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CASE REPORT

An unusual presentation of Hansen's disease: A case report

Sanduni Hettige[1], **Sachithra Samarakoon**[1], **Chandani Udagedara**[1]

[1]Dermatology Unit, National Hospital, Kandy, Sri Lanka.

Correspondence: Sanduni Hettige, sandunithettige@gmail.com

Abstract

Leprosy is a chronic granulomatous infection caused by *Mycobacterium leprae*, which gives rise to a wide spectrum of clinical manifestations depending on the host's cell-mediated immunity. Although classical features include hypopigmented or erythematous anaesthetic patches and peripheral neuropathy, atypical presentations may occur, delaying the diagnosis. Ichthyosiform changes are uncommon and usually associated with multibacillary disease.

We present a 69-year-old male who presented with progressive generalized scaling for one year, without prior dermatological illness. Detailed evaluation revealed associated glove-and-stocking sensory neuropathy, which was neglected for years, associated with left-sided partial foot drop. Cutaneous examination showed diffuse ichthyosis with large scales over the extremities and finer scaling over the trunk, without classical hypopigmented lesions, and madarosis with thickening of peripheral nerves. Slit-skin smears demonstrated a high bacillary index (5+ to 6+). Histopathology revealed diffuse dermal infiltration and focal aggregates of foamy macrophages with a Grenz zone, consistent with borderline lepromatous leprosy.

This case highlights acquired generalized ichthyosis as an unusual presenting feature of leprosy, which requires a high degree of clinical suspicion. Autonomic nerve dysfunction leading to anhidrosis and xerosis likely contributes to the ichthyosiform appearance. Recognition of subtle clinical clues such as madarosis and peripheral sensory neuropathy is essential for early diagnosis. Slit skin smear and skin biopsy are simple but important tools in the diagnosis of unusual cases of leprosy. Prompt initiation of multidrug therapy can prevent progression and long-term disability.

Keywords: acquired ichthyosis; leprosy; Mycobacterium leprae; multibacillary; borderline lepromatous leprosy

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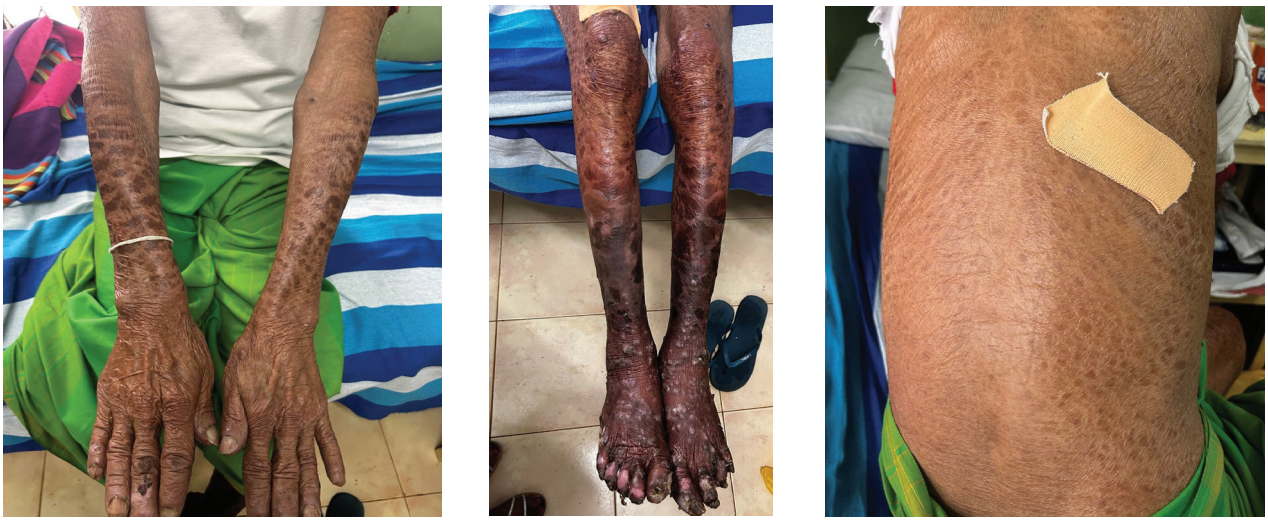
Introduction

Leprosy is a chronic granulomatous infectious disease caused by *Mycobacterium leprae*, classically presenting with hypo-pigmented or erythematous anaesthetic skin lesions and peripheral neuropathy. Host's cell-mediated immunity determines the clinical spectrum of leprosy, ranging from tuberculoid to lepromatous forms as described in the Ridley–Jopling classification.[1] Despite global elimination efforts, leprosy remains a significant cause of preventable deformity and disability, warranting early and accurate diagnosis. Leprosy remains a great clinical mimicker, and atypical presentations pose a diagnostic challenge. Ichthyosiform manifestation is a known but uncommon presentation and is often associated with lepromatous leprosy, resulting from diffuse autonomic nerve damage leading to anhidrosis and xerosis.[2] Leprosy presenting as generalized ichthyosis is rare, and here we present a patient who presented with acquired generalized ichthyosis, which preceded the diagnosis of leprosy.

Case Presentation

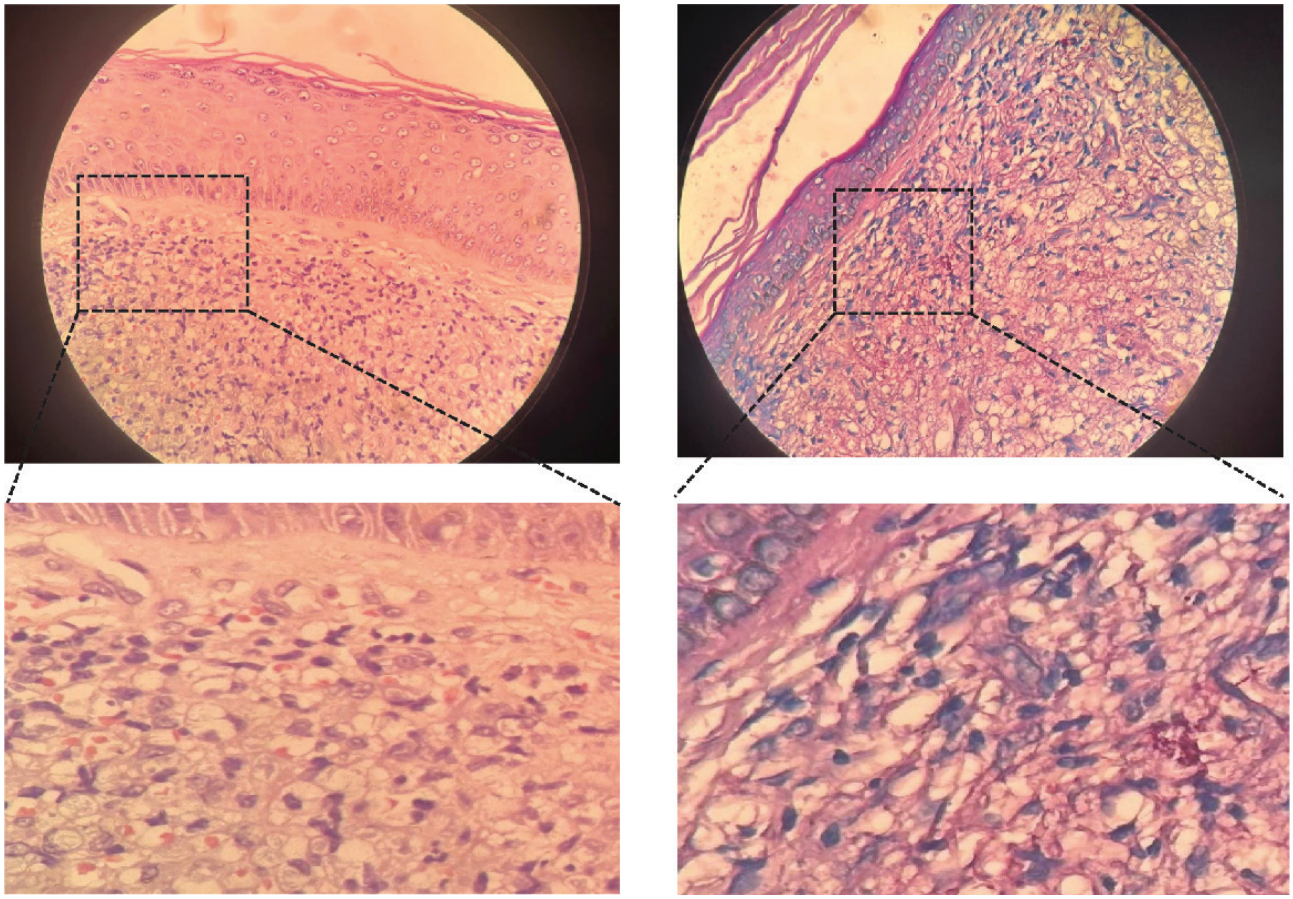
A 69-year-old male patient presented with diffuse scaling of the body for one year without any prior dermatological or significant medical illness. The scaling had gradually worsened over time, and on further questioning, he reported bilateral hand and foot numbness for about two years' duration, for which he had sought medical attention once, but defaulted on follow-up. On examination, he had generalized ichthyosis with large brown scales over the bilateral upper and lower limbs and small scales over the trunk (Figure 1A-C). There was madarosis, and he appeared older than his stated age. No significant ear lobe or eyebrow thickening or any hypo-pigmented or erythematous patches were noted, except for a few pink nodules over the bilateral dorsal aspects of the feet with hyperkeratosis of toes. There was atrophic scarring over the dorsum of the toes, and the left 4th toe was noted to be missing. On further questioning on that, he admitted a history of a wound over the left 4th toe about 2 years previously, for which he has done some native treatment, resulting in auto-amputation, which has not caused any pain.

Neurological examination revealed impaired temperature and pain sensations over both hands and lower limbs up to mid-calf level in a glove and stocking pattern. Bilateral ulnar and common peroneal nerves were thickened, and there was left-sided partial foot drop; the reflexes were intact. With the neurological involvement, leprosy was suspected, and he was investigated along that line.



A B C

Figure 1. (A) Large scales over the upper limbs. (B) Ichthyosis and hyperkeratosis of the lower limbs. (C) Fine scaling over the back.



A **B**

Figure 2. (A) Prominent Grenz zone with diffusely infiltrated dermis with histiocytes and foam cells (H&E, ×400). (B) Fite stain showing acid-fast bacilli. (Fite stain, × 400).

Diagnosis and Management: Slit skin smears obtained from bilateral ear lobes and eyebrows were positive with a high bacillary index (5+ to 6+). Skin biopsies were obtained from three sites, and all the biopsies showed superficial dermal diffuse infiltration of foamy macrophages with a Grenz zone at the dermoepidermal junctional region, with some focal large aggregates of foamy cells in mid and lower dermis, suggestive of borderline lepromatous leprosy (Figures 2 A, B).

Nerve conduction studies (NCS) revealed absent sensory responses in both the ulnar and median nerves in the bilateral upper limbs, and NCS in the lower limbs were not possible due to technical reasons.

Based on the findings, borderline lepromatous leprosy was diagnosed. He was started on adult multibacillary multidrug therapy, with physiotherapy, and emollients were prescribed for the ichthyosis.

Discussion

Leprosy is a chronic granulomatous infection with a wide range of clinical manifestations. It typically presents as hypopigmented or erythematous patches, or as diffuse skin infiltration with mononeuritis multiplex or symmetrical polyneuropathy, depending on the host's cell-mediated immune response. Ichthyosiform presentation is a rare but important manifestation. The presence of madarosis with glove-and-stocking sensory neuropathy raised the suspicion of leprosy, and this case highlights how acquired ichthyosis may be the dominant cutaneous manifestation in leprosy.

Slit skin smear and skin biopsy are simple but important tools in the diagnosis of unusual cases

of leprosy.[3] Early recognition is crucial as timely initiation of multi-drug therapy can halt the disease progression and prevent deformity, as well as control disease spread.

Ethics statement

Informed written consent was obtained from the patient. All ethical considerations were adhered to in accordance with institutional guidelines. No personal data has been displayed, and all the information was de-identified.

Author contributions

SH was responsible for the conceptualization, case management, and drafting of the manuscript. SS and CU contributed to case management, with CU also providing critical review and final approval of the version to be published.

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