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Fish Tank Granuloma

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Abstract. A case of fish tank granuloma is presented. A lesional biopsy sample yielded growth of *Mycobacterium marinum* on Löwenstein's medium. Treatment with co-trimoxazole was successful.

Key words: Fish tank granuloma; *Mycobacterium marinum*; Co-trimoxazole

Infection with atypical mycobacteria has been known for almost a century in cold-blooded vertebrates (see 1). Human infection was first described in 1954 when Linell and Nordén (8) reported 80 cases of cutaneous granulomas among swimming pool bathers in Sweden. Human infection acquired from tropical fish tanks was first observed by Swift and Cohen (10). This paper describes a localized infection caused by *Mycobacterium marinum* (formerly called *M. balnei*), presumably contracted from a tropical fish aquarium.

CASE REPORT

A 12-year-old Norwegian boy was admitted to the outpatient clinic, Department of Dermatology, with a 7-month history of two tender swellings on the dorsum of the right middle finger. The swellings had been intermittently discharging in spite of two 7–10 day courses of phenoxymethylpenicillin. Local treatment with clotrimazole cream (1%) for several weeks had also proved unsuccessful. The boy had been sporadically visiting a public swimming pool. He had also kept a tropical fish aquarium which he regularly cleaned without using gloves. Some of the fish had recently died. He had therefore disposed of the aquarium. Unfortunately this could not be traced.

Over the dorsum of the proximal interphalangeal and



Fig. 1. Isolated granulomatous lesions caused by *M. marinum*, before treatment.

the metacarpophalangeal joint of the right middle finger he presented two isolated, elevated, slightly crusted, granulomatous lesions (Fig. 1). There was no lymphadenopathy. Physical examination otherwise revealed unremarkable findings.

A lesional biopsy yielded growth of an acid-fast organism on Löwenstein's medium. The organism was identified as *M. marinum* by cultural characteristics and by animal inoculation. The strain was not pathogenic to guinea pigs, but produced swellings and blisters on mouse tails 4–5 days after intravenous injection as described by Fenner (5). The strain was sensitive to all the conventional antituberculous agents.

In line with recent reports (2, 3, 6), treatment was initiated with trimethoprim-sulfamethoxazole (co-trimoxazole) 2 tablets twice daily, each tablet containing 80 mg trimethoprim and 400 mg sulfamethoxazole. After 6 weeks a complete remission was achieved, leaving only slight residual scarring (Fig. 2). During a follow-up period of 10 months, there has been no sign of recurrence.

DISCUSSION

Recent reports indicate that diseased tropical fish might be the most common source of human *M.*

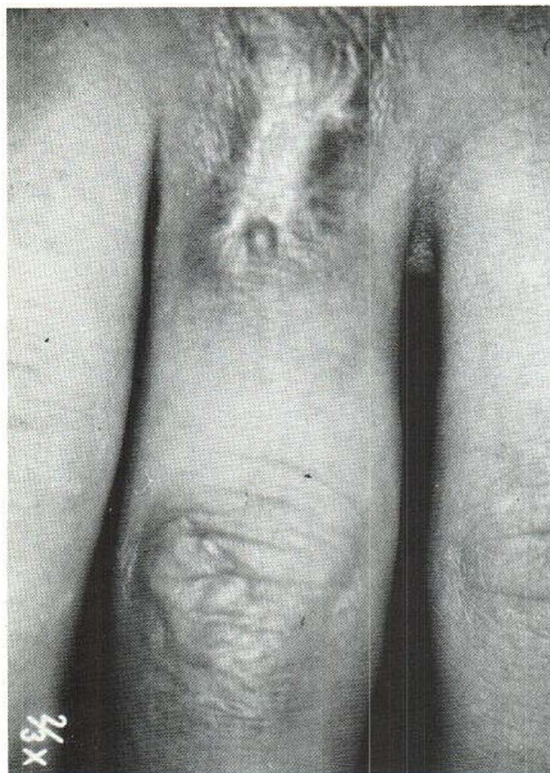


Fig. 2. Same area as in Fig. 1, following 6 weeks of therapy with co-trimoxazole.

marinum infection (1-4, 6, 9, 10). Usually the patients report a history of a preceding minor trauma. Our patient did not remember any damage to the skin, but some kind of minor abrasion on the hands or fingers of a 12-year-old boy would not seem unlikely.

M. marinum may be isolated from the lesion as in our case, from contaminated water, or from walls of swimming pools or aquariums (1, 3, 10). The most suitable culture source, however, seems to be dead or diseased fish (3, 9). Unfortunately no dead fish were available in our case. The history of diseased fish, however, strongly supports that the aquarium was the source of infection.

Most strains of *M. marinum* isolated from infected humans have been relatively resistant to the conventional antituberculous agents, whereas our isolate was not. A remarkable clinical effect of treatment with co-trimoxazole was first noted by Barrow & Hewitt (2) and later confirmed by others (3, 10). On the other hand, *M. marinum* resistant to co-trimoxazole by *in vitro* testing has also been

reported (4). Even if human *M. marinum* infections are said to be self-limiting (7), we feel that the prompt response to co-trimoxazole in our patient differs markedly from the usual slow course of spontaneous remission.

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In vitro Studies on the Antifungal Effect of PUVA

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Abstract. The effect of PUVA therapy upon 12 dermatophyte strains, 3 of *Candida albicans*, and 4 of mould fungi was evaluated by the agar dilution method on