4 showed susceptibility to amikacin, ciprofloxacin, clarithromycin, and doxycycline but resistance to cefoxitin, sulfamethoxazole, rifampin (MIC >16 μg/mL) and intermediate-resistance to imipenem (MIC 8–16 μg/mL).

According to the American Thoracic Society diagnostic criteria for NTM lung disease (9), patient 1 fulfilled all criteria and patient 3 fulfilled the radiographic and microbiological criteria. These findings suggest that M. conceptionense can cause lung disease. For the other patients, colonization with M. conceptionense is a more plausible explanation (Table).

These 4 recent cases of M. conceptionense infection are in accordance with the increasing prevalence of NTM (10). Increasing prevalence might be the result of technical advances in NTM identification, including use of liquid media and sequencing, or the result of a local outbreak or contamination event. We consider contamination to be an unlikely cause because specimens were completely separated from each other during collection and testing. Isolates from different patients yielded distinct randomly amplified polymorphic DNA patterns. In conclusion, M. conceptionense is not a rare NTM species in South Korea and can cause pulmonary disease.

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References

1. Adékambi T, Stein A, Carvajal J, Raoult D, Drancourt M. Description of Mycobacterium conceptionense sp. nov., a Mycobacterium fortuitum group organism isolated from a posttraumatic osteitis inflammation. J Clin Microbiol. 2006;44:1268–73. doi:10.1128/JCM.44.4.1268-1273.2006
2. Liao CH, Lai CC, Huang YT, Chou CH, Hsu HL, Hseueh PR. Subcutaneous abscess caused by Mycobacterium conceptionense in an immunocompetent patient. J Infect. 2009;58:308–9. doi:10.1016/j.jinf.2009.02.012
3. Thibeaut S, Levy PY, Pelletier ML, Drancourt M. Mycobacterium conceptionense infection after breast implant surgery, France. Emerg Infect Dis. 2010;16:1180–1. doi:10.3201/eid1607.090771
4. Yang HJ, Yim HW, Lee MY, Ko KS, Yoon HJ. Mycobacterium conceptionense infection complicating face rejuvenation with fat grafting. J Med Microbiol. 2011;60:371–4.
5. Lee H, Park HJ, Cho SN, Bai GH, Kim SJ. Species identification of mycobacteria by PCR-restriction fragment length polymorphism of the rpoB gene. J Clin Microbiol. 2000;38:2966–71.
6. Kang SH, Yoo KC, Park KU, Song J, Kim EC. Usefulness of multiplex real-time PCR and melting curve analysis in identification of nontuberculous mycobacteria. Korean J Lab Med. 2007;27:40–5. doi:10.3343/kjl.2007.27.1.40
7. Kim M, Heo SR, Choi SH, Kwon H, Park JS, Seong MW, et al. Comparison of the MicroScan, VITEK 2, and Crystal GP with 16S rRNA sequencing and MicroSeq 500 v2.0 analysis for coagulase-negative staphylococci. BMC Microbiol. 2008;8:233. doi:10.1186/1471-2180-8-233
8. Mignard S, Flandrois JP. Identification of Mycobacterium using the EF-Tu encoding (tuf) gene and the tmRNA encoding (ssrA) gene. J Med Microbiol. 2007;56:1033–41. doi:10.1099/jmm.0.47105-0
9. Griffith DE, Aksamit T, Brown-Elliott BA, Catanzaro A, Daley C, Gordin F, et al. An official ATS/IDSA statement: diagnosis, treatment, and prevention of nontuberculous mycobacterial diseases. Am J Respir Crit Care Med. 2007;175:367–416. doi:10.1164/rccm.200604-517ST
10. Cassidy PM, Hedberg K, Saulson A, McNelly E, Winthrop KL. Nontuberculous mycobacterial disease prevalence and risk factors: a changing epidemiology. Clin Infect Dis. 2009;49:e124–9. doi:10.1086/648443

Mycobacterium riyadhense Pulmonary Infection, France and Bahrain

To the Editor: Mycobacterium riyadhense is a newly described mycobacterial species that is potentially pathogenic for humans. Extrapulmonary infection with this nontuberculous mycobacterium (NTM) has been reported (1). We report 2 cases of pulmonary infection with this NTM.

The first case of infection was in a 39-year-old woman who was admitted to Toulon Military Hospital, Toulon, France, in December 2005 with suspected pulmonary tuberculosis. For 1 month, the patient had a persistent cough, fever, asthenia, and weight loss. Findings on chest radiographs were suggestive of tuberculosis, with cavitation in the right upper lobe, and the tuberculin skin test reaction was positive. Sputum specimens collected on 3 consecutive days were negative for acid-fast bacilli (AFB), but broth cultures (BacT/ALERT 3D system; bioMérieux, Marcy l’Etoile, France) yielded mycobacterial growth.

We used 4 multiplex line-probe assays to identify the mycobacteria: GenoType MTBC (Hain Lifescience, Nehren, Germany) identified the organisms as members of the M. tuberculosis complex (MTBC; with a nonspecific reaction, banding pattern 1, 2, 3); GenoType Mycobacterium
CM (Common Mycobacteria) (Hain Lifescience) kit and GenoType Mycobacterium AS (Additional Species) (Hain Lifescience) kit identified the strains as members of the MTBC and as unspecified Mycobacterium species, respectively; and INNO-LiPA MYCOBACTERIA v2 (Innogenetics, Ghent, Belgium) yielded a Mycobacterium-positive reaction by genus probe but no species-specific result.

Following the criteria of the American Thoracic Society, we considered the isolates as the pathogens responsible for the patient’s respiratory disease (2). The patient was treated with a combination of isoniazid (INH), rifampin (RIF), ethambutol (EMB), and pyrazinamide (PZA). EMB and PZA were continued for 2 months; INH and RIF were continued for 10 months (Table), at which time the patient was considered cured.

The second case of infection was in a 43-year-old man who was admitted to Awali Hospital, Awali, Bahrain, in November 2006. The patient reported malaise, insomnia, cough, weight loss, and anorexia. Radiographs showed features suggestive of tuberculosis (left upper lobe consolidation with focal cavitation). Sputum specimens collected on 3 consecutive days were positive for AFB and mycobacterial growth. To identify the pathogen(s), we used the same 4 multiplex line-probe assays as used for case-patient 1, and results were similar. The identified strain was considered to be the pathogen responsible for the respiratory disease (2).

The patient was treated with a combination of clarithromycin (CLR) and ciprofloxacin (CIP) for 12 months; however, he had a clinical and microbiological (i.e., positive for AFB and culture results with the same NTM) relapse during this treatment. In November 2007, 3 sputum specimens from the patient were positive for AFB, and cultures yielded a mycobacterial strain identical to that identified by the assays. The patient was treated with antituberculous drugs (INH, RIF, EMB, PZA, plus CLR and CIP) for 6 months, and then INH, RIF, CLR, CIP were continued for 2 additional months (Table), after which the patient showed clinical improvement.

In the 2 cases, molecular identification of the isolates as M. riyadhense was achieved by using partial hsp65 and rpoB gene sequencing, which was based on the high level of sequence identities with the type strain of M. riyadhense and a distance score of 3.5 and 4.6, respectively, to the next species, “M. simulans” (Table). Broth microdilution panels (SLOMYCO Sensititer; Trek Diagnosis Systems, Cleveland, OH, USA) were used to perform drug susceptibility testing. Antimicrobial drug therapy was successful, resulting in a clinical and radiographic cure in both cases. The treatment duration was 9 months for the first case and 1 year for the second case. The treatment was well tolerated, and no adverse events were reported.

In summary, M. riyadhense is a rare mycobacterial species that can cause pulmonary disease and has been found in parts of Saudi Arabia and Bahrain. The use of molecular methods, such as line probe assays and gene sequencing, is essential for the accurate identification of this species. The treatment of M. riyadhense infections should be individualized and based on drug susceptibility testing, as the species is susceptible to most antituberculous drugs including rifampin, ethambutol, and pyrazinamide. Further studies are needed to understand the epidemiology and clinical course of this rare mycobacterial species.
USA) were used to determine drug susceptibility (Table) (3).

Commercial probes are frequently used for rapid identification of mycobacterial species (4); however, M. riyadhense and other recently proposed NTMs (e.g., M. kumamotoense and “M. simulans”) cross-react with MTBC DNA probes and may be missed by line-probe assays (5,6). With the emergence of new NTM species, commercial probes could fail to discriminate between species, leaving clinical isolates either unidentified or misidentified. Because of its ease of use, accuracy, and discriminatory power, multilocus sequence analysis may soon become the standard for routine NTM species identification.

We have shown evidence for the pathogenic role of M. riyadhense in pulmonary diseases, a pathogen that has previously been reported to have extrapulmonary pathogenicity (1). Clinical and radiologic signs and symptoms of pulmonary infection caused by M. riyadhense, including cough, weight loss, fever, and cavitating lung lesions, were similar to those in typical cases caused by MTBC strains. van Ingen et al. (7) suggested that the region of difference 1 (RD1) virulence locus identified in MTBC members may also play a crucial role in virulence of some NTM species. These authors found RD1 genes in NTMs that were causing human disease, including M. kansasii, M. szulgai, M. marinum, and the type strain of M. riyadhense (7).

We confirmed the presence of RD1 esat-6 and cfp-10 genes in the M. riyadhense isolates reported here (GenBank accession nos. JF896090–JF896093). Because M. riyadhense is an emerging pathogen with, to our knowledge, only 1 previously reported extrapulmonary case of infection (1), the optimal treatment for infected patients is unknown. Our results and drug susceptibility testing indicate that antituberculous drugs, including INH, RMP, and EMB, are effective against M. riyadhense infection (Table), but the combination of CLR plus CIP was not effective in 1 case-patient reported here, despite in vitro susceptibility to both drugs.

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References

1. van Ingen J, Al-Hajoy SA, Boeree M, Al-Rahial F, Enaimi M, de Zwaan R, et al. Mycobacterium riyadhense sp. nov., a non-tuberculous species identified as Mycobacterium tuberculosis complex by a commercial line-probe assay. Int J Syst Evol Microbiol. 2009;59:1049–53. doi:10.1099/ijs.0.005629-0
2. Griffith DE, Aksamit T, Brown-Elliott BA, Catanzaro A, Daley C, Gordin F, et al. An official ATS/IDSA statement: diagnosis, treatment, and prevention of non-tuberculous mycobacterial diseases. Am J Respir Crit Care Med. 2007;175:367–416. doi:10.1164/rccm.200604-571ST
3. National Committee for Clinical Laboratory Standards. Susceptibility testing of mycobacteria, Nocardiae, and other aerobic actinomycetes; approved standard. NCCLS document M24-A. Wayne (PA): The Committee; 2003.
4. Tortoli E, Nanetti A, Piersimoni C, Cichero P, Farina C, Mougnat G, et al. Performance assessment of new multiplex probe assay for identification of mycobacteria. J Clin Microbiol. 2001;39:1079–84. doi:10.1128/JCM.39.3.1079-1084.2001
5. Rodriguez-Aranda A, Jimenez MS, Vube-ro J, Chaves F, Rubio-Garcia R, Palenque E, et al. Misidentification of Mycobacterium kumamotoense as M. tuberculosis. Emerg Infect Dis. 2010;16:1178–80.
6. Tortoli E, Rogasi PG, Fantoni E, Beltrami C, De Francisci A, Mariotti A. Infection due to a novel mycobacterium, mimicking multidrug-resistant Mycobacterium tuberculosis. Clin Microbiol Infect. 2010;16:1130–4. doi:10.1111/j.1469-0691.2009.03063.x
7. van Ingen J, de Zwaan R, Dekhuijzen R, Boeree M, van Soolingen D. Region of difference 1 in nontuberculous Mycobacterium species adds a phylogenetic and taxonomical character. J Bacteriol. 2009;191:5865–7. doi:10.1128/JB.00683-09

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