A Case of Mycobacterial Skin Disease Caused by Mycobacterium peregrinum and M. scrofulaceum

Sir,

Ever since M. marinum infection in man was described by Nordén & Linell (1) in 1951, numerous cases of tropical fish tank granulomas caused by several kinds of mycobacteria have been reported in many countries. However, M. peregrinum and M. scrofulaceum infection in the skin, contracted from tropical fish tanks, has not been reported.

In this paper, we report a case of mycobacterial skin infection caused by both M. peregrinum and M. scrofulaceum, and their bacterial characterization.

CASE REPORT

A 45-year-old Japanese man was referred to the dermatology clinic of Yokohama City University Hospital in October, 1993. He had a brown infiltrated plaque on his left arm (24 × 28 mm). Six granulomas of several millimeters in diameter were situated on the border of the plaque (Fig. 1). The lesion was dry and scaly, without abscess or pus. No bacilli or fungus were found in the scales or smears with microscope. The patient was a fish-fancier with many tropical fish tanks in his home. Laboratory examination, including chest X-ray, revealed no abnormal or immunocompromising findings.

An intradermal purified protein derivative (PPD) test was positive. A biopsy of the skin demonstrated hyperkeratosis, parakeratosis, acanthosis, and exocytosis in the epidermis, and giant cells and epidermoid cell infiltration in the dermis. No bacillus was found by PAS or acid-fast stain. Skin tissue was ground and placed on special media for mycobacteria (Ogawa egg medium) and fungi (Sabouraud). Fungal culture showed no growth, but the mycobacterial culture grew mycobacteria in 3 and 15 days.

The patient received minocycline (MINO, 200 mg/d) for 7 weeks. Lesions progressively shrank during treatment with MINO and then disappeared after 7 weeks, leaving only a few scarred spots.

No recurrence has been noted during a follow-up period of 3 years.

The characterization of different kinds of mycobacteria was studied. To identify the genes of mycobacteria, we applied a series of tests in consideration of the properties described in the narrative parts of the text and DNA-DNA hybridization described by Kusunoki et al. (2).

Briefly, quantitative microdilution plate hybridization was used to identify Mycobacterium species. DNAs of our samples were rapidly extracted and labeled with photoreactive biotin. Labeled DNAs were

REFERENCES


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O. Dereure1, P. Stoebner2, G. Barnéon2 and J. Guilleux1
1Department of Dermatology-Phlebology and 2Laboratory of Pathology, Saint-Eloi Hospital, 2, avenue B. Sans, CHRU Montpellier, FR-34295 Montpellier, France.
We were able to identify *M. peregrinum* and *M. scrofulaceum* in a few days after culture. The PCR technique is an even quicker technique for identifying atypical mycobacteria. Culture, DNA-DNA hybridization and PCR should be standard techniques for identifying atypical mycobacterial species.

Most atypical mycobacteria are poorly susceptible to antitubercular drugs. Recently, tetracycline and minocycline have been reported to be effective (3, 4). Clarithromycin appears to be a promising drug for the treatment of patients infected with *M. avium* complex, *M. chelonae*, *M. fortuitum*, *M. marinum*, as well as for other bacterial skin diseases (5, 6). Recently, new quinolones have been used for treatment of atypical mycobacteria. Sparfloxacin was more effective against *M. peregrinum* and *M. scrofulaceum* than minocycline in culture. However, sparfloxacin did not work well in our case. The reason for the discrepancy might be that the concentration in the skin tissue and the anti-inflammatory effect of minocycline were more effective against mycobacteria than those of sparfloxacin.

The above four kinds of atypical mycobacteria are found in tropical fish tanks. *M. marinum* is the most common and infects many people. However, the other three atypical mycobacteria are not common in skin diseases.

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Only one mycobacterium is usually detected in affected skin tissue. It is very rare that two kinds of mycobacteria are found in the same portion of skin. The reason for the present double infection may be that the patient took care of many fish tanks, which contained a lot of bacteria. Mycobacterial skin infection is increasing in Japan. It does not depend on HIV infection. The main cause is that the keeping of tropical marine fish is increasing and that marine sports are very common in Japan. It is important to promptly identify and treat atypical mycobacterial infections.

REFERENCES


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Norihisa Ishii, Yasuyuki Sagita, Ichiro Sato and Hiroshi Nakajima
Department of Dermatology, Yokohama City University School of Medicine, 3–9 Fukuura, Kanazawa-ku, Yokohama 236–8567 Japan.