Penile tuberculoid leprosy in a five year old boy

Bikash Ranjan Kar, Gigi Ebenezer*, C. K. Job*
Departments of Dermatology and *Pathology, Schieffelin Leprosy Research and Training Centre, Karigiri, Vellore, India

Address for correspondence: Dr. Bikash Ranjan Kar, Department of Dermatology, SLR & TC, Karigiri, India. E-mail: karbikash@hotmail.com

ABSTRACT

A 5-year-old contact of a lepromatous leprosy patient with a tuberculoid lesion on the anterior aspect of the shaft of the penis is reported. The child was clinically suspected to have borderline tuberculoid leprosy during a survey of contacts of leprosy patients, which on histopathology revealed features of subpolar tuberculoid leprosy. The father of the child was recently detected as a case of lepromatous leprosy and was started on multibacillary regime of WHO multidrug therapy. The reason for the localization of the lesion to the shaft of the penis is also suggested. Skin as a route of transmission of tuberculoid leprosy is also emphasized.

Key Words: Penile leprosy lesion, Skin transmission

INTRODUCTION

Though the stage is all set for the “final push” of leprosy from the world, our knowledge and concepts of some aspects of this stigmatizing disease still need refinement. A lot is known about the entry of the organism into the host and establishment of the infection, and a lot still remains to be explored. Till date there is no scientific study on a large scale to demonstrate the exact route of entry of the bacillus though it is widely believed to be airborne by most of the leprologists. However, skin-to-skin transmission of the disease definitely takes place in a subgroup of leprosy patients. Here we report a case of tuberculoid leprosy in a contact of a lepromatous patient and discuss the most likely mode of entry of the organism and the localization of the lesion to the shaft of the penis.

CASE REPORT

A 5-year-old boy was brought by his father to the hospital with complaints of a small papular lesion on the shaft of the penis since two years. The lesion started as a pinhead sized, hypopigmented macule and slowly enlarged over 2 years to arrive at the present dimensions. The lesion was completely asymptomatic throughout the evolution. There were no complaints of numbness over the plaque. On examination, there was a single plaque, located over the dorsal aspect of the shaft of the penis, measuring 1.5 cm x 1 cm.

The margin of the lesion was well defined (Figure 1). The surface was dry and rough. There was some central healing in the plaque causing mild depression. Sensation over the lesion could not be ascertained, as the child was too young to cooperate. No feeding
cutaneous nerve could be palpated. Trunk nerves were not enlarged. There were no other cutaneous patches. Peripheral motor and sensory assessments were within normal limits.

Hemogram revealed eosinophilia. Urine analysis, chest X-ray and other systemic examinations were within normal limits. Slit skin smear done from the plaque could not demonstrate any organism. A clinical diagnosis of borderline tuberculoid (BT) leprosy was made. Skin biopsy done from the lesion showed granulomas composed of epithelioid cells, Langhan’s giant cells, foreign body type giant cells and lymphocytes around the blood vessels and skin adnexa occupying a major portion of the dermis (Figure 2).

There was partial destruction of the skin adnexal structures. Granuloma fraction was 90%. Acid-fast stain showed occasional scattered bacilli with in the granuloma. A diagnosis of subpolar tuberculoid leprosy was offered.

The child was suspected to have BT leprosy during a survey of contacts of leprosy patients. The father of the child was recently detected as a case of lepromatous leprosy. He presented with multiple, hypopigmented and coppery macules over the trunk with a diminished sensation over the lower limbs along with dryness and fissuring of both feet of 3 years duration.

On examination, he had multiple, ill defined, coppery colored, shiny macules present on the trunk distributed almost symmetrically, which included numerous ill defined but infiltrated lesions over the waist (Figure 3). There was no lesional anesthesia or madarosis. The lower limbs were xerotic, with several fissures in the soles. Ulnar and lateral popliteal nerves were enlarged bilaterally, so were the radial cutaneous and superficial peroneal nerves. Slit skin smear done from routine sites revealed a bacillary index (BI) of 4+ and from the waist region had a BI of 5+. Skin biopsy done from one of the infiltrated macules on the back showed focal and confluent granulomas in the dermis composed of histiocytes and a few lymphocytes around the blood vessels and skin adnexa. A number of dermal nerves were seen within the granulomas. Granuloma fraction

Figure 1: Well-defined plaque on the dorsal aspect of the penis

Figure 2: Confluent granulomas composed of epithelioid cells and Langhan’s giant cells surrounded by lymphocytes. The granuloma hugs the epidermis and invades it in areas (H/E, x600)

Figure 3: Multiple, ill-defined, coppery, shiny macules over the waist region in the father with lepromatous leprosy
was 40%. BI of granuloma was 5+. Histopathology was consistent with subpolar type of lepromatous leprosy. Other members in the family screened had no evidence of leprosy.

DISCUSSION

The mode of infection in leprosy is still an ongoing debate. Skin as a possible route of entry or exit of leprosy bacilli is not given priority by most of the leprologists.[6] However, it was recently reported that a significant number of M. leprae is present in all layers of the epidermis, including the stratum corneum especially in lepromatous leprosy patients.[2] This “route” has been sidelined since the reports by Pedley on the non-emergence of M. leprae from intact lepromatous skin[3] and later by Rees and Meade on the possibility of airborne infections.[4] From two separate studies Rees and Meade noted that the attack rate of leprosy and tuberculosis were similar and therefore they concluded that the route of transmission of the two must be the same. Pneumonic plague and pulmonary tuberculosis have the same route of transmission. Does that mean their attack rate should be the same? Recently, leprologists and pathologists have come to consider the nasal route as the common and accepted portal of entry[5] without adequate and undisputed scientific evidence. Skin as a route of transmission is mentioned in many reports such as infection occurring after tattooing,[6] dog bites and accidental inoculation[7] or after skinning of infected armadillos.[8] There are also numerous observations of a first patch on the forehead or cheek of a baby carried on the back of its lepromatous mother, and the first lesions[8] seen on the bare buttocks of toddlers sitting on contaminated soil. Abraham et al[10] concluded that the first lesions often occur at sites most vulnerable to trauma. It has also been shown that contaminated thorns may infect susceptible mice.[11] All these suggest that the mode of entry of the bacilli into the body of the host is often through the skin.

Reports of isolated involvement of the penile shaft,[12] which is a relatively warmer zone, in paucibacillary leprosy patients, are rare in the literature and the possible mode of transmission in those cases is still more intriguing. Our index case further strengthens the hypothesis of inoculation leprosy in a close contact. In our case, the father is a case of subpolar lepromatous leprosy with a few coppery patches in the lower trunk and in such a case, carrying the kid, usually naked, which is practiced widely in rural India could be the possible way of contact that culminated in manifestation of a lesion of tuberculoid leprosy on the genitalia of the child. The incubation period in the index child also tallies with that described for leprosy averaging 2-5 years. This case also emphasizes the need for a detailed examination of all the contacts including the genitalia.

REFERENCES