CASE REPORT

A case of lepromatous leprosy with co-existing tuberculosis verrucosa cutis (TVC)

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Accepted for publication 11 May 2015

Summary The association of leprosy and cutaneous tuberculosis has been reported rarely. Though cross-immunity may exist between these two mycobacterial infections, tuberculosis can occur throughout the spectrum of leprosy. We report a case of lepromatous leprosy with Type II reaction, with tuberculosis verrucosa cutis (TVC). The patient presented with multiple skin-coloured tender nodules of variable size, involving the upper and lower extremities, nodular enlargement of both ear lobes, erythematous plaques on the face and ichthyotic patches over both lower legs and feet, for 6 months. There was also a slow-growing asymptomatic warty plaque over the right lateral malleolus, present for 1 year. Slit skin smear examination from ear lobes, forehead and nodules, and histopathology of the warty lesion, respectively confirmed the diagnoses of leprosy and tuberculosis.

Keywords: leprosy, tuberculosis, co-infection

Introduction

Leprosy is caused by Mycobacterium leprae and principally affects the skin and peripheral nervous system. On the other hand, tuberculosis is caused by Mycobacterium tuberculosis and primarily affects the lungs, but it can involve extra-pulmonary sites including the skin. M. leprae is a more prevalent cause of cutaneous infection as compared to M. tuberculosis. Though both belong to the same genus Mycobacterium, no true antagonism exists. The co-existence of leprosy and pulmonary tuberculosis has been reported frequently in the literature, but the association of cutaneous tuberculosis with leprosy has been reported rarely.1,2 The infrequent occurrence of both tuberculosis and leprosy is based on the transmission dynamics of both infections.3,4 It has been reported that tuberculosis can occur throughout the spectrum of leprosy.5,6 We report a case of lepromatous leprosy with erythema nodosum leprosum, with co-existing tuberculosis verrucosa cutis (TVC).

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Case report

A 26 year old man, presented with painful nodular lesions appearing in successive crops involving both upper and lower extremities for 6 months. He also complained of a warty slow growing lesion over the right lateral malleolus for 1 year, preceded by a penetrating injury. There was no past history of pulmonary tuberculosis and no history of close contact with known leprosy or tuberculosis patients.

Cutaneous examination revealed multiple skin-coloured tender nodules of variable size, ranging from 0.5 to 1 cm in diameter, involving the upper and lower extremities with non-tender nodular enlargement of both ear lobes. Some of the nodules were ulcerated and crusted. There were also multiple erythematous plaques on the face and ichthyotic patches over both lower legs and feet. Over the right lateral malleolus, a solitary well-demarcated warty non-tender firm plaque was present measuring about 2 cm in diameter with surrounding hyperpigmented skin (Figure 1).

Bilateral enlargement of the greater auricular, ulnar, radial, common peroneal and posterior tibial nerves was noted. The nerves were non-tender. There was no lymphadenopathy. Systemic examination was unremarkable.

Slit skin smear examination from ear lobes, forehead and nodules revealed a high bacillary index (4+). Histopathology of the warty lesion showed pseudo-epitheliomatous hyperplasia of epidermis with a dense chronic inflammatory cell infiltrate and a few ill-defined granulomas in the dermis. These findings were consistent with TVC. A diagnosis of lepromatous leprosy with Type II reaction and TVC was made.

Figure 1. Warty plaque on Right lateral malleolus (TVC) before treatment.
The patient was treated with rifampicin 450 mg/day, isoniazid 225 mg/day, pyrazinamide 1200 mg/day and streptomycin 75 mg/day, in addition to dapsone 100 mg/day and clofazimine 50 mg/day along with a monthly supervised dose of dapsone 100 mg, clofazimine 300 mg and rifampicin 150 mg for first 2 months. Then rifampicin and isoniazid, with dapsone and clofazimine, were continued for further 4 months. Over the following 6 months treatment of leprosy was continued as for multibacillary leprosy. Type II reaction was treated with oral prednisolone 40 mg/day for 1 month followed by gradual tapering (5 mg/2 weeks). The patient tolerated the drugs well with control of Type II reaction and regression of the TVC lesion.

Discussion

Tuberculosis and leprosy are common communicable diseases in Bangladesh, but the incidence of co-existence of tuberculosis and leprosy is unknown. The exact nature of the interaction between leprosy and tuberculosis has been debated for over a century. They share common antigens as evidenced by conversion of both lepromin and tuberculin intradermal tests after administration of BCG. Merle et al. stated that cross-immunity exists between tuberculosis and leprosy, as BCG vaccination provides 20–91% protection against leprosy. Relvich in 1954 strongly argued that association of the tuberculoid form of leprosy with tuberculosis was uncommon. Some investigators have speculated that leprosy and tuberculosis are antagonistic diseases on the basis of immunologic, clinical and epidemiological data. The tubercle bacillus has a higher reproductive rate as compared to leprosy bacilli and the presence of cross immunity within an individual may hinder the development of both infections simultaneously. Sporadic cases of co-existent tuberculosis and leprosy in the same patient have been reported, however.

It is noted that tuberculosis can occur throughout the spectrum of leprosy. An inherent impaired immunity against both mycobacterial organisms has been postulated as the aetiology for dual infection; however, it appears that anergy in leprosy is pathogen specific. Rajagopala et al. showed that co-infection is not uncommon in high endemic areas and it has been reported from many different countries. Though pulmonary tuberculosis has been reported in the vast majority of publications, extra-pulmonary tuberculosis is also described. The association of tuberculoid leprosy and tuberculosis, and the simultaneous occurrence of dual mycobacterial infections suggest a mycobacterial genera-specific anergy as a predisposing factor. The relationship between the two mycobacterial diseases continues to be enigmatic despite decades of research.

Ravindra et al. reported a case of co-existence of borderline tuberculoid leprosy with TVC in a child. In our case we found concomitant presence of lepromatous leprosy with Type II reaction, with tuberculosis in the form of TVC.

Conclusion

Despite partial cross-immunity between the two species, dual mycobacterial infection can occur. Early recognition of tuberculosis in leprosy patients is important to prevent the emergence of rifampicin resistant tuberculosis during the treatment of leprosy. Similarly recognition of leprosy in tuberculosis patients is also important to prevent rifampicin resistant
lepromatous leprosy. Steroids used in the treatment of lepra reactions may lead to progress of tuberculous lesions. Thus it is important to consider the possibility of a dual infection when the clinical picture is suggestive.

Acknowledgement

The patient presented in this report provided written consent for use of his photos in educational materials. We acknowledge the staff of The Leprosy Mission International – Bangladesh, Dhaka programme for their support.

Contributors

- Farhana-Quyum was directly involved in managing the patient, preparing the manuscript and accepts full responsibility for the work.
- Mashfiqul-Hasan was involved in literature review and in all stages of preparation of the manuscript.
- Zakir Ahmed supervised the whole process of manuscript preparation.
- C. Ruth Butlin (DBLM Hospital, Nilphamari, Bangladesh) reviewed the manuscript.

References