CASE REPORT

Post traumatic borderline tuberculoid leprosy over knee in an Indian male

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Case History

A 23-year-old Indian male presented with a 6-month history of asymptomatic, skin lesions over the left knee. There was a history of traumatic injury at the same site. While playing football in his village 2 years ago he fell down on the ground and abraded his left knee. Such injuries are routine while playing football, and as it was a minor one no treatment was sought. Cutaneous examination showed multiple shiny, flat-topped, mildly erythematous, discrete and grouped papular lesions and annular plaques with central atrophy, varying in size from 2–8 mm in diameter, distributed in a linear fashion on the medial aspect of the left knee, along with an ill-defined, hypopigmented oval patch in the central part on medial aspect of the knee joint (Figure 1).

On sensory testing hypoaesthesia to temperature and pinprick sensation was observed in the plaques and on the hypopigmented patch. There were no other skin lesions, nerve thickening or systemic complaints. There was no hepatosplenomegaly or abnormal systemic finding. The haematological investigations, X-ray chest, high resolution CT thorax, serum calcium and serum ACE levels were normal. Mantoux test was 10 mm × 10 mm. Staining and culture for fungus was negative. Slit smear examination from the skin lesions and routine sites including both the ear lobes did not reveal any acid-fast bacilli.

Histology of skin biopsy revealed multiple non-caseating lymphohistiocytic granulomas in the upper and mid-dermis along with Langhan’s giant cells (Figure 2), at places linear in distribution along the nerves (Figure 3), which suggested borderline tuberculoid leprosy.

The Ziehl-Neelsen stain of the tissue did not reveal any acid-fast bacilli. The patient was diagnosed as a case of borderline tuberculoid leprosy and put on WHO PB-MDT (Pauci Bacillary Multidrug Therapy) with tablet dapsone 100 mg. daily and capsule rifampicin 600 mg. monthly. The lesions regressed significantly after 6 months of treatment, corroborating the diagnosis.

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Discussion

The asymptomatic lesions, hypoesthesia in the plaques and in the hypopigmented patch raised the suspicion of leprosy. However, the linearly distributed papules and plaques as observed here were unusual. Histoid leprosy, cutaneous sarcoidosis, granuloma annulare and lupus vulgaris were considered in the differential diagnosis clinically. The histopathological findings from the plaque and the papules were of borderline tuberculoid leprosy and various

Figure 1. Linearly distributed mildly erythematous papules and annular plaques on medial aspect of left knee with a vaguely defined, hypopigmented patch in the centre.

Figure 2. a). Close up view of a part of the granuloma from showing details of the non-caseating lymphohistiocytic infiltrate with Langhan’s giant cell (haematoxylin and eosin; original magnification, ×400). b) Microphotograph showing multiple non-caseating dermal lymphohistiocytic granulomas at places around appendages, with Langhan’s giant cell (haematoxylin and eosin; original magnification, ×100).
investigations mentioned earlier ruled out the other clinical possibilities. There have been scant reports of leprosy developing at the site of injury,\textsuperscript{1,2} tattooing and vaccination.\textsuperscript{3–7} The period between entry of the organism and development of leprosy lesion is known to vary from a few years to a few decades.\textsuperscript{3} The observation of pseudo-isomorphic phenomenon of Koebner was reported for the first time in leprosy in 2009.\textsuperscript{8} The linear distribution of the lesions over a frequently traumatised site in this case is also suggestive of inoculation leprosy as well as koebnerization. However, it is not easy to pinpoint the mode of acquisition of infection in this particular case, but circumstantial evidence points towards inoculation leprosy. Minor traumatic injuries on the extremities are common while engaged in sports and work activities such as farming, are often left untreated and are usually forgotten. It is difficult to conclude which particular injury or injuries were responsible for bacillary inoculation. In this highly endemic region, the wound site could have been exposed to \textit{M. leprae} following the injury. There is also a possibility of bacilli being drawn to this site, after entry from the respiratory tract, as has been proposed earlier in a report of similar inoculation in a leprosy hospital.\textsuperscript{1} Several factors, including the depth of the inoculum and its volume along with genetic factors and environmental micro-organisms could modulate the development of inoculation leprosy.\textsuperscript{9} This case validates the author’s earlier suggestion, that if one or two leprosy lesions are found in exposed and trauma prone and/or abraded parts of the body, especially extremities, a possibility of inoculation leprosy should be entertained, and that leprosy is inoculable.\textsuperscript{2,7}

The reports of demonstration of \textit{M. leprae} in the epidermis, their transepidermal elimination and presence in epidermal washings in multibacillary patients, point towards the possible role of skin in spread of leprosy.\textsuperscript{10–12} This particular case and the earlier referenced publications highlight the importance of skin in leprosy transmission.

\textbf{References}


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