



Case illustrated

Asymptomatic actinomycosis in a girl with thalassemia major

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ABSTRACT

We present a rare case of lung actinomycosis in a girl with thalassemia major with a competent immunological status. Chest computed tomography scans showed high intensity nodules in the right lower lung. Diagnosis was confirmed by revealing of actinomycetes from the staining of bronchoalveolar fluid. The patient was given intravenous penicillin then oral amoxicillin and clavulanate potassium. This patient responded well after antibiotic treatment for four months. Our report suggests that clinicians should evaluate the immune response underlying asymptomatic infections before conducting hematopoietic stem cell transplantations.

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A 6-year-old girl underwent comprehensive medical evaluation before initiation of hematopoietic stem cell transplantation. She had been diagnosed with β -thalassemia major soon after birth and had received regular blood transfusions and chelation therapy thereafter. Chest computed tomography (CT) showed high intensity nodules in the basal segment of the right lower lung lobe (Fig. 1). She had no prior history of respiratory symptoms and denied inhalation of foreign objects. Evaluation of the immunological functions of the patient was normal by testing the immunoglobulins, CD4, and CD8 T lymphocyte levels. Based on the CT scans, the patient was first suspected to have a fungal infection. Bronchoscopy was performed, and bronchoalveolar fluid samples were collected for examination. Gram staining of cytospin slides of bronchoalveolar fluid showed basophilic masses containing actinomycetes (Fig. 2), suggesting pulmonary actinomycosis. She then received intravenous penicillin for 2 days, followed by the continuation of oral amoxicillin /clavulanate. Chest CT performed approximately 4 months later suggested that the size of the lesions had significantly reduced (Fig. 3). This patient was stable and remained on antimicrobial therapy.

Pulmonary actinomycosis infections are rare in immunocompetent children [1]. Early diagnosis of actinomycosis can be difficult and patients were often misdiagnosed with fungal or *Mycobacterium tuberculosis* infections based on clinical

presentations and conventional imaging techniques [2–4]. In addition, co-infection of other pathogens such as *Mycobacterium tuberculosis* could worsen the progression of disease [5]. Our report suggests that patients with thalassemia major are risk of opportunistic infections. This mechanism is still unknown and requires further study in the future. Furthermore, the evaluation of underlying immunological status is critical before the initiation of hematopoietic stem cell transplantation.

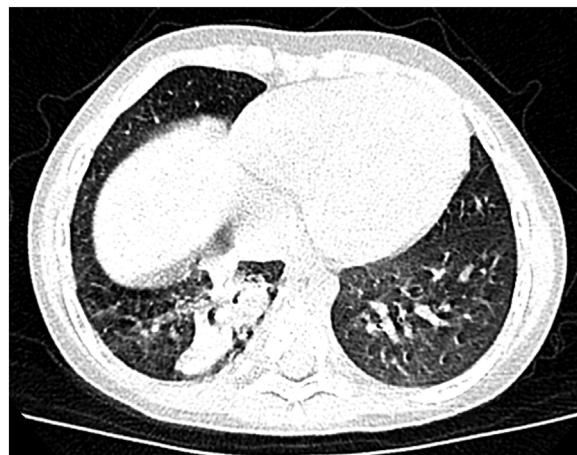


Fig. 1. The chest computed tomography (CT) scan of the patient before treatment. CT scan of the chest showed high intensity nodules in the basal segment of the right lower lung lobe.

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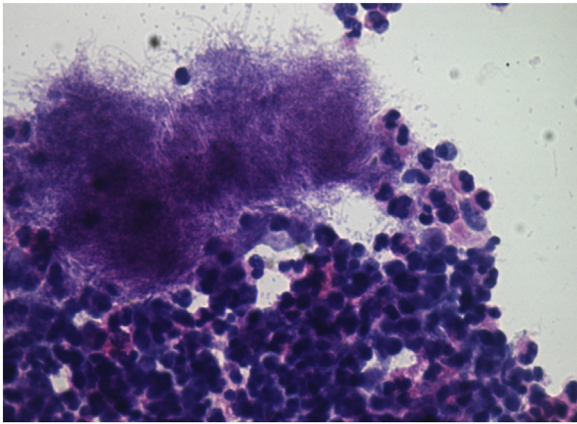


Fig. 2. Identification of actinomycetes from bronchoalveolar fluid of the patient. Bronchoscopy was performed on the patient and bronchoalveolar fluid was collected for cytospin preparation. Cytospin slides were processed for Gram staining. Basophilic masses containing actinomycetes were observed by light microscopy.

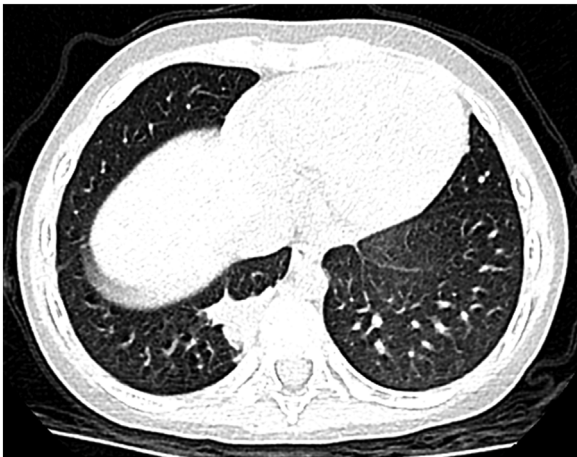


Fig. 3. The chest CT scan of patient after antimicrobial therapy for four months. Examination of the chest CT scan of patient showed significant reduction of lung lesions after antimicrobial treatment for 4 months.

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Ethical approval

Ethical approval is not required.

Declaration of Competing Interest

The authors have no conflict of interests to declare.

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