CASE REPORT

Mycobacterium avium lung disease combined with a bronchogenic cyst in an immunocompetent young adult

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We report a very rare case of a bronchogenic cyst combined with nontuberculous mycobacterial pulmonary disease in an immunocompetent patient. A 21-year-old male was referred to our institution because of a cough, fever, and worsening of abnormalities on his chest radiograph, despite anti-tuberculosis treatment. Computed tomography of the chest showed a large multi-cystic mass over the right-upper lobe. Pathological examination of the excised lobe showed a bronchogenic cyst combined with a destructive cavitary lesion with granulomatous inflammation. Microbiological culture of sputum and lung tissue yielded Mycobacterium avium. The patient was administered anti-mycobacterial treatment that included clarithromycin.

Keywords: Nontuberculous mycobacteria; Bronchogenic cyst; Mycobacterium avium complex

INTRODUCTION

Mycobacterium avium-intracellulare complex is the most frequently encountered cause of lung disease caused by nontuberculous mycobacteria (NTM) [1]. NTM lung disease is common in structural lung disease, such as chronic obstructive lung disease, bronchiectasis, and prior tuberculosis. Here, we describe a bronchogenic cyst combined with M. avium lung disease in an immunocompetent young adult patient.
CASE REPORT

A 21-year-old male was referred to our hospital because of a cough, fever, and progressive lung lesion on his chest radiograph. He was a non-smoker. A cystic mass had been noticed on the chest radiograph at a routine health check 6 months earlier (Fig. 1A). He was given a presumptive diagnosis of pulmonary tuberculosis without bacteriologic confirmation. The patient had been taking anti-tuberculosis medication for 6 months. However, the mass increased in size (Fig. 1B) and new symptoms developed, such as the cough and fever. Consequently, he was referred to our hospital.

On admission, his body temperature was 39°C. His white blood cell count was 8,460/μL, the erythrocyte sedimentation rate was 74 mm/hr, and C-reactive protein increased to 5.39 mg/dL. A human immunodeficiency virus antibody test was negative. A chest radiograph and computed tomography revealed a huge, multi-septated cystic mass in the right upper lobe (Fig. 2A).

Numerous acid-fast bacilli (AFB) were seen in multiple sputum specimens. However, nucleic acid amplification tests for Mycobacterium tuberculosis in the sputum specimens were negative using a commercial DNA probe (Gen-Probe amplified Mycobacterium tuberculosis direct test, Gen-Probe, San Diego, CA, USA). The results of both a tuberculin skin test and serum interferon gamma assay (QuantiFERON-TB Gold, Cellestis, Victoria, Australia) were negative. A polymerase chain reaction method used to examine AFB-positive sputum specimens was for identification of the causative agent [2]. The result was positive for M. avium.

Based on the clinical findings and laboratory data, our diagnosis was M. avium infection combined with congenital cystic lung disease. The antibiotic therapy was changed to clarithromycin (1,000 mg/day), rifampicin (600 mg/day), ethambutol (800 mg/day), and streptomycin (1 g intramuscularly three times per week).

The patient underwent a right upper lobectomy 3 weeks later for confirmative diagnosis and treatment of complicated congenital cystic lesion. The resected lung contained a 2.5 × 2 cm intrapulmonary bronchogenic cyst and a 5 × 3.5 cm destructive cavitory lesion

Figure 1. A 21-year-old man with Mycobacterium avium infection combined with a bronchogenic cyst. (A) Chest radiography showed a cystic mass in the right upper lobe. (B) After anti-tuberculosis medication for 6 months, the mass increased in size and developed multiple cavities.