A Case of *Mycobacterium massiliense* Infection Presenting as Pneumonia Resistant to Antibiotics in an Immunocompetent Host

Jung-Wan Yoo, M.D.1, Yong Hee Kim, M.D.2, Tae Sun Shim, M.D.1

1Division of Pulmonary & Critical Care Medicine, Department of Internal Medicine, 2Department of Thoracic Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

*Mycobacterium massiliense* is newly identified rapid-growing nontuberculous mycobacterium, but there are no reports of this mycobacterium species being the cause of human illness. We describe one case of *Mycobacterium massiliense* infection presenting as antibiotic-resistant acute pneumonia that resulted in surgical treatment.

**Key Words:** *Mycobacterium massiliense; Mycobacteria, Atypical; Pneumonia*

**Introduction**

Although previously classified as part of the *Mycobacterium abscessus-chelonea* complex, *Mycobacterium massiliense* has been recently identified as a new species of rapidly growing nontuberculous mycobacteria (NTM)1. Although infection with *M. massiliense* has been reported in pacemaker pockets, surgical sites, and intramuscularly, as well as in the lungs of an immunocompromised host2,3, the clinical manifestations of *M. massiliense* have not been well characterized. We describe here an immunocompetent host with a *M. massiliense* pulmonary infection resistant to standard antimicrobial chemotherapy and requiring surgical treatment.

**Case Report**

A 44-year-old woman, with no notable medical history, visited another hospital 6 months ago complaining of cough, sputum, and fatigue. Based on a positive acid-fast bacilli (AFB) smear result, she was diagnosed with pulmonary tuberculosis (TB). During anti-TB treatment with isoniazid, rifampicin, ethambutol, and pyrazinamide, however, NTM was isolated repeatedly. *M. abscessus* was identified by polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) analysis of the *rpoB* gene (Myco-ID®; M&D, Seoul, Korea)6 and she was referred to our hospital. She was a housewife and non-smoker, Her mother had a history of bronchiectasis.

On admission, she complained of cough, and had purulent and blood-tinged sputum without fever. On physical examination, vital signs included blood pressure of 111/71 mm Hg, pulse of 89/min, respiration of 20/min, and a temperature of 37.3°C. An inspiratory crackle was heard on her left lung field. Laboratory tests showed a leukocyte count of 7,300/mm³; hemoglobin of 12.3 g/dL; a platelet count of 191,000/mm³; blood urea nitrogen of 15 mg/dL; serum creatinine of 0.7 mg/dL; serum protein of 7.3 g/dL; serum albumin of 4.1 g/dL; aspartate aminotransferase (AST) of 16 IU/L; alanine aminotransferase of 17 IU/L; total bilirubin of 0.6 mg/dL; and CRP of 1.87 mg/dL. A serologic test for HIV was negative, Gram staining of her sputum was negative, but AFB smear was positive.

A chest radiograph on admission showed multiple aggregated nodules on her right upper lobe and consolidation with cavity formation on her left upper lobe.
She was diagnosed with *M. abscessus* pulmonary infection and treated with clarithromycin (1,000 mg/day), cefoxitin (12 g/day), and amikacin (15 mg/kg/day). After admission, she developed a high fever (up to 39°C), which was sustained even during antibiotic treatment, and her chest radiograph showed rapid aggravation (Figure 1B). A chest computed tomography scan also revealed a rapidly aggravating consolidative lesion on the left upper lobe (Figure 1C, D). On the ninth day after admission, moxifloxacin (400 mg/day) was added parenterally. On day 20, imipenem (2,250 mg/day) was substituted for cefoxitin because of pancytopenia (leukocytes 2,700/mm³; hemoglobin 11.1 g/dL; platelets 87,000/mm³) and AST/ALT elevation (AST 146 IU/L, ALT 106 IU/L). On day 25, she underwent a left upper lobectomy because of sustained high fever and a rapidly aggravating consolidative lesion despite high-intensity medical treatment. Immediately after surgery, her fever subsided, AFB stain and culture converted to negativity, and the chest tube was removed 8 days after surgery. She was maintained on four drugs (clarithromycin, amikacin, moxifloxacin, imipenem) for 68 days after surgery. Imipenem, amikacin, and moxifloxacin were sequentially discontinued and she was