Sporotrichoid Cutaneous Mycobacterium Tuberculosis Infection in a Child

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Sir,

Although every third person in the world is infected with *Mycobacterium tuberculosis* (MT), cutaneous tuberculosis is a rare disease (1). In highly developed countries with good socio-economic environments, children are less likely to get infected. Therefore, childhood tuberculosis can be considered an infrequent disorder (2), especially cutaneous involvement (3, 4). In 2001, in Hungary, the incidence of symptomatic MT was 33/100 000 and of these 11 were children (0–14 years old) and 4 patients suffered from extrapulmonary manifestations only. We describe here a case of MT skin infection with an unusual sporotrichoid clinical appearance in an otherwise healthy child, emphasizing the diagnostic difficulties.

CASE REPORT

A 12-year-old girl with good social background and negative personal and family history of tuberculosis is presented. She had received Bacillus Calmette-Guérin (BCG) vaccination after birth. The otherwise healthy girl experienced a small red inflamed wound on the dorsal surface of her right ring finger, in May 2001. It was thought to be a consequence of a minor trauma, because she had helped her grandfather in a pet shop. Despite antibacterial treatment and surgical incision the lesion spread. About 6 weeks after the first symptoms, she was referred to our clinic. She had a lilac-brown oedemic-based papule covered with yellowish transparent tubers 1–2 mm in diameter on the dorsal surface of the proximal interphalangeal joint of her right fourth finger (Fig. 1). A pink nodule, 1 cm in diameter with red incision wound on its surface and two painless subcutaneous nodules 0.5 cm in diameter located proximally and distally to it could be palpated on the dorsal part of the hand. No cubital and axillary

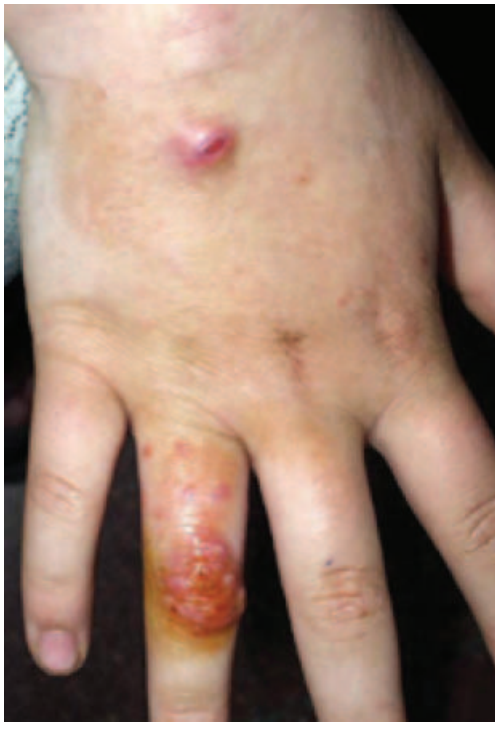

Fig. 1. A lilac-brown oedemic papule on the dorsal surface of the proximal interphalangeal joint of a 12-year-old girl's right fourth finger. A pink nodule, 1 cm in diameter with red incision wound was noted on its surface on the dorsal part of the wrist.

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lymphadenopathy or other positive physical findings were seen.

The following laboratory tests were normal or negative: erythrocyte sedimentation rate, blood count, serum and urinary chemistry, immunoglobulins, lymphocyte subsets, chest X-ray. After laboratory samples, doxycyline therapy was initiated. Cultures and smears from the base of the wound were negative for bacteria and fungi. Serology tests for tularaemia, bartonellosis, syphilis and HIV infection were negative. Purified protein derivative 5 IU intradermal injection disclosed a 13-mm skin induration. A slow progression was observed; therefore a subcutaneous intact nodule of the dorsal hand was excised *in toto*.

Histopathological section of the nodule showed tuberculoid granuloma without caseation. Ziehl-Neelsen, PAS and Gram staining did not reveal any pathogens. A fresh sample in sterile physiological saline was sent to the Department of Pulmonology, Semmelweis University, Budapest for culture for atypical mycobacteria, MT and fungi.

Because of the possibility of infection by atypical mycobacteria, clarithromycin (250 mg twice a day orally) was started. Atypical mycobacterium colonies could not be cultured, but MT was identified. No resistance to antituberculotic drugs was found. It took almost 3 months to complete the laboratory results. At that time, DNA was isolated from the formalin-fixed paraffin-embedded block and PCR was done using the *M. genus* (5) and MT species-specific primers (6). *Mycobacterium* DNA was detected with both sets of primers.

After the results of the culture were obtained, isoniazid 350 mg, rifampin 600 mg and ethambutol 1000 mg daily were administered for 2 months. As a result of these medications, the skin lesions started to heal. After finishing the three-drug combination therapy, daily isoniazid and rifampin treatment with the same dosage were used for 4 further months, whereafter complete healing was achieved. No side effects of the therapy were experienced. The source of the infection could not be determined.

DISCUSSION

With the presented sporotrichoid cutaneous symptoms, we confirmed MT infection by two separate methods (culture and PCR) performed in two separate laboratories. Tuberculin skin test was also positive. Three-drug combination antituberculotic therapy (2) achieved complete healing. The symptoms of MT infection depend on the route of the infection, the pathogenicity and drug resistance of the bacteria, the immune status of the host and various local factors. Percutaneous inoculation is possible (7, 8). Animals in the pet shop could have been the source of the infection (9). The anthropo-zoonotic spreading may be an explanation for the unusual clinical appearance but unfortunately the source of the infection could not be detected.

We want to emphasize that cutaneous tuberculosis can occur in an unusual form in an immunocompetent child. The disease deserves special attention because its prevalence can be expected to increase due to immunosuppression (10–12) and intensive international migrations (refugees), as well as socio-economic changes.

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