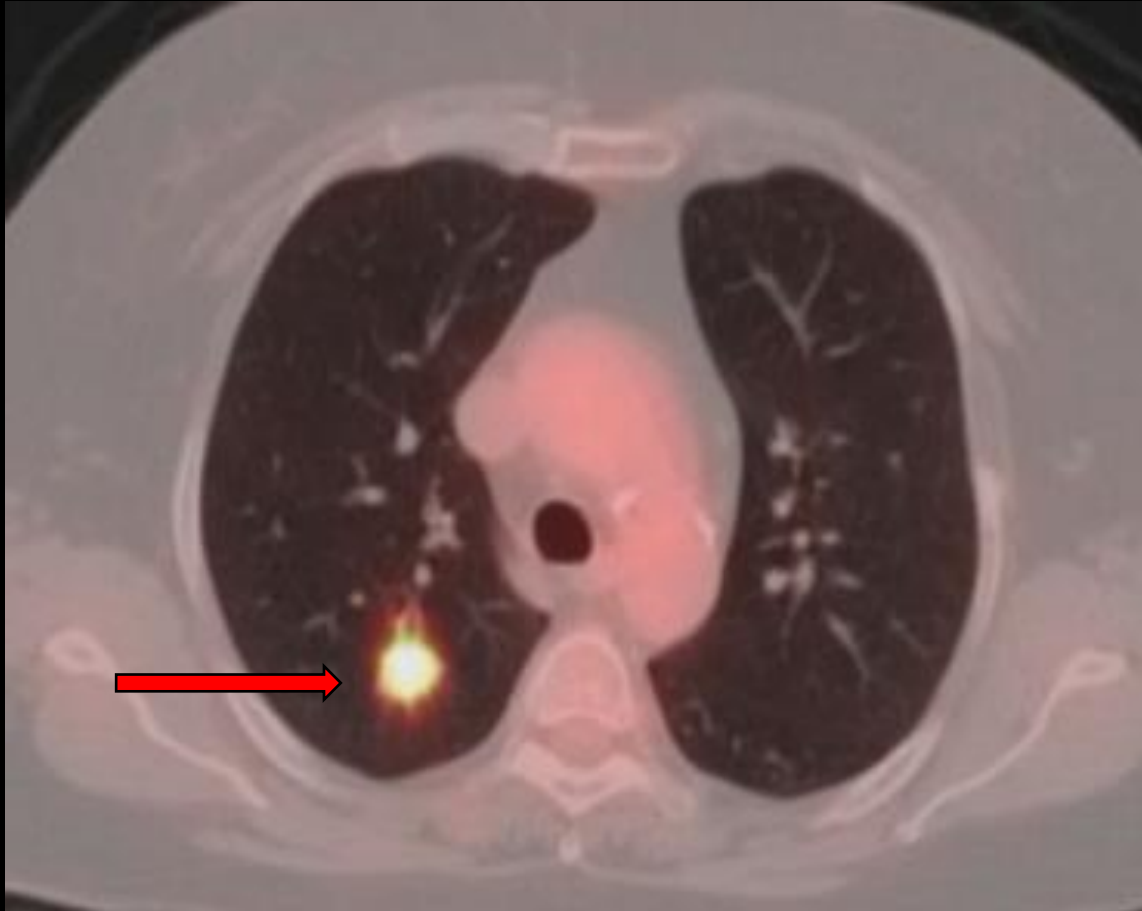
Corresponding to the CXR abnormality is a **poorly circumscribed, 1.6 cm spiculated nodule** in the right upper lobe (arrows). No lymphadenopathy. Next PET/CT was ordered.



# Findings PET/CT (Unlabeled)



## Findings PET/CT (Labeled)

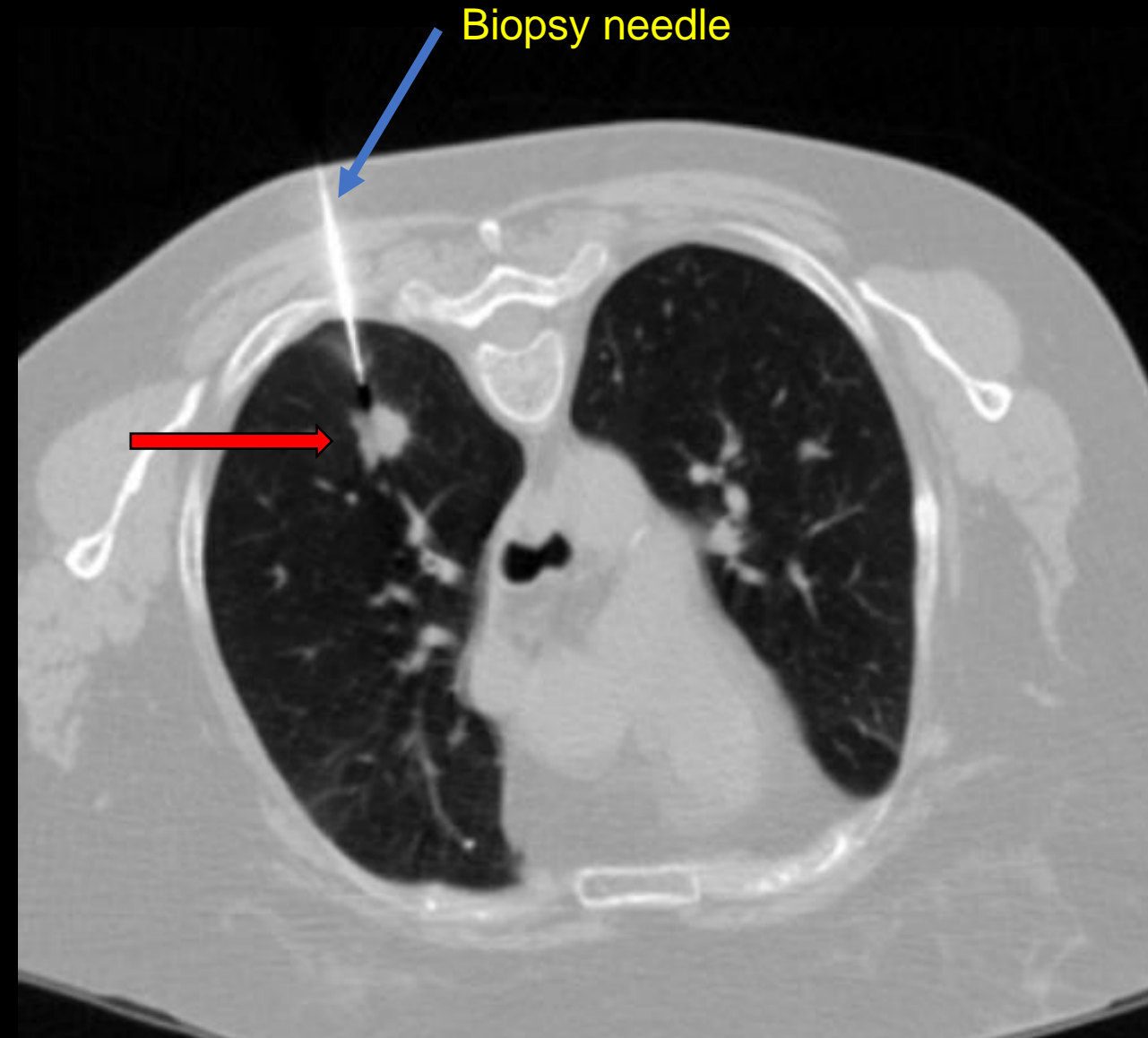


Moderate increase in fluorodeoxyglucose uptake in the **right upper lobe nodule** (arrows). No additional sites of abnormal uptake.

**Lung biopsy was performed next.**

CT guided biopsy of the **right upper lobe nodule** (arrow) was performed without complication; however, the biopsy specimen was non-diagnostic.

Given high suspicion for lung cancer surgical resection was performed.



Final Diagnosis:

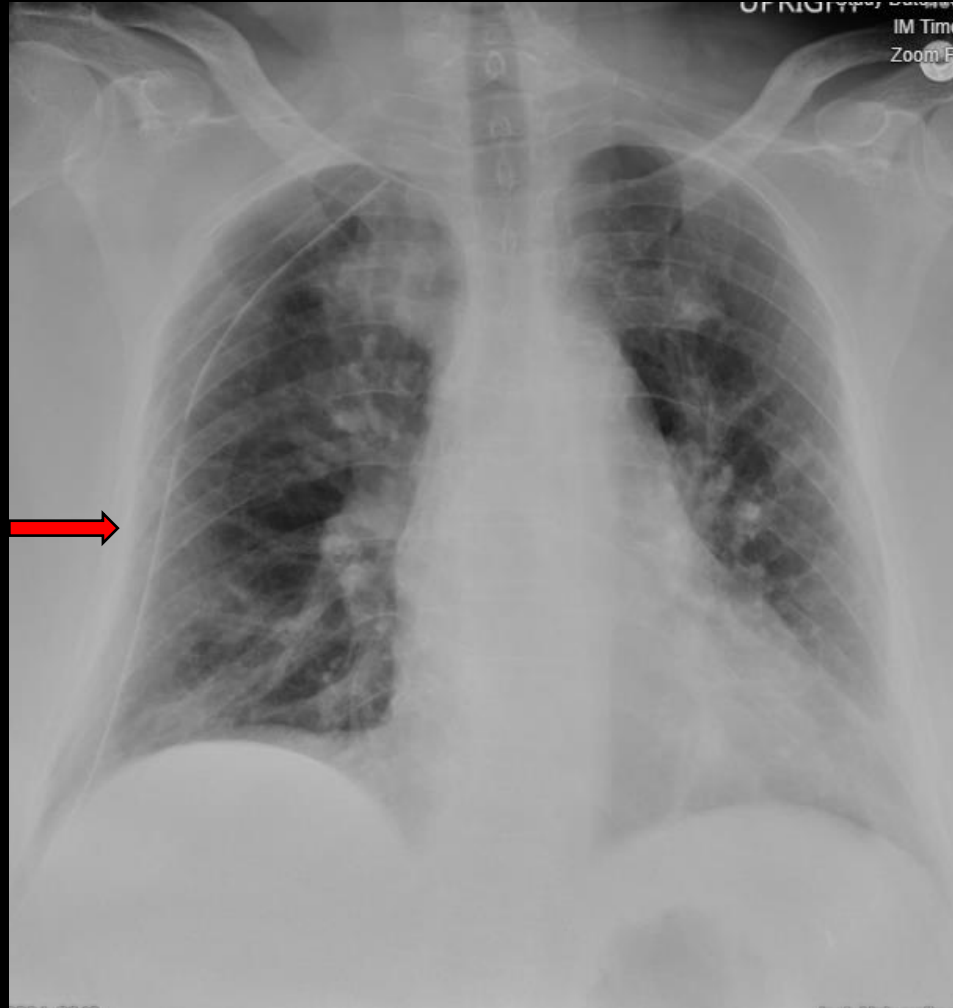
Rosai-Dorfman Disease

# Rosai-Dorfman Disease

- **Epidemiology:** Rare; first described in 1965 with an estimated 100 cases diagnosed annually in the United States.
- **Etiology:** Non-Langerhans cell histiocytosis of unknown cause but likely with a variety of pathophysiologic mechanisms as multiple forms including familial, sporadic and associated with rheumatologic disorders and malignancy have been described.
- **Clinical Presentation:** Most commonly presents with painless bilateral cervical lymphadenopathy in children/young adults. Around 40% of cases present with extranodal disease.

# Rosai-Dorfman Disease (cont.)

- **Differential Diagnosis Lung Nodule:** malignancy (lung, metastatic), rheumatologic (granulomatosis with polyangiitis, rheumatoid), infection (fungal, mycobacterium), others (Langerhans cell histiocytosis)
- **Diagnosis:** Based on clinical-radiologic-pathologic correlation
- **Treatment:** Individualized and can include observation, resection or systemic therapy



Post op day 1 after wedge resection of the right upper lobe nodule with apically directed right chest tube (arrow). Patient has done well post-operatively.

# References:

- <https://acsearch.acr.org/docs/69455/Narrative/>
- Bruce-Brand C, Schneider J and Schubert P. Rosai-Dorfman Disease: An Overview. *Journal of Clinical Pathology*. 2020; 73:697-705.
- Abla O, *et al*. Consensus Recommendations for the Diagnosis and Clinical Management of Rosai-Dorfman-Desombres Disease. *Blood*. 2018;131:2877-2890.
- Elshikh M, Schellingerhout D, Rayan J, Taher A, Elsayes AK, Mujtaba B, Garg N. Disease Characteristics, Radiologic Patterns, Comorbid Diseases, and Ethnic Differences in 32 Patients With Rosai-Dorfman Disease. *J Comput Assist Tomogr*. 2020 May/Jun;44(3):450-461. doi: 10.1097/RCT.0000000000000983. PMID: 31972751.