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Pulmonary Actinomycosis Appearing as Carcinoma

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Abstract

Background: *Actinomycosis is a rare and chronical pulmonary infection caused by Actinomyces species, normally colonized in the mouth and gastrointestinal tract of human.*

Pulmonary involvement represents approximately 15% of all cases. We decribe herein a case of pulmonary actinomycosis, appearing as carcinoma and diagnosed in pathological examination.

Case presentation: *A 47-years old immunocompetent male patient who had cough and hemoptysis, was considered in emergency department of Antalya Training and Research Hospital. He had a history of bronchoscopy with non-diagnostic results in another healthcare center. In chest computerized tomography, a mass lesion with a diameter of six centimeter in the medial basal segment of right lower lobe of lung. The patient underwent diagnostic and therapeutic thoracotomy and by the pathological examination of the resected specimen, the patient was diagnosed as pulmonary actinomycosis.*

Conclusion: *Pulmonary actinomycosis is a rare disease but physicians have to be aware that actinomycosis may mimic the malignancy and it should be kept in mind when a middle-aged male patient presents with hemoptysis and cough together with the radiological findings of a peripheral mass or chronic consolidation.*

Keywords: *Lobectomy , Pulmonary actinomycosis, Sulfur granules.*

Introduction

Actinomycosis is a rare and chronical disease caused by anaerobic gram positive Actinomyces species, which belong to the natural flora of the oral cavity, gastrointestinal and urogenital tract (1, 2). When tissue integrity is damaged through a mucosal lesion, the microorganism can invade local structures and organs and become pathogenic (3).

Approximetely 30 species have been isolated but the most common microorganism causing infection is Actinomyces israelii (4). Actinomyces israelii is a filamentous, branching, pleomorphic and nonspore-forming bacillus (4).

The clinical forms of infection can be classified according to the anatomical site infected as; orocervicofacial, thoracic (pulmonary), abdominopelvic, central nervous system, musculoskeletal and disseminated (3). Thoracic (pulmonary) actinomycosis accounts for 15- 20% of cases (5, 6). It occurs especially from aspiration of oropharyngeal secretions but can also occur after oesophageal perforation, local spread from cervicofacial or abdominal infection or from haematogenous spread (7). The most frequent complaints are cough, sputum, fever, weight loss, thoracic pain, hemoptysis, and dyspnea (8, 9).

We report a pulmonary actinomycosis in an immunocompetent patient appearing as carcinoma to describe the clinical and histological features of this condition and emphasize that actinomycosis should be kept in mind in differential diagnosis of mass lesions of lung.

Case Report

A 47-years old male patient was presented to Antalya Training and Research Hospital emergency department with the complaint of cough and haemoptysis, having coughed up approximately 50 ml of bright red blood in the previous eight hours. The history of the present illness began one mounth earlier and a fiberoptic bronchoscopy was performed because of consolidation over the right lower lobe on computerized tomography (CT) scan, with a presumptive diagnosis of bronchial carcinoma another healthcare center. Fiberoptic bronchoscopy was revealed no endobronchial lesion and a normal mucosa. Cytological and histological examination of brush, lavage and biopsy samples of the right lower lobe were also negative for malignancy.

Cough was usually aggravated at night and no anorexia or body weight loss was noted.

He has smoked cigarettes 30/day for over 30 years. He have had poor oral hygiene. His vital signs were: body temperature 38.50C, blood pressure 120/80 mmHg, pulse 90/minute and respirations 24/minute. In physical examinations there were no cervical lymphadenopathy, musculoskeletal disorder or other abnormalities.

Auscultation of the lung revealed diminished breath sounds over the right side. A leukocytosis of 16.900/mm3 with neutrophilic predominance of 80% and a sedimentation rate of 100 mm/h were remarkable. Consolidation over the right lower lobe was determined in chest X-ray examination (Figure 1). There was a speculated mass lesion, 6 centimeter (cm) in diameter, over the medial basal segment of the right lower lobe, which was highly suspected as a malignancy in CT scan (Figure 2).

He was admitted for further workup of hemoptysis to thoracic surgery ward. Positron emission tomography (PET) scan was performed 1,5 hours after intravenous injection of F-18 labelled flurodeoxyglucose (FDG). PET scan revealed a 6 cm diameter hypermetabolic mass in the right lower lobe medial basal segment of the patient, which favors as malignancy (Figure 3). A CT guided biopsy was recommended but the patient refused to undergo this procedure. Therefore the patient underwent surgery for further examination and treatment. We made a right thoracotomy incision on the fifth intercostal space and palpated the lesion over right inferior pulmonary vein. Because of its proximity to the inferior pulmonary vein, a right lower lobectomy was performed.

The subsequent pathological examination demonstrated the aggregates of filamentous configuration microorganism in the characteristic of "sulfur granules", indicating actinomycosis. The patient was discharged uneventfully and underwent medication with amoxicillin clavulanic acid per oral 2 gr/daily for 2 months.

Discussion

Actinomycosis is a chronic, suppurative, granulomatous infection caused by anaerobic gram positive bacilli, Actinomyces species. Classically, clinical forms involve cervicofacial (55%), abdominopelvic (20%), thoracic (15%) and mixed involvement (10%), including skin, brain, pericardium and extremities (7, 10). A higher incidence of pulmonary actinomycosis has been reported in patients with underlying respiratory disorders such as bronchiectasis, emphysema, chronic bronchitis and alcoholism (11, 12).

Imaging of pulmonary actinomycosis is not specific and pulmonary actinomycosis is frequently confused with malignancy (mass) or tuberculosis (cavitation). The main CT findings are consolidation, lymph node enlargement, atelectasis, cavitation, ground glass opacity, and pleural effusion. There is no preferential localization in the lung (13).

The gold standard for the diagnose of pulmonary actinomycosis is histological examination and bacterial culture of a lung biopsy, obtained by percutaneous biopsy guided by CT scan or by open surgical resection (6, 14).

As in our patient, the presentation of actinomycosis as a hypermetabolic mass lesion can appear as pulmonary carcinoma. The typical endobronchial appearance of actinomycosis, a yellowish, obstructing endobronchial mass, was not observed in our case (15, 16). Surgical excision of such a mass because of suspicion of malignancy is not a rare mode of diagnosis (17).

In conclusion, pulmonary actinomycosis is a rare disease but physicians have to be aware that actinomycosis may mimic the malignancy and it should be kept in mind when a middle-aged male patient presents with hemoptysis and cough together with the radiological findings of a peripheral mass or chronic consolidation.

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Conflict of Interest: The authors declare no conflicts of interest.

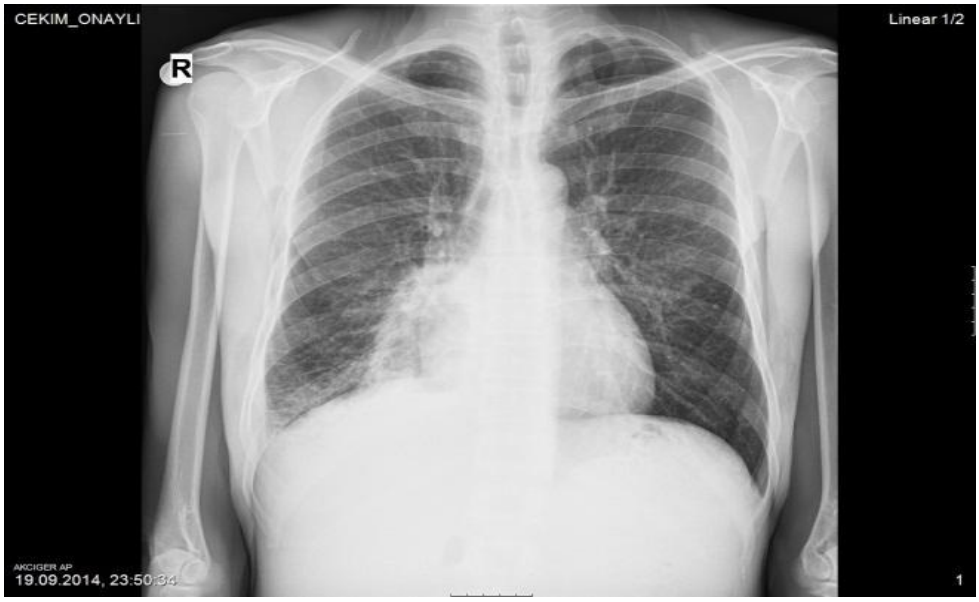

Figure 1. Image of the Lesion in Chest X-Ray

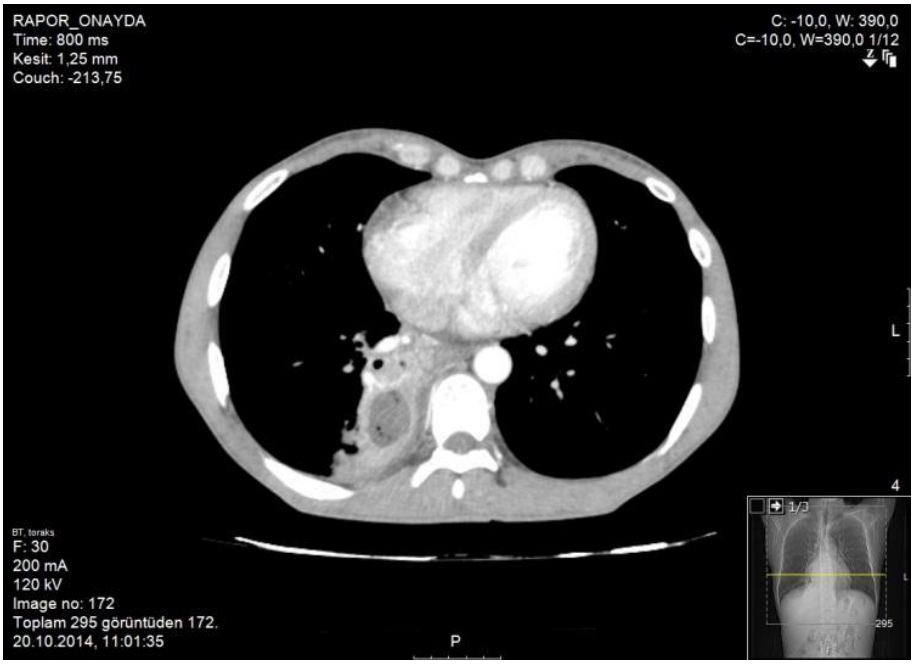

Figure 2. Image of the Lesion in Computerized Tomography

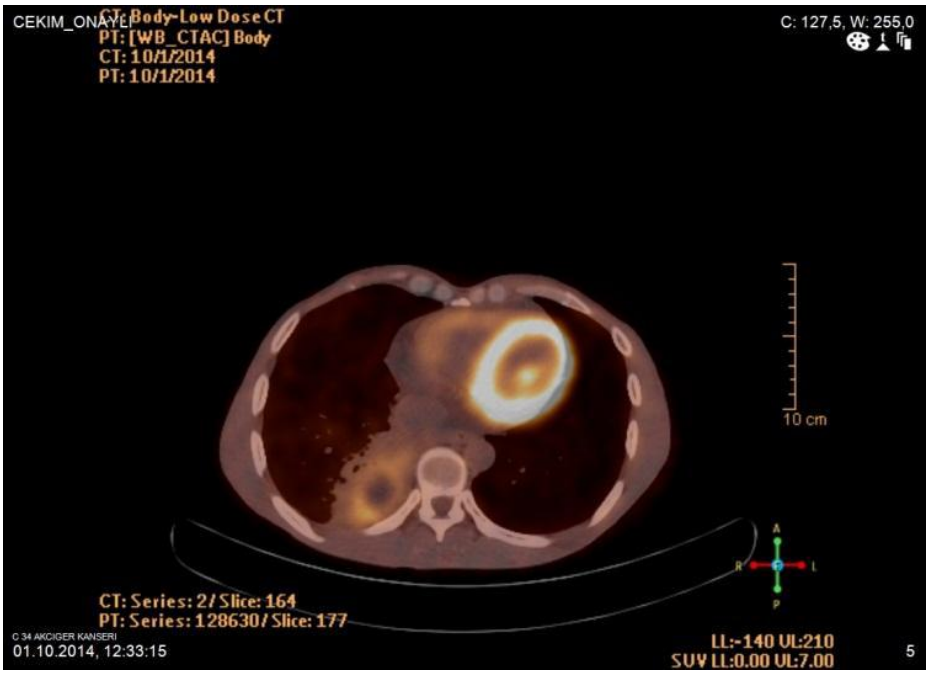

Figure 3. Image of the Lesion on Positron emission tomography

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