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First report of osteomyelitis caused by the novel species Mycobacterium mantenii

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Background: *Mycobacterium mantenii* is a slow growing, scotochromogenic NTM species, most closely related to *Mycobacterium scrofulaceum* that was described firstly in 2009. Little is known about its clinical significance, natural habitat and virulence. We report for the first time a case of chronic osteomyelitis caused by *M. mantenii* in an immunocompromised patient with sarcoidosis and diabetes mellitus.

Material/methods: A 59-year old woman was referred to an outpatient clinic for the management of a chronic inflammation on the top of the left forefinger, lasting for eight months. The patient had a history of sarcoidosis and renal failure as a complication of diabetes mellitus and was receiving insulin, corticosteroids and thyroxin. The hand radiograph revealed a destructive process at the final phalanx of the left forefinger (sequestra).

Results: A fine needle aspiration was performed from the lesion and sent for cultures which were negative for common bacteria and fungi. Mycobacterial cultures were inoculated into Lowenstein-Jensen slants (bioMerieux) and the MGIT960 automated system (Becton Dickinson). Ziehl-Neelsen stain was negative. After 15 days of incubation, a mycobacterium isolate was recovered only by the

MGIT960 system and identified as *M. intracellulare* by the Genotype Mycobacterium CM (Hain Lifescience) test. On the contrary, the sequences of the genes 16S *rDNA* (1248 bp, GU827992), *hsp65* (439 bp, GU827993) and *rpoB* (340 bp, JN661704) were 100% identical with those of the type strain *M. mantenii* NLA000401474. MICs, determined by the standard broth microdilution method (CLSI M24-A2) using the SLOMYCOI assay (TREK Diagnostic systems) showed susceptibility to clarithromycin (0.25 µg/ml), rifabutin (≤0.25 µg/ml), rifampin (1 µg/ml), ethambutol (4 µg/ml), amikacin (8 µg/ml), linezolid (4 µg/ml) and moxifloxacin (2 µg/ml) and resistance to ciprofloxacin (16 µg/ml), ethionamide (10 µg/ml), isoniazid (≥8 µg/ml), and streptomycin (32 µg/ml).A triple therapy with clarithromycin, moxifloxacin and ethambutol for 5 weeks was initiated and moxifloxacin plus ethambutol followed for six months. The patient experienced considerable clinical improvement and a follow-up fine needle specimen, three months after the initiation of therapy was negative in both liquid and solid culture media.

Conclusions: Our findings suggest that the novel species *M. mantenii* caused osteomyelitis in an immunocompromised patient. Sequencing analysis of the genes *hsp65*, 16S *rDNA* and *rpoB* allowed the identification of this less common mycobacterial species, which was misidentified by commercial probes.