



Multiple nodulo-ulcerative soft tissue lesion due to *Mycobacterium fortuitum*: A case report

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ABSTRACT

Rapidly growing mycobacteria (RGM) are uncommon opportunistic human pathogens. *Mycobacterium fortuitum* is believed to be an organism with low virulence and infections occurs on decreasing host immunity or following a heavy inoculum. We present here a culture proven case of skin and soft tissue infection due to *M. fortuitum* in an apparently immunocompetent female with a history of previous surgery. Species was identified by advanced molecular technique. NTM must be featured in the list of differentials of chronic nonhealing post-surgical ulcers.

KEYWORDS : *M. fortuitum*, Cutaneous ulcer, India

Introduction

Nontuberculous mycobacteria (NTMs) are ubiquitous organisms that are readily isolated from soil, water, domestic and wild animals, milk, and other items (Falkinham, 1996). Though all the NTM species has pathogenic potential, they used to be declared as contaminants of culture before 1950s (Timpe & Runyon, 1981). The incidence of NTM infection has increased manifold, so much so that these infections currently account for 10%–15% of all mycobacterial infections (Glassroth, 2008; McDonald, Suellentrop, Paulozzi, & Morrow, 2008). Initially isolated from frog, *M. fortuitum* has been recovered from many environmental sources (Abalain-Colloc et al., 2003; Portaels, 1995).

Case Report

A 40-year-old female from average socioeconomic status, presented with complaints of multiple nodular ulcers over left flank (Figure 1) with intermittent purulent discharge since one and half years. She was average built with no history loss of weight or fever. She had a history of development of a firm and mobile swelling over left iliac crest two years back for which she had received ATT based on a FNAC report of chronic granulation tissue. She developed a gluteal abscess after 1 month of ATT and got operated elsewhere in a private setting. She had no history of cough, haemoptysis, breathlessness, and anorexia. There was no history of intake of any immunosuppressive drugs/corticosteroids. She had a history of fracture of left femur and got operated in some local hospital for which she had no documents available with her. She did not have any history of contact with tuberculosis patients.

Her serostatus for HIV was nonreactive by two different ELISA kits, Hb: 12%, Total leukocyte count 8000/cmm with a differential count of polymorphs 30, lymphocyte 65, eosinophil 4 and monocyte 1. Montoux test was indeterminate. ZN staining of the pus revealed plenty of acid fast bacilli (Figure 2). On aspiration 500 ml of pus was drained, which was sent for microbiological investigations. The discharge was cultured on blood agar, MacConkey medium, and Lowenstein-Jensen medium and inoculated into a BacT/ALERT MP bottle, which was incubated in the BacT/ALERT 3D system (bioMerieux, USA). The blood agar and MacConkey medium were incubated under aerobic conditions at 37°C. The blood agar plate showed numerous dry, small nonhemolytic colonies after 48 hours and MacConkey plate showed growth in 72 hours of incubation. The BacT/ALERT MP showed positive growth in 2 days for acid fast bacilli. The culture was subjected to rapid immunochromatographic test (BIO-LINE SD Ag MPT64 TB rapid kit cassette) and found to be negative for MPT64. Speciation for the isolate was confirmed by the GenoType Mycobacterium CM assay based on Mycobacterium DNA strip technology (Hain Lifescience, Nehren, Germany), (Richter, Rusch-Gerdes, & Hillemann, 2006) following manufacturer's instructions. It showed (Figure 3) an NTM species *Mycobacterium fortuitum*, a rapid grower. Culture from a repeat sample after one week reconfirmed the same result. Drug susceptibility testing (DST) was performed by standard disk diffusion method over

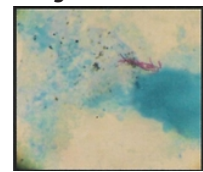
Middlebrook 7H10 agar supplemented with OADC (oleic acid, albumin, dextrose, and catalase) and were found to be sensitive to gentamicin, linezolid, levofloxacin and amikacin.

Figure 1



Clinical photograph showing ulcers and closed sinuses over left flank

Figure 2



Clinical photograph showing ulcers and closed sinuses over left flank

Figure 3



GenoType Mycobacterium Common Mycobacteria (CM) assay for rapid differentiation of different species of Mycobacteria. (Valid results are documented by band 1 (Conjugate Control). Band 2 (Internal Control) serves as an extraction and amplification control and also indicates a correct processing. Band 3 (Genus Control) shows that members of the genus Mycobacterium are present. Band at position 7,14 identifies the species to be *Mycobacterium fortuitum*)

The patient was advised a combination of injection amikacin 1.5 gram per day in 2 divided doses for 1 month and oral levofloxacin 500 mg once daily for 1 month followed by oral levofloxacin 500 mg OD and linezolid 600 mg twice daily for 6 months. She was advised for intermittent follow up visit. The patient was completely all right with no such discharge or ulcer after completion of therapy.

Discussion

M. fortuitum was isolated from human for the first time in 1938 from a case of post injection abscess. Nontuberculous mycobacteria (NTMs) can be classified by their growth rate as slowly growing and rapidly growing species, by pigment production (pigmented and nonpigmented species) and optimal growth temperature requirement. *M. fortuitum*, *M. chelonae*, and *M. abscessus* are examples of rapidly growing mycobacteria (Sungkanuparph, Sathapatayavongs, & Prachartam, 2003). Diagnosis relies upon clinical presentations, microscopy, microbiological culture, and molecular detection of mycobacterial DNA to confirm species identification. Cutaneous infections caused by NTMs are still uncommon but their relative importance has changed during last decade. The sensitivity and specificity of the GenoType Mycobacterium CM strip is 97.0–98.9% and 88.9–92.4% respectively

(Lee, Jelfs, Sintchenko, & Gilbert, 2009; Russo, Tortoli, & Menichella, 2006). In the index case, *M. fortuitum* may have been introduced potentially during surgery, but it would be difficult to prove as surgery was done in private setting and could not be accessed by the authors. This report emphasizes the importance of eliciting adequate clinical history for the diagnosis of NTM infection. Histopathology may not differentiate between infection due to *M tuberculosis* complex and that due to rapidly growing NTM. The patient failed to respond to ATT due to the lack of definite microbiological diagnosis. The reservoir for many mycobacterial species is generally municipal and hospital water supplies. These mycobacterial species are incredibly hardy and able to grow in tap water and distilled water, thrive at higher temperatures resist the activity of organomercurials, chlorine, 2% concentrations of formaldehyde, and alkaline glutaraldehyde (Wallace, Brown, & Griffith, 1998). Unlike pulmonary infections, it is very unusual to suspect infection by acid fast organisms in cutaneous and soft tissue lesions. Hence a delay in diagnosis most of the time become the rule rather than exception. A high index of suspicion and inoculation of varieties of culture media are likely to prove beneficial in resource limited settings, where advanced molecular techniques are not available.

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