

Letter to the Editor

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Infection of prosthetic material due to *Mycobacterium smegmatis*

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Sir,

Mycobacterium smegmatis is a rapid growth mycobacteria (RGM) classified as group IV Runyon, scotochromogen mycobacterias. It has been found in soil and water and has been considered for many years to be a non-pathogenic environmental microorganism.

There are 3 RGM related to human pathology: *Mycobacterium fortuitum*, *Mycobacterium chelonae/abscessus* and *Mycobacterium smegmatis* (*M. smegmatis* sensu stricto, *wolinskyi* and *goodii* [1]), the latter rarely causing infection; associated with bronchopulmonary illnesses, skin and soft tissue infections [2], surgery and injections, as well as infection of prosthetic material [1-5]. Sporadic cases of bacteremia have been observed [5].

We present a case of surgical infection of a wound by *M. smegmatis*. In a 66 year old woman with a history of vertebral fixation due to kyphosis in 2011. In 2018 corrective surgery was carried out with extraction of previous material and installation of new screws (figure 1). The patient returned to Emergency 14 days after surgery due to hyperthermia of unknown cause, and was discharged after having been given paracetamol. Ten days later she was admitted to Emergency with dehiscence of surgical wound with purulent exudate. After cleaning and taking samples of wound exudate for microbiological culture, the patient was treated with clindamycin 600 mg/8h and intravenous linezolid 600 mg/24h. Seven days after taking the sample, the microbiological report indicated the growth of *M. smegmatis*, confirmed by the second sample from the surgical exudate, resulting in changing the treatment to intravenous linezolid 600mg/12h. A month later the patient

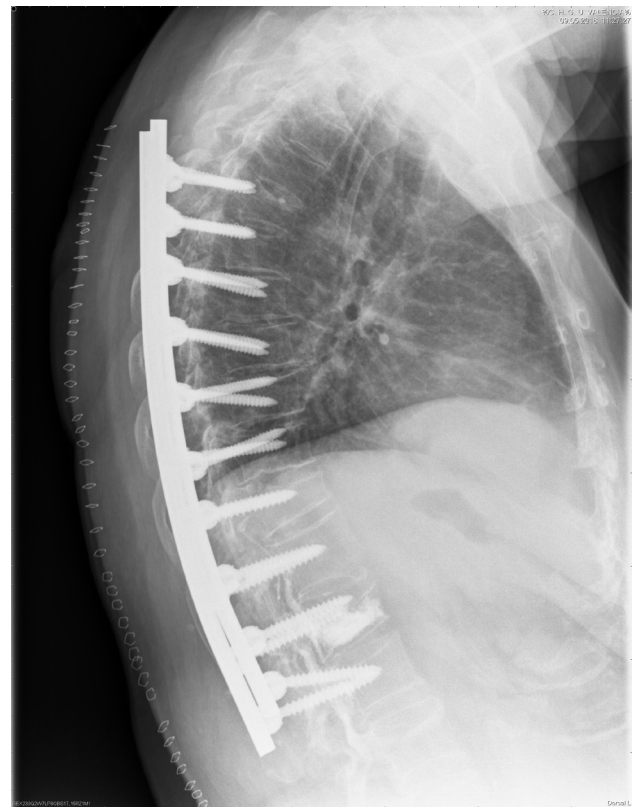


Figure 1 | Lateral chest radiograph

was discharged and prescribed doxycycline 100mg/12h and levofloxacin 500mg/24h, by mouth for six months. At the end of this period the control samples were negative. Possibly, the origin of the infection was the colonization of the skin by *M. smegmatis*, introduced during the surgical intervention, without confirmation. Microbiological

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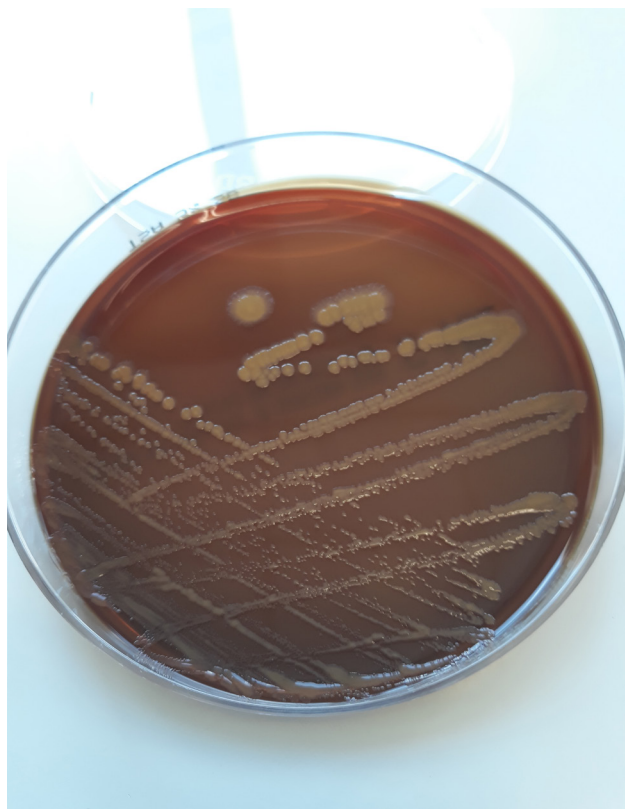


Figure 2 | *Mycobacterium smegmatis* in chocolate agar

Processing: The samples were cultivated in aerobic/anaerobic media (blood agar, chocolate agar, MacConkey, Brain Heart Infusion and Thioglycolate). After 6 days of incubation some colonies appeared with yellow-orange pigmentation in the blood agar and chocolate agar media (figure 2), with no growth in MacConkey which showed violet crystal.

In the Ziehl-Neelsen stain acid-alcohol resistant bacilli were observed. Identification was carried out using mass spectrometry (MALDI-TOF Bruker®) profiling as *M. smegmatis*, confirmed by PCR-nesting and genome sequencing (amplification of DNA of the gene rRNA16s) with an approximation of 99%. The sensitivity study was carried out by microdilution, showing sensitivity to cotrimoxazol, doxycycline, linezolid, amikacin, imipenem, ciprofloxacin, intermediate reaction to tobramycin and ceftioxin, and resistance to clarithromycin.

Infections of prosthetic material occur in 1-5% of cases. Occasionally they are produced by RGM [1] and prevention is relatively complicated precisely due to relative infrequency. It may be convenient to include the mycobacteria culture in badly healing wounds. This poses a therapeutic challenge due to limited experience [3] and lack of knowledge of the duration of the treatment; although

various authors have coincided in that it should be a combined and long-term treatment directed by sensitivity studies for 6-12 months [5, 6], including the elimination of dead or infected tissue from the wound and the re-opening and extraction of the prosthetic material [1].

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None to declare

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest

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