The Masquerader; Pulmonary Actinomycosis, Rare Etiology of Empyema in Developed Countries
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Introduction

Thoracopulmonary Actinomycosis is rare and commonly misdiagnosed as it mimics a wide variety of lung pathologies particularly bronchogenic carcinoma, pleural effusion, tuberculosis, and pneumonia. It constitutes 15–20% of Actinomycosis cases and is highly treatable when detected early.

Case Description

A 42 year old male with remote history of alcohol and tobacco dependence presented with worsening cough and constant, dull left-sided chest wall pain of two months duration in the setting of night sweats, fever, and chills. Chest X-ray prior to symptom onset was normal but a repeat five weeks prior to this presentation was remarkable for left pleural based opacity. Repeat imaging was planned but symptoms worsened prompting admission.

Exam was notable for severe periodontal disease and decreased breath sounds in the left base. Laboratory data was remarkable for leukocytosis, mild neutrophilia, elevated CRP and ferritin.

Chest X-ray and CT are shown.

Figure 1- CXR PA remarkable for a large lenticular lesion posterior to the left lower lobe, increased in size compared with imaging 5 weeks earlier.

Figure 2- Axial view of CT chest: septated gas and fluid collection in the left lower lobe associated with thickened pleura and a small subpulmonic component suggestive of a partially loculated, septated empyema.

Figure 3- Coronal section of CT chest: gas and fluid collection in the left lower lobe measuring 5.6 x 7.6 cm superiorly and 12.1 x 5.8 cm inferiorly. No significant lymphadenopathy was visualized.

Figure 4- The sulfur granules consist of tangled filaments of actinomycosis species, a gram-positive, anaerobic filamentous bacteria. They may appear single or in loose aggregations. Differentiation of the species is difficult, requiring assessment of several metabolic capabilities.

Antibiotics were narrowed to Amoxicillin-Clavulanic Acid after chest tube was removed and he was discharged home to complete 6 months of therapy. He did not require thoracotomy.

Serial imaging after discharge demonstrated interval decrease of left pleural effusion with persistent overlying pleural thickening and enhancement. Serial PFTs revealed both obstructive and restrictive physiology; however, there was no progressive restriction to suggest fibrothorax.

Discussion

Actinomycosis is caused by gram-positive, predominantly anaerobic, filamentous, non-spurulating, non-acid-fast bacteria. It is characterized by occult onset, insidious progress, suppuration, abscess formation, and contiguous spread by invading tissue planes.

Thoracopulmonary Actinomycosis carries a less favorable prognosis due to greater likelihood of dissemination. It can occur in immunocompetent individuals in their fourth and fifth decade of life and is generally due to A. meyeri as opposed to other species.

This case highlights known predisposing factors including poor dental hygiene and alcoholism as well as common symptoms like cough, fever, and chest pain.

Penicillin at high concentration and for extended duration is the standard therapy to provide sufficient drug levels to penetrate into areas of suppuration and fibrosis. An early diagnosis can often avoid the need for surgery and prevent unnecessary morbidity and mortality.

References