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Published Ahead of Print 17 October 2007.
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Received 25 April 2007/Returned for modification 1 June 2007/Accepted 21 September 2007

CASE REPORT

The first patient, a 63-year-old Dutch male living in the south of The Netherlands, presented at a regional hospital with dyspnea and a productive cough. No fever, malaise, hemoptysis, night sweats, or weight loss was reported. His medical history included chronic obstructive pulmonary disease. Since a chest X ray revealed a single opacity in the right upper lobe, computed tomography scanning (CT) was performed, demonstrating calcification in a mediastinal lymph node and a solid mass with spiculae in the right upper lobe, suggestive of malignancy. In the diagnostic workup, a bronchoalveolar lavage was performed. No malignant cells were found in the cytology sample of the lavage fluid. Although no acid-fast bacilli were seen on direct microscopy, the routine mycobacterial culture of the lavage fluid yielded *Mycobacterium conspicuum*. Serological examination lowered the suspicion of an infectious process, with an erythrocyte sedimentation rate of 5 mm/h and a white blood cell count of 7.8 per nl. Although no malignancy was cytologically proven, a mediastinoscopy was performed for staging of the suspected malignancy. No evidence of either malignancy or mycobacterial infection was found in the lymph node samples. Based on the radiographic image and the mediastinoscopy result, the patient underwent a lobectomy of the right upper lobe and a squamous cell carcinoma was diagnosed histologically. No histological evidence of mycobacterial infection was found. Based on the single positive culture, nonsuspect bronchoscopic image, and alternative diagnosis, the *M. conspicuum* culture was considered a contaminant; hence, no antmycobacterial treatment was started.

The second patient was a 65-year-old Dutch male from the south of The Netherlands, presented at another regional hospital with dyspnea and a productive cough, without a fever, night sweats, weight loss, or malaise. A chest X ray and CT revealed further progression of preexistent interstitial nodular opacities, thick septa, bronchiectasis, fibrotic scarring, bullae, emphysema, and a ground-glass aspect. During the next 2 years, 13 mycobacterial sputum cultures were performed, 10 of which yielded *M. conspicuum*; 3 cultures remained negative, although two samples were initially PCR positive for a nontuberculous mycobacterium (NTM) identified as *M. conspicuum* by sequencing of the PCR product. All acid-fast-bacillus smears were negative. The serological parameters of infection were slightly raised; the erythrocyte sedimentation rate ranged between 21 and 32 mm/h, the C-reactive protein concentration ranged between 13 and 44 mg/liter, and the white blood cell count was 12.2 per nl. The disease progressed in these 2 years, with increasingly frequent *Pseudomonas aeruginosa* infections and chronic hypoxia, making the patient oxygen dependent. It was decided that the sarcoidosis, rather than the *M. conspicuum* infection, would be treated, and the patient underwent bilateral lung transplantation 2 years and 8 months after the first *M. conspicuum* culture. The last sputum culture yielding *M. conspicuum* was performed 8 weeks prior to transplantation. The patient died of respiratory failure 17 days after transplantation; the donor lungs were colonized by *P. aeruginosa* and an *Acinetobacter* species. Autopsy revealed an acute necrotizing pneumonia in both lungs, most likely caused by *P. aeruginosa*. The native lungs were not examined.

Based on the progression of symptoms and radiographic abnormalities as well as multiple positive cultures, this patient met the American Thoracic Society (ATS) diagnostic criteria (1) and thus was likely to have *M. conspicuum* pulmonary disease. However, fulfillment of these criteria does not necessitate treatment per se; this is a decision based on potential risks and benefits of therapy for the individual patient (1). In addition, the progression of symptoms and radiographic abnormalities may have been due to sarcoidosis alone. For these reasons, no antmycobacterial treatment was initiated. Histological examination of the native lungs could have provided additional proof of *M. conspicuum* infection. Previously, the condition of persistent culture positivity with little or no clinical or radiographic deterioration has been referred to as colonization. However, airway colonization without infection is an unproven condition for NTM and recent studies with high-resolution CT, summarized in the ATS statement, have re-

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\(^{\dagger}\) Published ahead of print on 17 October 2007.
A 40-year-old woman was referred to our clinic because of a 1-year history of chronic productive cough, dyspnea, and weight loss. She was a heavy smoker with a history of chronic obstructive pulmonary disease (COPD). The patient had been diagnosed with COPD 10 years earlier and was treated with long-acting bronchodilators and inhaled corticosteroids. Her smoking history was 2 packs per day for 40 years.

On physical examination, she was noted to have clubbing of the fingers and a persistent dry cough. Chest X-ray revealed bilateral pulmonary infiltrates, and a CT scan of the chest showed diffuse interstitial lung disease. A sputum sample was taken for mycobacterial culture. The patient had a history of previous tuberculosis, treated with rifampin, isoniazid, ethambutol, and streptomycin, which had been successfully completed 5 years earlier.

Culture of the sputum sample grew a mycobacterial isolate identified as Mycobacterium avium complex (MAC) by polymerase chain reaction (PCR) and sensitive to rifampin, isoniazid, ethambutol, and streptomycin. However, attempts to grow the isolate in the liquid media failed after 35 days. The isolate was further characterized using a variety of methods, including 16S rRNA gene sequencing.

The isolate was found to be resistant to fluoroquinolones, clarithromycin, and erythromycin, and susceptible to rifampin and isoniazid. The isolate was also found to be sensitive to ethambutol and streptomycin.

The patient was treated with a regimen of rifampin, isoniazid, ethambutol, and streptomycin for 9 months. After treatment, the patient's symptoms improved, and the sputum culture results became negative. The patient was discharged on a maintenance regimen of isoniazid and rifampin.

In conclusion, Mycobacterium avium complex is a common cause of disseminated MAC infection in patients with immunodeficiency. Early diagnosis and adequate treatment are crucial for the successful management of MAC infections. The use of advanced molecular diagnostic methods, such as PCR, is essential for the accurate identification of MAC isolates.

References: