AMSER Case of the Month September 2026

Allergic Bronchopulmonary Aspergillosis

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Patient Presentation

66F with a history of asthma presents with a 4-week history of cough and worsening sputum production. Asthma was previously well controlled with Symbicort, but patient ran out of prescription one month ago.

Physical Exam

- BP 129/73 Pulse 73 Temp 98.4 °F SpO2 96%
- General: Alert and appears in no acute distress
- Cardiac: Regular rate and rhythm
- Lungs: Bilateral end expiratory wheezing
- Extremities: No leg edema

Pertinent Labs

- WBC: 10.4 High (4.0 - 10.0 1000/mm3)
- Hgb: 12.7 (11.2 - 15.7 gm/dL)

- Mycobacterium tuberculosis PCR: Negative
- Pneumocystis Jirovecci NAAT: Negative
- Pneumonia Pathogen NAAT: Negative

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Cough, chronic, >8 wks, no lung cancer risk factors, initial imaging	3194233	Radiography chest	<0.1 mSv ☢	<0.03 mSv [ped] ☢	Usually appropriate
		CT chest with IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	May be appropriate
		CT chest without IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	May be appropriate
		MRI chest without and with IV contrast	0 mSv O	0 mSv [ped] O	Usually not appropriate
		MRI chest without IV contrast	0 mSv O	0 mSv [ped] O	Usually not appropriate
		CT chest without and with IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		FDG-PET/CT skull base to mid-thigh	10-30 mSv ☢☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate

This imaging modality was ordered by the PCP

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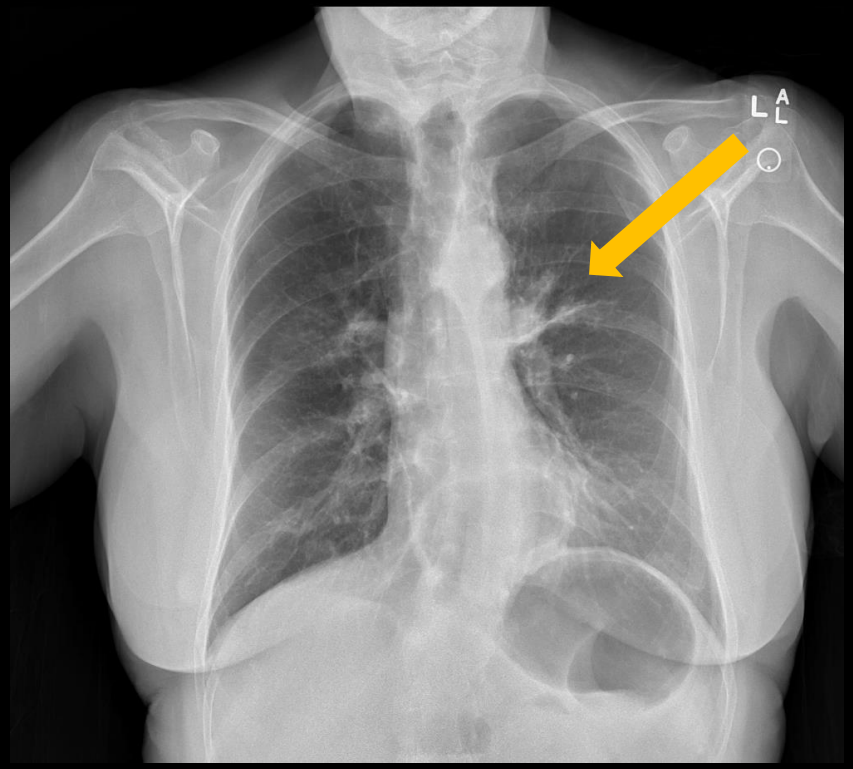
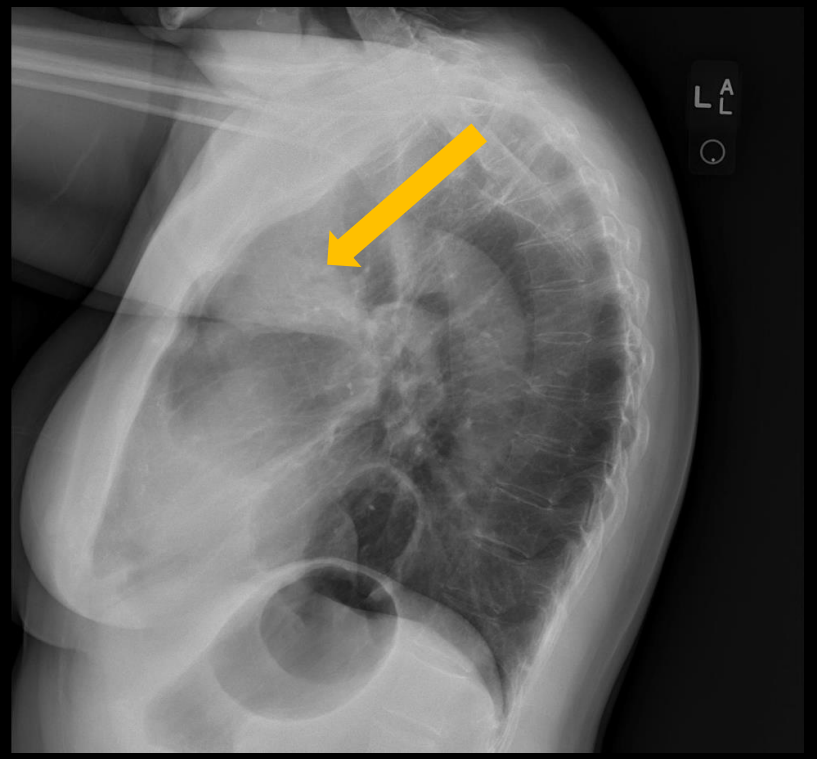
Findings (unlabeled)

Initial Chest X-ray

Findings (labeled)





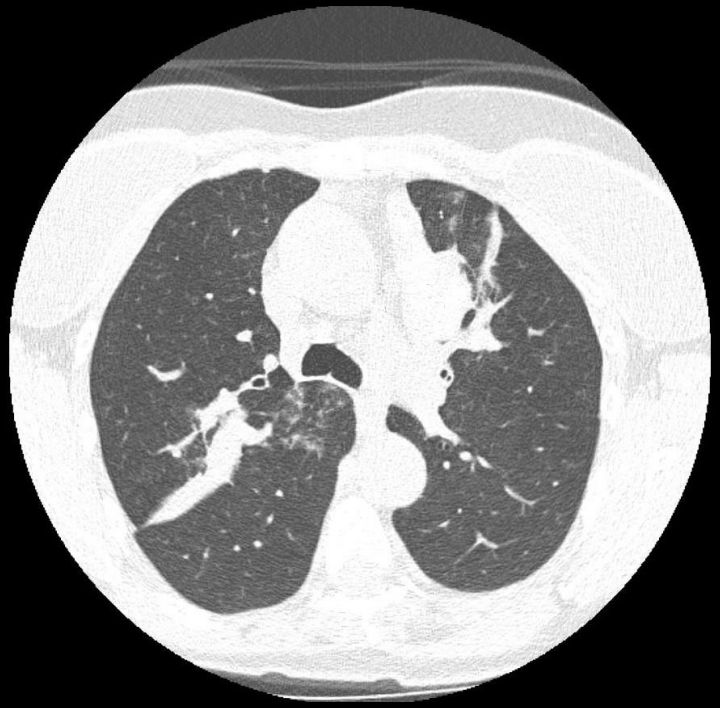
Tubular opacities in the left suprahilar region

Select the applicable ACR Appropriateness Criteria

Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Bronchiectasis suspected, initial imaging	3197475	Radiography chest	<0.1 mSv ☢	<0.03 mSv [ped] ☢	Usually appropriate
		CT chest without IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually appropriate
		MRI chest without IV contrast	0 mSv O	0 mSv [ped] O	May be appropriate
		CTA chest with IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	May be appropriate
		Radiography neck	0.1-1mSv ☢☢	0.03-0.3 mSv [ped] ☢☢	Usually not appropriate
		MRI chest without and with IV contrast	0 mSv O	0 mSv [ped] O	Usually not appropriate
		CT chest with IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		CT chest without and with IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		CT neck with IV contrast	1-10 mSv ☢☢☢	0.3-3 mSv [ped] ☢☢☢	Usually not appropriate
		CT neck without and with IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		CT neck without IV contrast	1-10 mSv ☢☢☢	0.3-3 mSv [ped] ☢☢☢	Usually not appropriate
		CT neck and chest with IV contrast	10-30 mSv ☢☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		CT neck and chest without and with IV contrast	10-30 mSv ☢☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		CT neck and chest without IV contrast	10-30 mSv ☢☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		FDG-PET/CT skull base to mid-thigh	10-30 mSv ☢☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate

This imaging modality was followed up due to suspicious x-ray

Findings (unlabeled)



Axial CT W/O Contrast
Lung window

Axial CT W/O Contrast
Soft-tissue window

Sagittal CT W/O Contrast
Soft-tissue window

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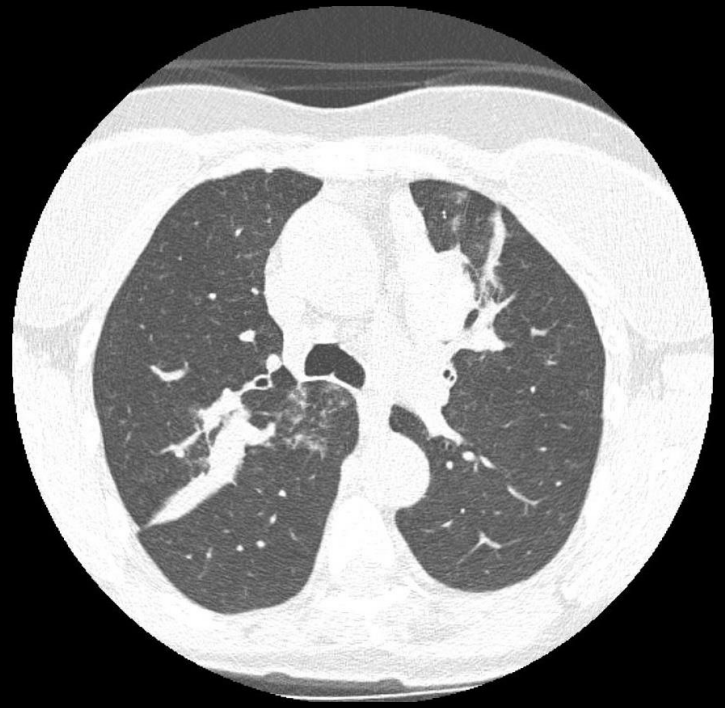
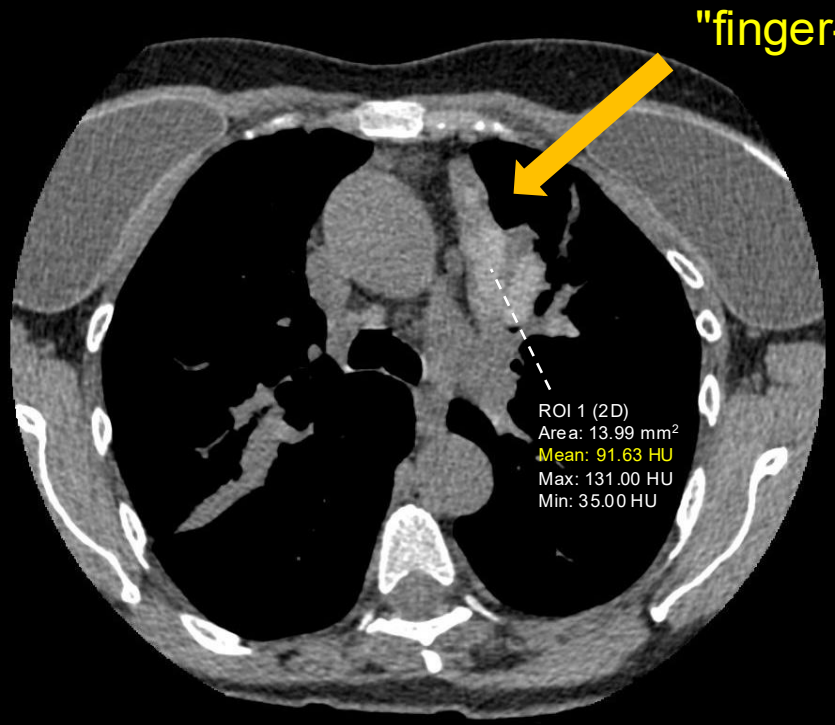
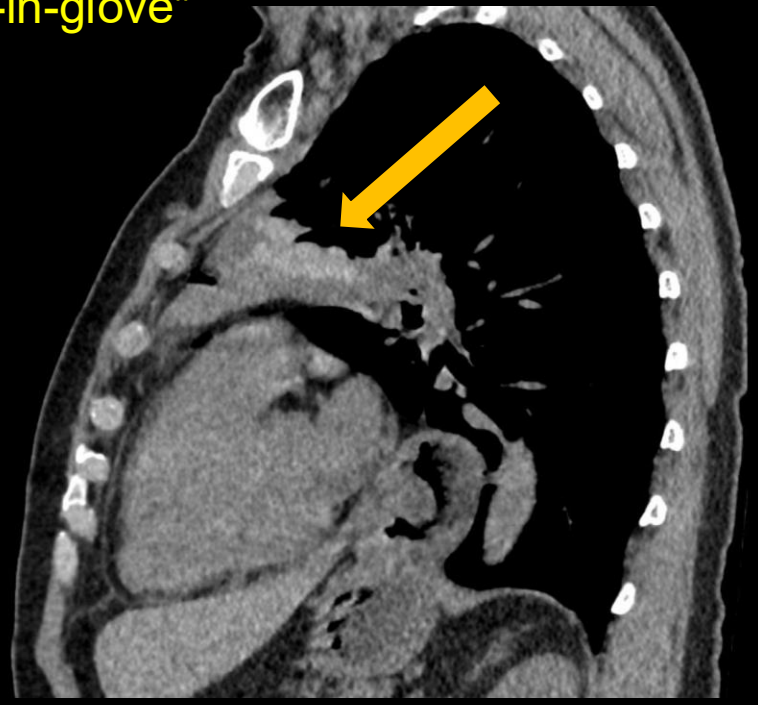
Findings (labeled)



Axial CT W/O Contrast
Lung window



Axial CT W/O Contrast
Soft-tissue window



Sagittal CT W/O Contrast
Soft-tissue window

Abnormal bronchial dilation of the left upper lobe with retained mucus, seen as branching soft-tissue-density structures producing a classic "finger-in-glove" pattern.

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Final Dx:

Allergic Bronchopulmonary Aspergillosis

Case Discussion

- Summary
  - Immune-mediated hypersensitivity reaction to *Aspergillus* species colonizing the airways[1]
  - Mainly affects patients with asthma or cystic fibrosis (CF)[2]

- Pathophysiology
  - Exaggerated Th2 mediated hypersensitivity response[1]
  - Bronchial wall damage, mucus hypersecretion, and progressive bronchiectasis[2]

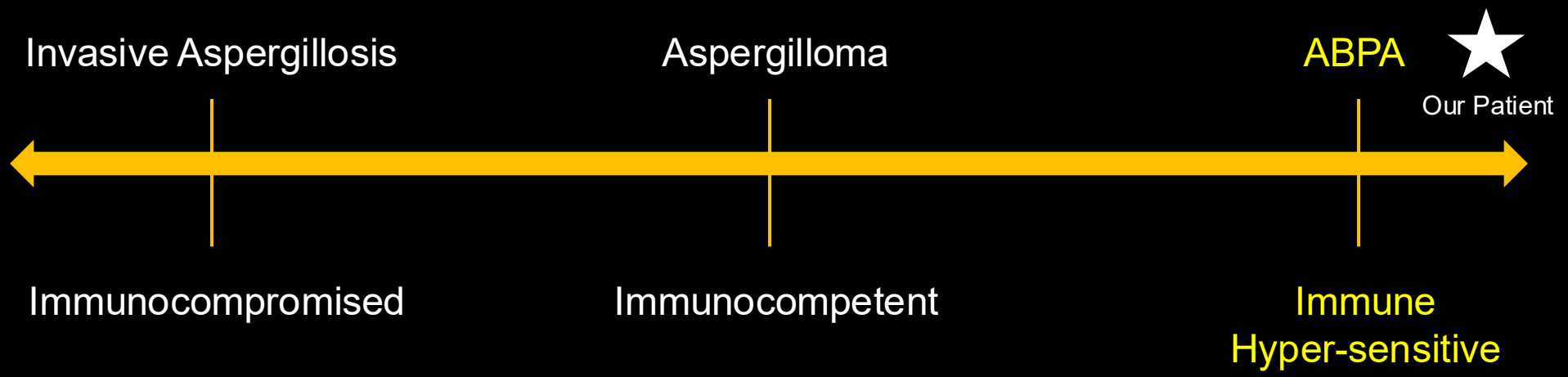
Case Discussion

- Clinical Presentation
  - Wheezing, cough, dyspnea, and/or thick brown mucous plugs[1]
  - Worsening symptoms in patients with CF or asthma despite appropriate therapy[1]

- Diagnosis
  - High-attenuation mucus seen on imaging[2, 4]
  - Elevated A. fumigatus-specific IgE (>0.35 kUA/L)[1]
  - Total serum IgE >1000 IU/mL[2]
  - Peripheral eosinophils >1000/µL[1]
  - Positive Aspergillus skin prick test[1]

Case Discussion

- Patient's Allergen Test
  - IGE: 249 High (<=214 kU/L)
  - Allergen, Fungi/Mold Aspergillus fumigatus IgE 1.92 (<0.10 kU/L)



Case Discussion

- Imaging
  - CT Chest w/o contrast showing high-attenuation mucus (HAM) impaction
  - HAM >70 Hounsfield units highly specific for APBA
    - Occurs due to the presence of calcium salts and metals[5]
- Treatment
  - Systemic corticosteroids[3]
  - Oral antifungals, most commonly Itraconazole[3]
- Differentials
  - Endobronchial tumor, other causes of bronchiectasis such as cystic fibrosis or ciliary dyskinesia

Case Discussion

- Next Steps for Patient
  - Referred to interventional pulmonology
  - Bronchoscopy performed and biopsy culture confirmed Aspergillosis fumigatus
  - Pt counseled on anti-fungal treatment but refused treatment
  - Recommended pt to continue Symbicort twice daily and referred to infectious disease clinic

References:

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3. Wark P. Pathogenesis of allergic bronchopulmonary aspergillosis and an evidence-based review of azoles in treatment. Respir Med. 2004;98(10):915-923. doi:10.1016/j.rmed.2004.06.009
4. Agarwal R, Gupta D, Aggarwal AN, Saxena AK, Chakrabarti A, Jindal SK. Clinical significance of hyperattenuating mucoid impaction in allergic bronchopulmonary aspergillosis: an analysis of 155 patients. Chest. 2007;132(4):1183-1190. doi:10.1378/chest.07-0808
5. Weerakkody Y, Kumar K, Luong D, et al. High-attenuation mucus. Radiopaedia.org. Accessed August 6, 2026. doi:10.53347/rID-81040

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