INTRODUCTION

Cutaneous inoculation tuberculosis (TB), a rare disease, usually occurs in individuals whose occupation or environment place them at risk of exposure to tubercle bacilli. The prosector's wart, acquired by pathologists from tuberculous cadavers, is the most notable form of primary inoculation tuberculosis.1,2 Here we report an unusual case of cutaneous inoculation tuberculosis acquired by a physician working in a TB sanatorium.

CASE REPORT

A 25 year old junior medical doctor presented with a history of chronic, slightly painful non-healing ulcer of 1 centimetre diameter, with irregular indurated margins on the left middle finger (lateral aspect) over proximal interphalangeal joint, of three months duration with no other contributory symptoms or past history of tuberculosis or Hansen’s disease in him or other family members. He had suffered a needle-stick injury at the site of the lesion while performing a pleural tap in a known TB patient, 2 weeks before the ulcer developed. He was vaccinated with BCG during childhood. The patient had received antibiotic for two months with no response. On examination the ulcer was confined to the skin and subcutaneous tissue with no bone or lymphnode involvement. Chest X-ray was normal and blood profiles including ESR were within normal limits. Mantoux test performed with 5 tuberculin units of PPD-S, through intradermal route, was negative. He was non-reactive for HIV-1 and 2 antibodies by indirect ELISA. Surgical debridement of the wound was attempted to promote healing. Swabs from the ulcer showed no acid-fast bacilli by Ziehl-Neelsen’s staining and routine aerobic bacterial culture yielded normal skin flora. Fungal culture did not yield any growth. The histopathological examination of a biopsy taken from the ulcer edge showed a thickened, hyperkeratotic epidermis bordering the ulcer edge. The underlying reticular dermis had a multiple epithelioid granulomas with Langerhans giant cells along the dermal papillae, some with central zone of caseous necrosis (Figs. 1 and 2). The epithelioid cell clusters were rimmed by a thin cuff of lymphoplasmacytic cells. Many thick-walled vessels were seen expanding the papillary dermis reflecting the chronicity ulcer. Neither acid-fast bacilli by Ziehl-Neelsen stain nor fungal elements by periodic acid Schiff and Gomori’s methenamine silver stains could be demonstrated in the tissue sections. Subsequent to biopsy, a repeat swab specimen from the lesion was taken after three days for mycobacterial culture. Two weeks later, BACTEC 460TB radiometric method yielded growth of mycobacteria belonging to the Mycobacterium tuberculosis complex, which was demonstrated by the inhibition of growth in BACTEC 460 TB NAP (para-nitro alpha-acetyl amino beta-hydroxy propiophenone) test.3 Lowenstein Jensen (LJ) medium did not yield any growth after 8 weeks. The isolate was found to be sensitive to streptomycin (2mg/µl), isoniazid (0.1 µg/ml), rifampicin (2.0 µg/ml) and ethambutol (2.5 µg/ml). Serum of the subject was negative for anti-lipoarabinomannan (LAM) antibodies and mycobacterial immune-complexes by indirect ELISA. The patient was administered short-course anti-tubercular therapy with isoniazid, rifampicin, ethambutol and pyrazinamide for two months followed by isoniazid and rifampicin for four

Abstract

A case of cutaneous inoculation tuberculosis in a 25-year old health care professional is reported. The diagnosis was confirmed by histopathology and isolation of Mycobacterium tuberculosis by BACTEC 460TB radiometric method. Rapid healing of the ulcer was noted in response to surgical debridement and specific anti-tuberculous therapy. ©
months. There was a dramatic response in two weeks with complete healing of the ulcer. Thus, the combined surgical-medical therapy resulted in more rapid healing of the skin lesion. Positive BACTEC radiometric culture and dramatic response to anti-tuberculous therapy established that the pathogenic organism belonged to *Mycobacterium tuberculosis* complex.

**DISCUSSION**

The incidence of primary inoculation tuberculosis as a hospital or laboratory-acquired infection following needle-stick injury is seldom discussed. The subject was employed at a TB sanatorium where he sustained a needle stick injury at the site of the lesion two weeks prior to the manifestation of the ulcer, while performing a pleural tap on a patient with pulmonary tuberculosis. It is of interest to note that the pleural tap needle was alleged to be sterile at the time of the prick. But it very likely that the abrasion due to stick injury could have served as an entry point for mycobacterium from the fomites or the pleural fluid with subsequent development of a chronic tuberculous ulcer. The needle-prick can also serve as a potential mode of transmission of TB infection akin to transmission of HIV and hepatitis B virus infections, especially in this era of co-existence of TB and HIV infections, where disseminated TB is more common.

Primary cutaneous tuberculosis occurs in patients with no previous exposure to tuberculous infection. This case serves as a notable example of primary inoculation tuberculosis, a rare condition occurring as an occupational hazard. The DNA fingerprinting of the pathogen isolated from the health care professional and the isolate from the patient on whom the pleural tap was performed could have further substantiated this rare mode of transmission of TB. However, as the suspected source patient was not available, characterization of the pathogen could not be attempted. Although inoculation TB has been reported to occur more commonly in pathologists performing autopsies, this case calls for caution even among physicians and other patient-handlers. In a country where Hansen's disease is endemic, chronic tuberculous ulcer needs to be kept in mind before empirically starting anti-leprosy therapy.

**REFERENCES**