CASE REPORT

Bilateral medial fingernail dystrophy as a presenting feature in a patient with leprosy

PREMANSHU BHUSHAN, ASOK AGGARWAL, RESHMA YADAV & VINISHA BALIYAN
Skin Institute and School of Dermatology, N-block, Greater Kailash-1, New Delhi-110048, India

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Introduction

Nail changes in leprosy are frequent and are attributed to a combination of factors like neuropathy, trauma, vascular impairment, infections etc.1 We report a patient who presented with bilateral dystrophy of medial fingernails leading to a diagnosis of leprosy, emphasizing the significance of nail abnormalities which are usually overlooked.

Case Report

An 18 year old male student presented at the dermatology clinic complaining of discoloration, thickening, grooving and deformation of the medial three fingernails of both hands for the last 4 months. He was not involved in any manual work and denied that he bit his nails. There was no history of any major medical or surgical events in his recent past. Examination of the nails revealed opaque leukonychia of the distal nail plates of the fourth and fifth digits bilaterally. The affected nails also showed horizontally transverse grooves, blackish discoloration and roughness with a flattening of their normal contour. The right third fingernail was also affected similarly with a horizontal groove near the distal edge with discoloration of the nail plate. The left third fingernail showed less prominent changes, yet a partial horizontal groove was visible near the proximal end (Figure 1).

A nail clipping immersed in 10% potassium hydroxide and fungal culture did not reveal any fungal elements. Blood sugar and X-ray of the hands were normal.

This distribution of nail changes approximately matched the ulnar nerve distribution. Both ulnar nerves were found to be thickened on palpation while other peripheral nerve trunks were not enlarged. Bearing in mind the possibility of leprosy, diagnostic signs were...
sought. Cutaneous examination revealed a single, well defined, hypopigmented, slightly atrophic plaque on the right wrist area of size nearly 12 × 7 cm (Figure 2).

The plaque was hypoesthetic to touch and temperature by nearly 70%. The patient had noticed this lesion about 2 months previously and had applied a steroid and antifungal cream for nearly 4 weeks. There was mild (25%) subjective loss of sensation but no motor deficits or clawing in the ulnar distribution of both hands. Bilateral radial and ulnar pulses were normal.

Slit-smears from the lesion revealed no acid-fast bacilli. A biopsy from the wrist lesion (Figure 3) revealed perivascular lymphocytic infiltrate in the upper dermis, and well defined epitheloid cell granulomas with a moderate number of lymphocytes predominantly around the appendages.

The nerves were grossly infiltrated with epitheloid cells and lymphocytes, but acid-fast bacilli were not identified on the modified Fite stain.

Considering the clinical, bacteriological and histological features, a diagnosis of borderline tuberculoid leprosy was made and the patient was started on multi-drug therapy
Discussion

Nail changes are reported in up to 56% of paucibacillary and 87% of multibacillary cases. Commonly reported nail abnormalities include longitudinal melanonychia, longitudinal ridging and subungal hyperkeratosis, while untreated chronic leprosy patients may develop rudimentary nails. Despite varying bacteriological, immunological and pathological features in tuberculoid and lepromatous leprosy, nail changes are reported to be similar, probably because of factors common to both poles like vascular and neurological damage, trauma etc. However, in lepromatous leprosy nail changes appear later in the course of the disease than in tuberculoid leprosy and are more symmetrical. Furthermore, similar nail changes may be seen in any peripheral neurological or even vascular disorders. Multiple Beau’s lines or shoreline nails are also known to occur in leprosy as well as with reactions. Similarly, changes like pterygium inversus, Terry’s nails as well as onychomycosis are known to occur in leprosy patients.

In our case, bilateral ulnar nerves involvement explained the presence of dystrophy of bilateral fingernails in ulnar nerve distribution. Kaur et al. also note that the nail changes are more commonly seen in the digits with sensorimotor deficits in both pauci and multibacillary patients.

The unique point is the patient presented nail deformity as his only concern, and he did not mention the cutaneous lesion which he thought was ‘ring-worm’. However, curiosity aroused by the distinctive distribution led to a search for evidence of leprosy. It is established that nerve involvement precedes the skin lesions and some neuritic leprosy cases are known to develop cutaneous lesions on follow up. This patient’s nerve involvement leading to nail deformities preceded the development of the skin lesion.

Leprosy is the commonest cause of peripheral neuropathy in endemic areas, and hence may produce onychodystrophy, which in some cases may herald the development of...
cutaneous lesions of leprosy. Therefore, we would like to stress that nail changes may be a diagnostic clue to leprosy, especially if they present in a particular nerve distribution.

**Contributorship**
Premanshu Bhushan: Case study, research, preparation of manuscript.
Asok Aggarwal: Review of case, correction of manuscript, analysis of published literature.
Reshma Yadav: Study of histological sections, preparing histological report, editing of manuscript.
Vinisha Baliyan: Collection of published literature, literature search, editing of manuscript.

**References**