

Mycobacterium simiae infection in an immunocompetent old woman

Infecția cu *Mycobacterium simiae* la o femeie imunocompetentă

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Abstract

Mycobacterium simiae is an uncommon cause of pneumonia in immunocompromised host. We report a case of pulmonary infection due to *M. simiae* in an immunocompetent old woman who suffered from chronic cough. Based on positive sputum smear for acid-fast bacilli, the disease was diagnosed as tuberculosis. Failure of response to antituberculous drugs resulted in further evaluation and the identification of *M. simiae* by molecular method on sputum culture. *M. simiae* should be considered as a potential cause of lung disease in patients suspected to have tuberculosis but failed to respond to antituberculosis therapy. **Keywords:** *Mycobacterium simiae* infection, tuberculosis, pneumonia

Rezumat

Mycobacterium simiae este o cauză mai puțin frecventă de pneumonie la pacientul imunocompromis. Prezentăm cazul unei infecții pulmonare cu *M. simiae* la o femeie imunocompetentă care suferea de tuse cronică. Boala a fost diagnosticată ca fiind tuberculoză, având în vedere froțiul de spută pozitiv pentru bacili acid alcool-rezistenți. Absența răspunsului la medicamentele antituberculoase a dus la o evaluare ulterioară și la identificarea *M. simiae* prin metoda moleculară din cultura sputei. *M. simiae* ar trebui considerată o cauză potențială de boli pulmonare la pacienții suspecți a avea tuberculoză, dar care nu răspund la terapia antituberculoasă. **Cuvinte-cheie:** infecție cu *Mycobacterium simiae*, tuberculoză, pneumonie

Introduction

Mycobacterium simiae is a slowly-growing photochromogenic non-tuberculous mycobacterium. It can be cultured on conventional media for acid-fast bacilli such as Löwenstein-Jensen medium and requires more than two weeks to grow. The organism is distinguished from other mycobacteria based on the production of niacin and catalase, and lack of reduction of nitrate. Rapid detection of *M. simiae* in clinical specimens has become possible in recent years by using newer methods such as BACTEC culture system and molecular tests⁽¹⁾.

M. simiae is an uncommon pathogen of respiratory tracts. Pulmonary *M. simiae* infections have been reported sporadically from Southwestern of United States, Cuba, Eastern Asia, including Japan and South Korea, and Middle Eastern countries, including Turkey, Palestine and Iran^(2,3).

The transmission of *M. simiae* to human and the environmental sources of this organism remain unclear; however, the route of entry is probably the inhalation of aerosols⁽⁴⁾.

The infections are most commonly found in immunocompromised hosts, such as HIV-positive patients, the elderly and those with history of tuberculosis. Also, patients with diabetes mellitus, cardiovascular disorders, and malignancy are at risk to acquire *M. simiae* infections⁽⁵⁾.

Case report

A 74-year-old woman from Hamadan, Iran, was referred to our hospital with chronic productive cough, night sweating and weight loss during the past year.

She was an otherwise healthy, non-smoker woman, and did not have history of pulmonary tuberculosis or previous contact with a person with tuberculosis.

At physical examination, just fine crackles in both lower lung fields were found and other exams were normal. Chest

X-ray revealed a focus of linear atelectasis in the right upper lobe (Figure 1).

The tuberculin skin test was positive, with 14 mm induration, and three times sputum smears were positive for acid-fast bacilli.

Because of abnormal chest radiograph and positive sputum smears, we considered her as a case of pulmonary tuberculosis and started antituberculosis therapy with four-drug regimen.

After six months, the treatment was completed and the patient got well in general conditions with normal imaging and negative sputum smear and culture.

After five months, she came back again, with night sweating, fever, chills, bloody sputum and malaise. Acid-fast bacilli were found in her sputum smears. She was considered as a TB relapsing case and anti-TB drug regimen including isoniazid, rifampin, pyrazinamide and streptomycin was started. Colonies of a slowly growing mycobacterium were recovered from her sputum culture. The isolated mycobacterium was identified as *M. simiae*, using polymerase chain reaction RFLP. The molecular assay for antimicrobial susceptibility testing detected mutations as genetic variants that represented isoniazid and rifampin resistance to *M. simiae*. So, the treatment with a combination of clarithromycin, ofloxacin, and cotrimoxazole was administered. All symptoms were resolved during the first month and therapy was continued for a six-month duration.

After the six-month therapy, the patient felt well and all imaging and laboratory data were normal. Also, sputum smears was negative for acid-fast bacilli at the end of the treatment. In one year of patient follow-up, her condition was stable and she was asymptomatic.

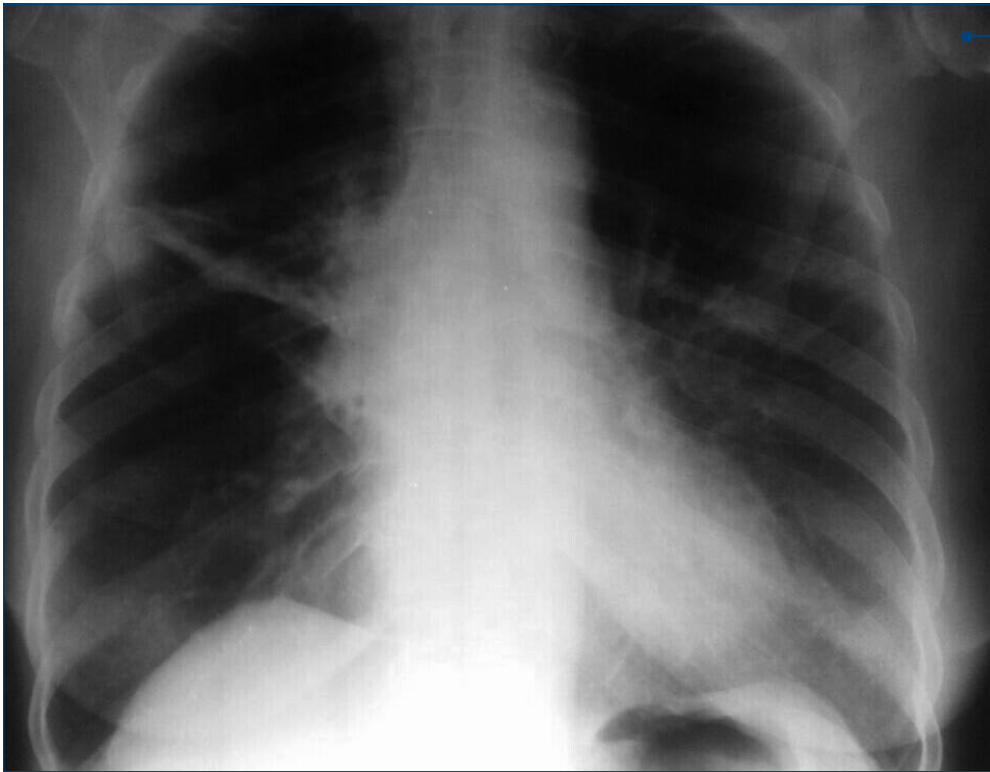


Figure 1. Chest X-ray showing linear atelectasis in the upper zone of the right lung

Discussion

M. simiae is an uncommon pathogen of respiratory tract. There was only one established case report of *M. simiae* infection in Iran up to 2012⁽⁵⁾. Recently, in a report of 117 isolates of non-tuberculous mycobacteria from different parts of Iran, 12 isolates of *M. simiae* were reported from patients with suspected tuberculosis. All patients with *M. simiae* infection were immunocompromised, with comorbidities, except an immunocompetent young female with chronic pneumonia⁽⁶⁾.

Our case was an old woman with chronic cough and constitutional symptoms, who was misdiagnosed as pulmonary tuberculosis. Nonspecific symptoms and radiographic features have been reported commonly in all mycobacterial lung diseases.

Moreover, as in our case, patients with nontuberculous mycobacterial lung disease are usually older, non-smoker women, with fewer constitutional symptoms, and are more likely to have a history of previous TB treatment, and bilateral involvement of the middle or lower lung fields than do patients with pulmonary TB⁽⁷⁾. Also, a nodular bronchiec-

tatic form of nontuberculous mycobacterial disease with bilateral bronchiectasis and nodular infiltration in middle and lower field of lung has been reported commonly in older women without underlying diseases⁽⁸⁾. However, there is considerable similarity in the clinical findings and radiological changes between the two situations^(7,9). Hence, further microbiologic diagnostic evaluations are essential.

Our patient responded to a short-course, six-month therapy with a combination of three commonly-used drugs for *M. simiae*. There is no standard drug regimen for *M. simiae*. Various combinations of two or three of antimicrobial agents including clarithromycin, ofloxacin, cotrimoxazole, and ethambutol have been used with various durations from six to eighteen months based on the severity of the disease, comorbidities and clinical response^(6,10).

We reported the first confirmed case of *M. simiae* lung disease in Hamadan, Iran. Because of similar manifestations but different treatment of *M. simiae* and *M. tuberculosis*, even in HIV-negative persons, nontuberculous mycobacteria such as *M. simiae* should be suspected and necessary evaluations must be undertaken. ■

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