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Cutaneous *Mycobacterium chelonae* Infection in a Presumably Immunocompetent Host

R. Satta¹, F. Cottoni¹, P. Molicotti², A. Lissia³ and D. Cerimele¹

Departments of ¹Dermatology, ²Microbiology and ³Pathology, University of Sassari, Viale San Pietro, 43, I-07100 Sassari, Italia.

E-mail: rsatta@ssmain.uniss.it

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Sir,

Mycobacterium chelonae, *M. fortuitum* and *M. abscessus*, species belonging to the so-called *M. fortuitum* complex, are rapid growers and have been known to be pathogenic for humans for many years (1, 2). *M. chelonae* is a saprophyte which is ubiquitous in the environment, found in both soil and water. Laboratory identification is based on growth at temperatures ranging between 28°C and 32°C in less than 7 days; typical Gram stain and colony morphology, acid fastness, the absence of pigmentation and positive arylsulphatase results at 3 days (3, 4).

We describe here a 60-year-old HIV-negative, presumably immunocompetent, woman with primary local skin lesions caused by *M. chelonae*.

CASE REPORT

A 65-year-old housewife born and living in Sardinia was admitted to our Institute in March 1999 with a 10-year history of recurrent multiple subcutaneous nodular lesions on the lower left extremity. These had failed to respond to antibiotics. Examination revealed erythema and oedema of the lower left leg, with numerous spontaneous multiple violaceous nodules (Fig. 1). The left thigh presented an ill-defined, mildly erythematous and slightly hyperpigmented, indurated localized subcutaneous plaque. There was no palpable lymphadenopathy. The lesions periodically improved without apparent cause. There was no history of trauma or iatrogenic procedures. A deep biopsy revealed a mixed granulomatous and acute inflammatory infiltrate composed of neutrophils, histiocytes and multinucleated giant cells in the dermis. No vasculitis or caseosis necrosis was present.



Fig. 1. Numerous cutaneous nodules on the left leg.

PAS stain was negative and no acid-fast rods were present. The routine laboratory tests and HIV test were negative. Chest X-rays and abdomen and pelvic ecography were normal. *M. chelonae* grew on culture from tissue biopsy. After sensitivity testing, oral clarithromycin was initiated (500 mg twice daily). This treatment was continued for 6 months with total remission of the lesions. No relapse was observed for 2 months, but approximately 6 months later 2 new nodular lesions appeared. A new skin biopsy for histological examination revealed numerous acid-fast bacilli within a lobular panniculitis, with a mixed granulomatous and acute inflammatory infiltrate composed of neutrophils, histiocytes and multinucleated giant cells. At culture examination, *M. chelonae* grew from a tissue biopsy specimen within 7 days. This was confirmed by PCR. It was not possible to perform further sensitivity testing and the

therapy was modified to ciprofloxacin 500 mg twice daily. After a brief period of improvement, numerous new nodular lesions have appeared on the patient's left leg along with a discrete oedema. A new culture showed *M. chelonae* on tissue biopsy specimen. After sensitivity testing, therapy with ciprofloxacin 500 mg twice daily and doxycycline 100 mg twice daily was initiated and is still underway.

DISCUSSION

M. chelonae have been implicated as pathogens in skin, soft tissue and bone infections. A retrospective review of 100 isolates of *M. chelonae* reported disseminated disease in 53%, localized disease in 35% and catheter infections in 12% of cases (2). The most common type of cutaneous presentation is disseminated disease with multiple lesions in the form of erythematous nodules, usually on the extremities. Over 94% of patients who developed disseminated cutaneous infections were receiving corticosteroid treatment for organ transplantation or autoimmune diseases and a small number had HIV infection (4). Rarely, multiple cutaneous lesions, usually on the extremities, have been reported in immunocompetent hosts (5, 6). In contrast to disseminated disease, the localized form typically occurs in immunocompetent hosts (7, 8), usually induced by trauma or in patients undergoing medical procedures such as injection or surgery. This type of infection usually manifests as a single site of cellulitis, subcutaneous abscess or osteomyelitis (9). In patients who develop a localized infection without history of trauma the immune status should be evaluated (10, 11). Catheter-associated *M. chelonae* disease infection may be localized or associated with bacteremia, often in immunosuppressed patients (5).

M. chelonae skin histopathology may show neutrophilic abscesses along with granulomatous inflammation. *M. chelonae* can be acid-fast, although the staining may be weak, but it can also be non-acid-fast. Because a negative acid-fast smear does not eliminate Mycobacterium as the cause of lesion, multiple biopsies and cultures may be needed to establish the diagnosis. If skin infection with Mycobacterium spp. is suspected, specimens should be incubated at a temperature between 28°C and 32°C and, if present, *M. chelonae* colonies will develop in 7 days. In addition, PCR has recently become available to confirm the identification of the organism (12).

As regards therapy, the use of clarithromycin in our patient, on the basis of sensitivity testing, determined a temporary remission. The subsequent reappearance of the disease is in accordance with the cases reported in the literature. Indeed, although excellent response rates

have been reported with clarithromycin in monotherapy (13, 14), cases of acquired (mutational) resistance to this antibiotic have been reported (15, 16). Additional antimicrobial agents should be selected on the basis of sensitivity testing in the case of disease reappearance, and at least two active drugs should be given.

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