Indian J Lepr 2010, 82 : 91-93

http://www.ijl.org.in

Case Report

Coexistence of borderline tuberculoid Hansen's disease with tuberculosis verrucosa cutis in a child-a rare case

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Received : 17.12.2009 Revised : 28.05.2010 Accepted : 16.06.2010

M. leprae is a more prevalent cause of cutaneous infections as compared to *M.tuberculosis,* though both belong to the same family of organisms; their co-existence is a rare entity in children. It has been suggested that cross-immunity exists between tuberculosis and leprosy with reports of BCG vaccine giving some protection against leprosy. In spite of epidemiological, clinical and microbiological evidences; the exact relationship between tuberculosis and leprosy still remains unclear. It is imperative to rule out coexistence of cutaneous tuberculosis and leprosy as therapy with rifampicin in treatment of leprosy can lead to drug resistance in management of tuberculosis and the use of steroid in leprosy can aggravate cutaneous tuberculosis.

Key words: BT Hansen, TVC, *M. leprae*, *M. tuberculosis*

Introduction

Tuberculosis known as "captain of all these men of death" (Rubin 1995) and leprosy – "the thermometer of civilization" (Jopling and McDougall 1995) are diseases prevalent since time immemorial. Though many patients with pulmonary tuberculosis and leprosy have been reported in the literature, the association of cutaneous tuberculosis with leprosy has been reported rarely (Pinto et al 1991, Patki et al 1990). Known to be a major public health problem in India and a cause for increased mortality and morbidity, co-existence has been rarely reported in the pediatric age group. Clinical diagnosis is the main stay for diagnosis of leprosy in children though in some cases histopathology may help (Kumar et al 2000). Therefore, a thorough examination of the patient is the key to the right diagnosis, to initiate appropriate treatment and to prevent resistant strains.

Case Report

A 10 year old boy presented to the Out Patient Department (OPD) with complaints of an asymptomatic warty slow growing lesion over the sole of the right foot since 2 years associated with whitish patches over the left arm noticed since 1 year. There was no history of any injury to the foot and no past history of pulmonary tuberculosis in the child.

Examination of the left upper limb (Figure 1) revealed three hypopigmented patches, moderate to big in size, irregular in shape with well to ill-defined borders, dry scaly surface, sparse

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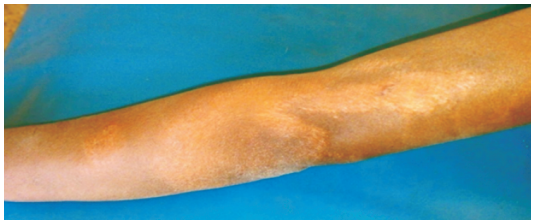

Figure 1 : Three well to ill defined patches of BT Hansen's on left upper limb.

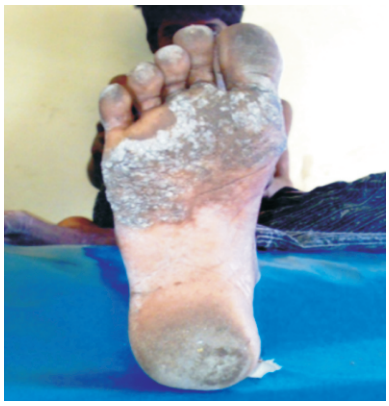

Figure 2 : Warty grayish colored keratotic plaques on the sole of the right foot.

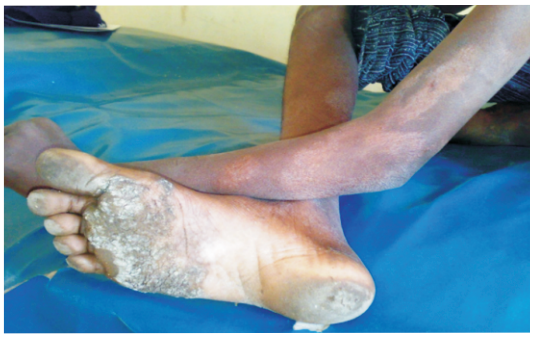

Figure 3 : BT Hansen's patch on left forearm with TVC on sole of right foot.

distribution of hair and sensations were lost. Left ulnar nerve was enlarged and non tender.

Examination findings of right foot included a well demarcated, large hyperkeratotic warty grayish colored plaque, which was non tender and firm in consistency over the sole of right foot extending over the forefoot, surrounding skin was normal.

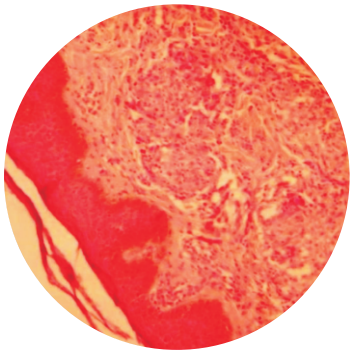

Figure 4 : HPE of lesions over left upperlimb showed compact granuloma in the upperlimbs with periappendageal lymphocytic infiltrate. Acid fast bacilli were not found.

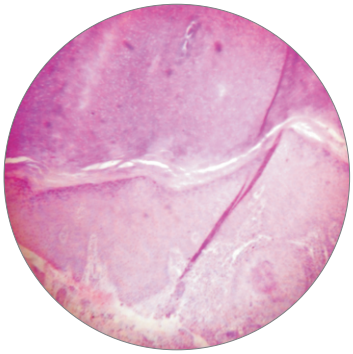

Figure 5 : HPE of lesions over right sole showed hyperkeratosis, acanthosis with papillamatosis and granuloma in the deeper dermis.

Investigations were carried out, routine blood counts were normal, ESR was 40 mm at the end of first hour, sputum AFB was negative, chest X-ray and Mantoux test were negative. Slit-skin smear for *M. leprae* was negative. Histopathological evaluation of the whitish lesions on the upper limb showed compact granuloma with Langhan's type of giant cells and epitheloid cells in the upper dermis with lymphocytic infiltrate suggestive of borderline tuberculoid Hansen. Acid fast bacilli were not found .

Warty lesion on the sole showed hyperkeratosis, acanthosis, papillomatosis and epitheloid granuloma in the deeper dermis suggestive of

tuberculosis verrucosa cutis. Acid fast bacilli were not found.

Discussion

Tuberculosis and leprosy are the main communicable diseases in India with a reported incidence of the co-existence of leprosy and tuberculosis of 2.5% to 7.7% (Singh et al 1987). According to the literature, this was reported for the first time by Relvich in 1954 who strongly argued that association of tuberculoid form of leprosy with tuberculosis was uncommon. Cross-immunity exists between tuberculosis and leprosy with reports of BCG vaccination providing 20-91% protection (Merle et al 2010). Tuberculosis can occur throughout the spectrum of leprosy (Nigam et al 1979). It is recognized that there is a close antigenic relationship between *M. tuberculosis* and *M. leprae* (Pinto et al 1991). The amino-acid sequences of 65 kilodalton antigens of *M. leprae*, *M. tuberculosis* and *M. bovis* BCG display greater than 95 % homology (Shinnick et al 1987). The higher reproductive rate of tubercle bacilli as compared to lepra bacilli and degree of cross-immunity within an individual do not allow both infections to occur simultaneously but there have been sporadic reports of co-existence of tuberculosis and leprosy in the same patients (Prasad et al 2010). The frequency of occurrence of leprosy in children is an important epidemiological index for determining transmission of the disease (Burman et al 2003).

Conclusion

Hence, we reiterate the importance of a thorough clinical examination and screening of children with suspected Hansen's disease to rule out concomitant tuberculosis so as to avoid single drug therapy (e.g. Rifampicin which is a highly bactericidal first line anti-tubercular drug) which may contribute to development of acquired drug resistance and reduced effectiveness of anti- TB treatment (Prasad et al 2010).

Acknowledgments

We would like to acknowledge the Staff and postgraduate students 2007-2010 of Department of Dermatology and the team of JALMA for making this publication a part of the Indian Journal of Leprosy.

References

1. Burman KD, Rijall A, Agrawal S et al (2003). Childhood leprosy in eastern Nepal: a hospital based study. *Indian J Lepr.* **75**: 47-52.
2. Gupta MC and Prasad M (1971). Associated infection of pulmonary tuberculosis and leprosy. *Ind J Med Sci.* **25** : 183-185.
3. Jopling WH and McDougall AC (1995). Prevention. In : Handbook of Leprosy, 5th edn, ELBS, London, pp 148-150.
4. Kumar B, Rani R and Kaur I (2000). Childhood leprosy in Chandigarh: clinico-histopathological correlation. *Int J Lepr Other Mycobact Dis.* **68**: 330-331.
5. Merle CSC, Cunha SS and Rodrigues LC (2010). BCG vaccination and leprosy protection: review of current evidence and status of BCG in leprosy control. *Expert Rev Vaccines.* **9**: 209-222.
6. Nigam P, Dubey AL, Dayal SG et al (1979). The association of leprosy and pulmonary tuberculosis. *Lepr India*. **51** : 65-73.
7. Patki AH, Jadhav VH and Mehta JM (1990). Leprosy and multicentric lupus vulgaris. *Indian J Lepr.* **62** : 368-370.
8. Pinto J, GS Pal and Kamath N (1991). Cutaneous tuberculosis with leprosy. *Indian J Dermatol Venereol Leprol.* **57**: 303-304.
9. Prasad R, Verma SK, Singh R et al (2010). Concomittant pulmonary tuberculosis and borderline leprosy with type-II lepra reaction in single patient. *Lung India.* **27**: 19-23.
10. Relvich AL (1954). The treatment of tuberculosis in leprosy patients. *Lepr Rev*. **25**: 179-186.
11. Rubin SA (1995). Tuberculosis. Captain of all these men of death. *Radiol Clin North Am*. **33**: 619-639.
12. Shinnick TM, Sweetser D, Thole J et al (1987). The etiologic agents of leprosy and tuberculosis share an immunoreactive protein antigen with the vaccine strain *Mycobacterium bovis* BCG. *Infect Immun.* **55**: 1932-1935.
13. Singh M, Kaur S, Kumar B et al (1987). The associated diseases with leprosy. *Indian J Lepr.* **59** : 315-321.