

A progressive granulomatous disease mimicking tuberculosis

Sir,

Actinomycosis is a slowly progressive granulomatous disease which is often misdiagnosed because it can closely mimic tuberculosis clinically and histopathologically. A 49-year-old homemaker was admitted with high-grade fever and cough with recurrent episodes of blood streaking of sputum for 10 days. She denied the history of weight loss, had no sick contacts, and had no history of addictions. She had diabetes for 1 year on diet control. On examination, she had high-grade fever of 102°F, tachycardia, tachypnea, and normal blood pressure. She had a right posterior chest wall swelling 15 cm × 10 cm in diameter, tender with local rise of temperature, and redness. There was no sinus over the swelling.

Hemoglobin was 9.7 g/dl (microcytic and hypochromic), total leukocytes count 15,400/ml with 80% neutrophils, platelet count 240,000/ μ l, erythrocyte sedimentation rate 60 mm in 1 h, and C-reactive protein was high. Fasting blood sugar was 167 mg/dl and hemoglobin A1c was 8. Rest of the blood chemistries were normal. Chest X-ray showed blunting of right costophrenic angle. HIV, hepatitis B, and hepatitis C serologies were negative. Purified protein derivative test was negative. Blood and sputum cultures were sterile. Sputum for acid-fast bacilli was negative. Thorax contrast-enhanced computed tomography showed a 2 cm × 1.8 cm soft-tissue lesion in the right midzone of the lung [Figure 1a], with partial collapse consolidation of right lower lobe and an abscess over right posterior chest wall. About 500 ml thick yellow-colored pus was drained from the abscess. Pus culture and acid-fast bacilli staining were negative. Gram stain, acid-fast bacilli staining, and fungal stain of bronchial washings were negative.

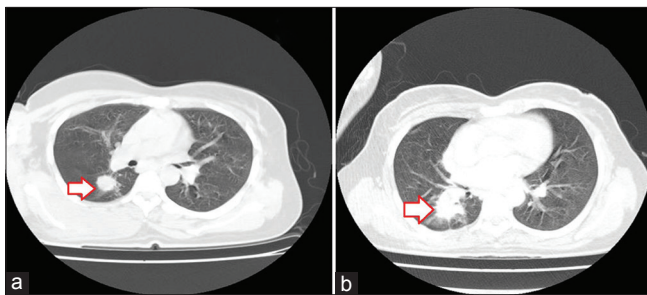


Figure 1: (a) Initial contrast-enhanced computed tomogram of the thorax showing a 2 cm × 1.8 cm soft-tissue lesion in the right midzone of the lung. (b) Repeat contrast-enhanced computed tomogram of the thorax showing increase in size of the right midzone lesion (3.1 cm × 2.8 cm) with spiculations

She received piperacillin-tazobactam and amikacin for 3 weeks. Repeat computed tomogram of the thorax showed resolving abscess with persisting parenchymal lesion. Trucut biopsy from the lung revealed granulomatous lesion, but there was no evidence for malignancy. Acid-fast bacilli staining, culture, and genexpert test for tuberculosis were negative. Workup for other causes of granulomatous lesion including fungal staining and culture, serum angiotensin-converting enzyme level, and C- and P-anti-neutrophil cytoplasmic antibodies were negative. She was started on antitubercular drugs empirically considering tuberculosis as the likely cause for granulomatous lung lesion, even though the tests were negative. After 6 months of antitubercular drugs, she developed a swelling in the left inguinal region.

She had occasional fever, cough, and loss of weight during the 6 months. A repeat physical examination demonstrated left inguinal matted lymph nodes measuring 4 cm × 5 cm, nontender and hard in consistency. Repeat hemoglobin was 9.4 g/dl (microcytic and hypochromic), total leukocytes count 6400/ml with 64% neutrophils, platelet count 4, 20,000/ μ l, erythrocyte sedimentation rate 69 mm in 1 h, and C-reactive protein was high. Repeat thorax contrast-enhanced computed tomography showed increase in size of the lesion located at midzone of the right lung (3.1 cm × 2.8 cm) with spiculations [Figure 1b].

Differential diagnosis in a woman who received empirical antitubercular drugs 6 months for a granulomatous lung lesion, with persistent symptoms and new-onset inguinal lymphadenopathy, include granulomatous infections such as atypical mycobacterium and fungi, malignancy, or other noninfectious conditions like sarcoidosis. Repeat trucut biopsy from the lung revealed granulomatous lesion, but there was no evidence for malignancy [Figure 2]. Inguinal node biopsy revealed necrosis with filamentous Gram-positive pathogens suggesting actinomycosis [Figure 3]. She was diagnosed to have actinomycosis and was treated with intravenous penicillin (for 4 weeks) later continued on amoxicillin for 8 months. When reviewed after 8 months, she was afebrile, asymptomatic, and the size of the lung lesion reduced significantly.

Granulomatous lung diseases are a heterogeneous group of disorders that have a wide spectrum of pathologies with variable clinical manifestations and outcomes. Differential diagnosis is challenging and includes both infectious and noninfectious diseases (sarcoidosis, necrotizing sarcoid granulomatosis, hypersensitivity pneumonitis, hot tub lung, berylliosis, granulomatosis with polyangiitis,

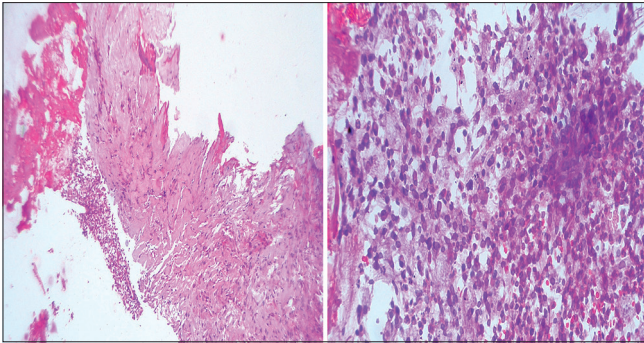


Figure 2: Trucut biopsy from the lung showing granulomatous lesion (hematoxylin and eosin staining)

eosinophilic granulomatosis with polyangiitis, rheumatoid nodules, talc granulomatosis, Langerhans cell histiocytosis, and bronchocentric granulomatosis).^[1]

Actinomycosis is a rare, chronic, and slowly progressive granulomatous disease. Histopathology discloses one to three sulfur granules in about 75% of cases, described as basophilic masses with eosinophilic terminal clubs on staining with hematoxylin and eosin.^[2,3] Our patient had granulomatous lung lesion initially and the tests for granulomatous disorders including bacteria, mycobacteria, fungi, and other noninfectious causes were negative. She was empirically started on antitubercular drugs in spite of the negative tests because she was living in a country (India) with a high burden of tuberculosis.

Hematogenous dissemination is a relatively frequent complication of actinomycosis, especially as a result of thoracic disease.^[4] It produces manifestations that can be easily mistaken for metastatic disease, with multiple nodules in virtually any organ or tissue.^[5] Our patient developed inguinal swelling secondary to hematogenous dissemination from thoracic disease. A high level of clinical suspicion is needed to diagnose and cure actinomycosis in patients with indolent, unresolving, or relapsing chronic inflammatory disease. It is often misdiagnosed because it can mimic other conditions such as malignancy and tuberculosis.

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Nil.

Conflicts of interest

There are no conflicts of interest.

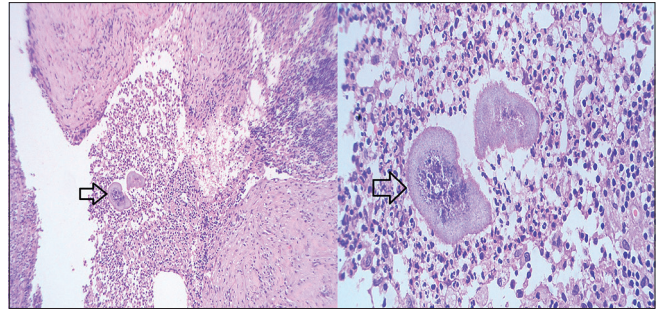


Figure 3: Inguinal node biopsy showing filamentous pathogens suggesting actinomycosis (hematoxylin and eosin staining)

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