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Case Report

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Pulmonary Actinomycosis Mimicking Lung Malignancy: A Case Report

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Abstract

Pulmonary actinomycosis is an uncommon chronic infection that can closely mimic primary lung malignancy. A 53-year-old immunocompetent woman presented with daily hemoptysis for one week. Chest imaging revealed a consolidated lesion in the left upper lobe with pleural contact. Microbiological tests, including acid-fast bacilli staining and cultures from sputum and bronchoalveolar lavage, were negative. PET/CT demonstrated intense FDG uptake in the lesion and a mediastinal lymph node, raising suspicion for lung cancer with metastasis. Transthoracic needle aspiration was non-diagnostic. Due to persistent hemoptysis and cavitation, the patient underwent left upper lobectomy. Histopathology confirmed pulmonary actinomycosis. She received six months of oral amoxicillin, resulting in complete recovery without recurrence. Pulmonary actinomycosis should be considered in the differential diagnosis of lung masses, even in immunocompetent individuals, to prevent unnecessary surgery, as prolonged antibiotic therapy is usually curative.

Keywords: pulmonary actinomycosis, lung mass, hemoptysis

Introduction

Actinomyces species are Gram-positive, filamentous, pleomorphic, anaerobic or microaerophilic bacteria, most commonly found in the oral cavity and gastrointestinal tract (1). In the lungs, they may form mass-like or cavitary lesions, mimicking malignancy. Here, we present a rare case of pulmonary actinomycosis presenting with hemoptysis in an immunocompetent patient without predisposing factors.

Case Presentation

A 53-year-old woman with no history of chronic disease presented to our outpatient clinic with a one-week history of daily hemoptysis (approximately three tablespoons per day). Physical examination was unremarkable, but infection markers were elevated. Posteroanterior chest radiography revealed an irregularly marginated, non-homogeneous opacity in the middle zone of the left lung. She had been treated empirically with antibiotics for presumed pneumonia for one week, but no radiographic regression was observed. Contrast-enhanced thoracic computed tomography (CT) demonstrated a consolidated area in the upper lobe of the left lung extending to the pleura. Vasculitis markers and sputum acid-fast bacilli (AFB) were negative, and cultures showed no growth. Bronchoscopy revealed no endobronchial lesions. Bronchoalveolar lavage fluid was negative for AFB, showed no growth in culture, and cytology was negative for malignant cells. Positron emission tomography/computed tomography (PET/CT) demonstrated an intensely hypermetabolic, pleura-parallel consolidation in the anterior subpleural region of the anterior segment of the left upper lobe, sug-

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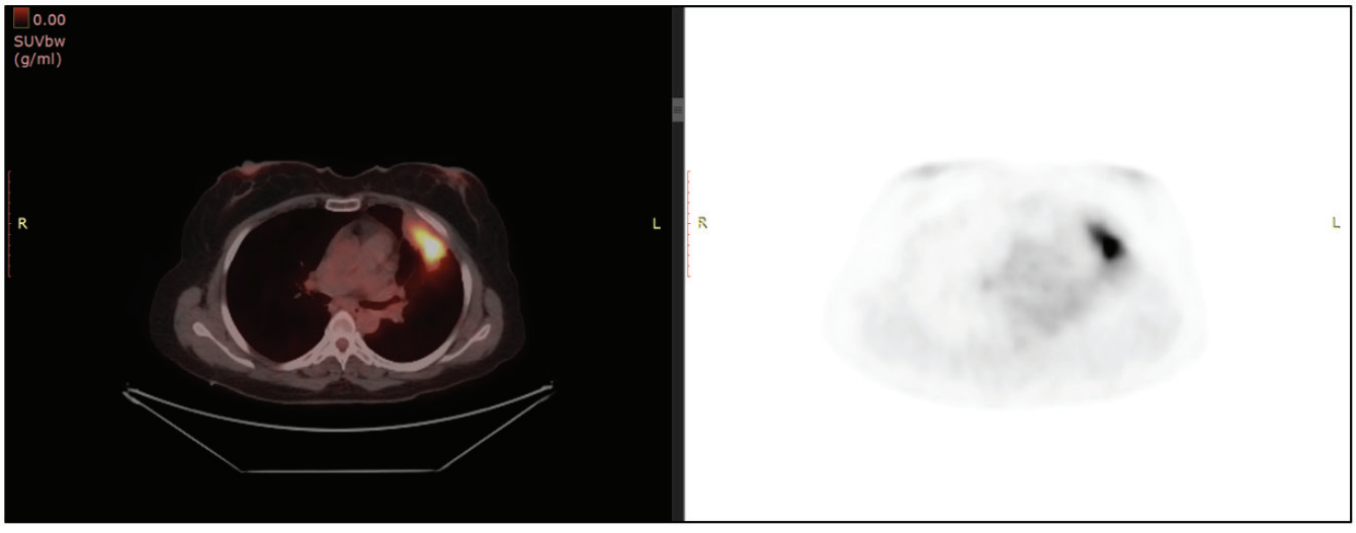

Figure -1: PET/CT scan showing hypermetabolic consolidation in the left upper lobe.

gestive of primary lung malignancy. Additionally, increased FDG uptake was observed in a subaortic mediastinal lymph node, raising suspicion for metastasis (Figure 1).

A transthoracic needle aspiration biopsy (TTNA) was performed, and pathology revealed no malignant cells. As hemoptysis persisted and cavitation developed within the lesion, the patient underwent a left upper lobectomy performed by the thoracic surgery team (Figure 2). Histopathological examination confirmed Actinomyces infection. Infectious diseases specialists initiated oral amoxicillin 1000 mg twice daily for six months. No recurrence of hemoptysis was observed during follow-up.

Conclusion

Pulmonary actinomycosis is a rare infection caused by Actinomyces species that may closely mimic lung malignancy and should therefore be considered in the differential diagnosis of pulmonary masses. Although it is more frequently associated with immunosuppression, poor oral hygiene, or a history of dental procedures, it may also occur in immunocompetent individuals without predisposing factors, as in our case.

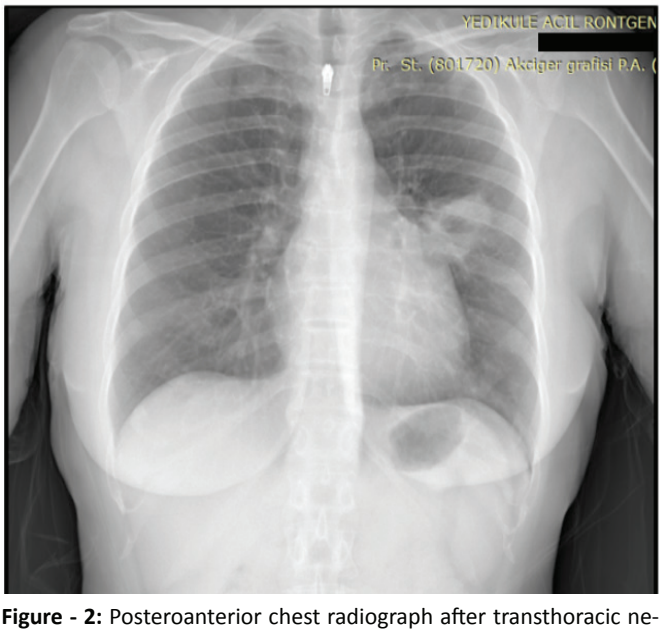

Figure - 2: Posteroanterior chest radiograph after transthoracic needle aspiration biopsy.

The most frequent clinical symptoms include chest pain, fever, fatigue, and weight loss; hemoptysis is relatively uncommon. Penicillin remains the first-line treatment, often initiated with 2–6 weeks of parenteral therapy followed by oral amoxicillin or penicillin for 6–12 months (2). Our findings are consistent with the recent 10-year experience reported by Sökücü et al., which emphasized both the clinical diversity and the diagnostic challenges of pulmonary actinomycosis (3).

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