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Successful Treatment of *Mycobacterium massiliense* Lung Disease with Oral Antibiotics Only

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Mycobacterium abscessus is the most drug-resistant mycobacterial species (1, 2). Combination therapy with intravenous amikacin plus cefoxitin or imipenem and an oral macrolide for 2 to 4 months is recommended (3). Recently, *M. abscessus* was split into *M. abscessus sensu stricto*, *Mycobacterium massiliense*, and *Mycobacterium bolletii* (4, 5). Effective therapy for *M. massiliense* lung disease remains elusive but still usually requires parenteral agents (6). We report a case of *M. massiliense* lung disease that was treated successfully with oral antibiotics only.

A 43-year-old woman was referred for cough, sputum, and hemoptysis. Computed tomography revealed severe bronchiectasis and peribronchial consolidation in both lungs (Fig. 1A to C). A sputum smear was positive for acid-fast bacilli, and all isolates (>5 sputum specimens) were identified as *M. massiliense*, using sequence analysis targeting the *rpoB* and *hsp65* genes (6). Other bacterial and mycobacterial pathogens were not found. Drug susceptibility testing demonstrated that the isolates were susceptible to clarithromycin (MIC $\leq$ 0.5 μg/ml) and amikacin (MIC 16 μg/ml), intermediate to cefoxitin (MIC 64 μg/ml), and resistant to ciprofloxacin (MIC > 16 μg/ml) and moxifloxacin (MIC > 16 μg/ml). We recommended an initial hospital admission for parenteral antibiotic treatment (1, 6). However, the patient could not be admitted because of family problems. Therefore, she was treated with oral clarithromycin (1,000 mg/day) and moxifloxacin (400 mg/day) for 24 months. Moxifloxacin was added because of our concern over the emergence of clarithromycin resistance during clarithromycin monotherapy (1, 6). The treatment outcome was favorable; the patient's symptoms resolved completely, and the radiographic findings improved (Fig. 1D to F). The sputum smear and culture were negative after 4 weeks of antibiotic treatment. She is doing well, with no relapse 40 months after treatment completion.

This is the first reported case of *M. massiliense* lung disease that was treated successfully with oral antibiotics only. *M. abscessus* infection is very difficult to treat. Inducible resistance of *M. abscessus* to clarithromycin due to expression of the *erm*(41) gene has been suggested as an explanation for the lack of efficacy of clarithromycin-based treatments of the bacterium (7, 8). In contrast, *M. massiliense* is susceptible to clarithromycin due to the absence of inducible resistance to macrolides (8). Recently published articles reported that the treatment response to macrolide-based antibiotic therapy including an initial 4 weeks of parenteral therapy is much better in patients with *M. massiliense* than in those with *M. abscessus* lung disease (6, 9).

Fluoroquinolones are attractive agents because they can be administered orally for a long time. In fact, fluoroquinolones have been used in many patients during combination treatment of *M. abscessus* or *M. massiliense* lung disease in clinical practice (1, 2, 6), but the combined activities of a fluoroquinolone with clarithromycin are still unclear (10). In addition, combination of a macrolide and fluoroquinolone could be a risk factor for macrolide resistance in *M. avium* complex lung disease (11). In conclusion, our case suggests that a more precise determination of the infecting organism to the species level is important in patients with *M. abscessus* complex and that *M. massiliense* lung disease may be treated effectively with oral antibiotics only, including macrolides, without parenteral antibiotics.

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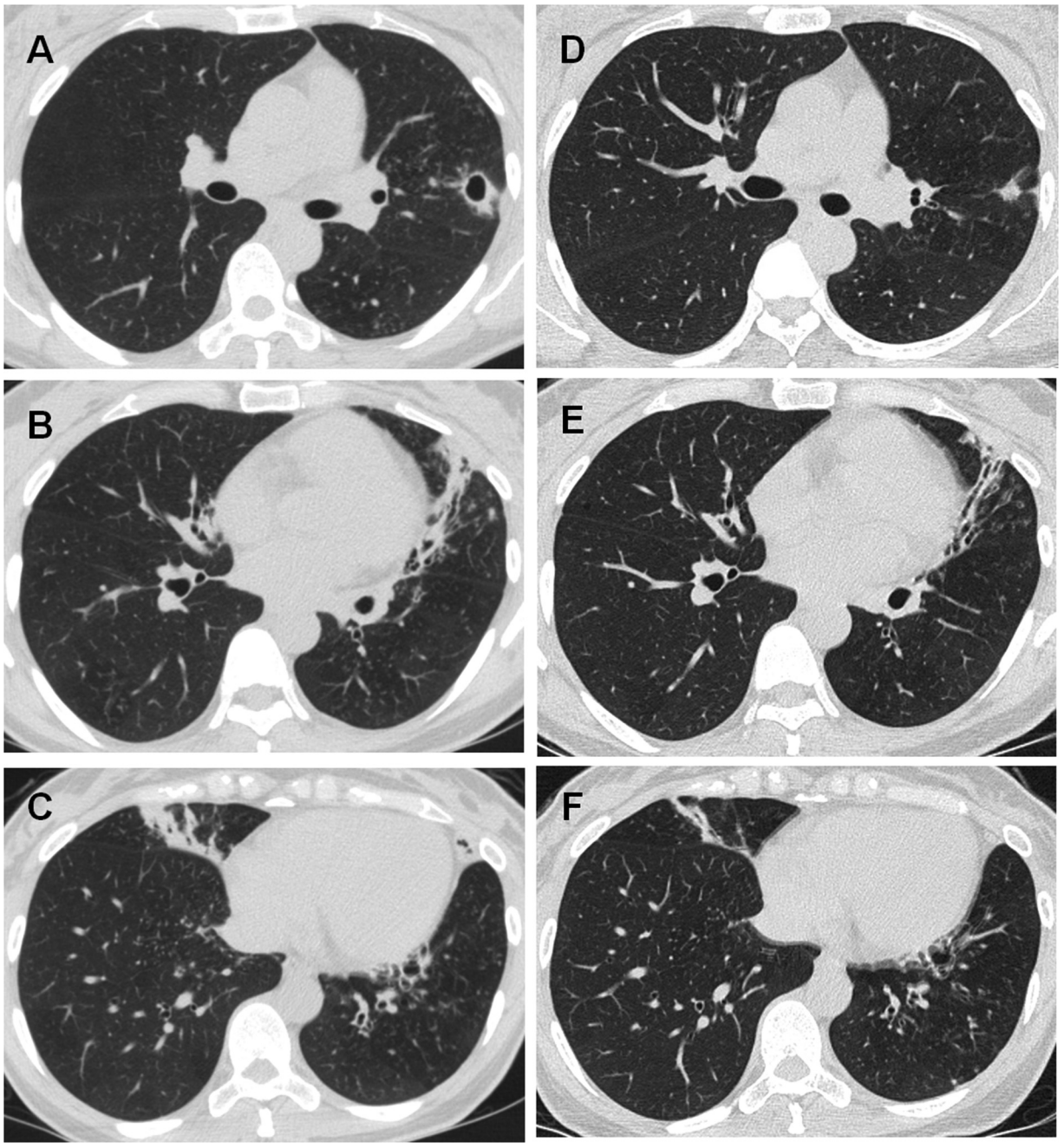

FIG 1 Forty-three-year-old woman with *M. massiliense* lung disease. Computed tomography showed extensive bronchiectasis and peribronchial consolidation in both lungs. (A to C) There was also a 17-mm cavity in the left upper lobe. (D to F) After 12 months of oral antibiotic therapy, the cavity in the left upper lobe was obliterated and the peribronchial consolidation decreased markedly.

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