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Pulmonary amyloidoma mimicking lung cancer in a patient with previous tuberculosis

To the Editor:

An 83-year-old man with a history of chronic obstructive pulmonary disease (COPD) and bronchiectasis secondary to pulmonary tuberculosis treated in 1955 with isoniazid and streptomycin was followed at our outpatient clinic at Policlinico Umberto I in Rome, Italy. He was an ex-smoker (20 pack years). Clinically, he reported mild dyspnea on strenuous exertion and occasional non-productive cough. During routine follow-up, a high-resolution chest CT scan (HRCT) revealed two solid lung nodules with irregular margins in the right upper lobe, the largest measuring approximately 15 mm, which were not present on imaging performed 2 years earlier. Given the patient's age, smoking history, and the new onset of the lesions, a 18F-FDG PET-CT scan was performed, showing intense metabolic activity in the largest nodule in the right upper lobe (SUV max 4.29) [Fig. 1A]. After multidisciplinary discussion, considering the high pre-test probability of malignancy (Brock Model Probability: 45%), the peripheral location of the lesion, and the preserved functional status, surgical resection through atypical resection was considered the most appropriate approach. Histological examination revealed non-necrotizing giant cell granulomas associated with deposition of amorphous eosinophilic material, Congo Red-positive with apple green birefringence, indicative of pulmonary amyloidoma [Fig. 1B]. No neoplastic cells were identified. Grocott and Ziehl-Neelsen stains were negative with no evidence of fungal or mycobacterial organisms. PCR and culture for *Mycobacterium tuberculosis* were also negative. Hematologic evaluation excluded systemic amyloidosis.

At 6-month follow-up, the patient remained clinically stable, with no evidence of disease recurrence on chest imaging.

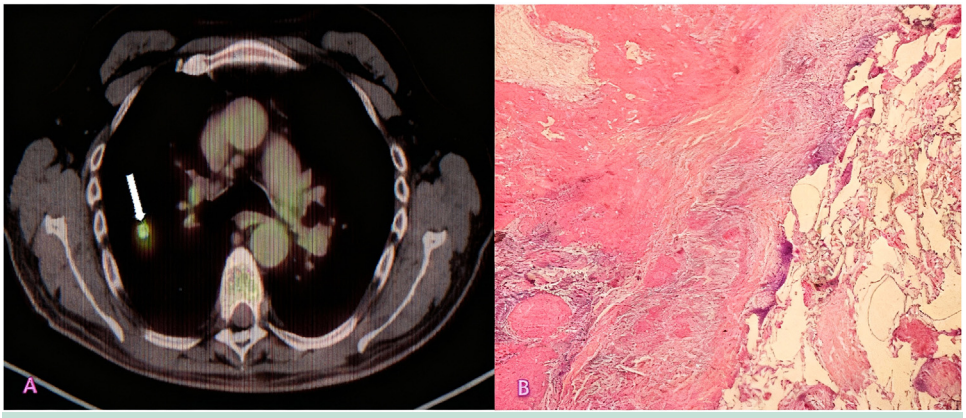

Fig. 1 Description: (**A**) 18F-FDG PET-CT demonstrating increased metabolic activity of the right upper lobe pulmonary nodule (arrow). (**B**) Histological examination of the resected pulmonary nodule showing extensive deposition of amorphous eosinophilic material within the lung parenchyma, associated with chronic inflammatory infiltrates and granulomatous reaction.

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Pulmonary amyloidoma is a rare, localized form of pulmonary amyloidosis characterized by focal deposition of amyloid protein within the lung.[1] It is typically diagnosed incidentally on chest imaging in elderly patients and is frequently asymptomatic.[1] Radiologically, it frequently appears as solitary or multiple peripheral nodules with variable sizes and margins, often mimicking primary or secondary lung malignancies.[2] The etiology remains unknown; however, accumulating evidence suggests a close association with chronic inflammatory or infectious conditions, supporting the hypothesis that persistent immune stimulation may promote localized amyloid accumulation within the lung parenchyma. Chronic airway inflammation (such as tuberculosis or bronchiectasis) could contribute to local plasma cell activation and subsequent amyloid deposition, even in the absence of systemic amyloidosis.[3] Lung tissue previously damaged by tuberculosis may undergo fibrotic remodelling and disruption of the normal interstitial architecture, creating a microenvironment favourable to abnormal protein aggregation.[4]

From a clinical standpoint, pulmonary amyloidoma represents a significant diagnostic challenge because of its close radiological and metabolic resemblance to primary lung malignancy. The detection of a new solid pulmonary nodule with irregular margins in an elderly patient with a smoking history inevitably raises concern for lung cancer. PET-CT can assist in the diagnostic process, given that pulmonary tuberculomas frequently demonstrate increased FDG uptake, often with SUVmax values exceeding commonly used malignancy thresholds,[5] while pulmonary amyloidosis may similarly exhibit low to moderate metabolic activity.[6]

In conclusion, pulmonary amyloidoma should be included in the differential diagnosis of FDG-avid pulmonary nodules, particularly in elderly patients with chronic inflammatory lung disease.

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Declaratioin of competing interest

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