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ORIGINAL ARTICLE

CHALLENGES IN DIAGNOSING PURE NEURITIC LEPROSY AMIDST DIAGNOSTIC ABUNDANCE IN AN URBAN SETTING – A CASE REPORT FROM CHENNAI DISTRICT, SEPTEMBER 2025

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ABSTRACT

INTRODUCTION : Leprosy, though declining globally, continues to present diagnostic challenges due to its varied clinical manifestations. Pure neuritic leprosy accounts for about 5–10% of cases in India and less than 5% globally. Neurological involvement may be the first or predominant symptom, yet lack of awareness among non-dermatology specialists often leads to misdiagnosis. Overreliance on negative slit-skin smears, incomplete clinical correlation, and diversion into alternate differential diagnoses may result in prolonged delays in initiating multidrug therapy (MDT), thereby worsening disability outcomes. Reporting such cases highlights existing gaps in clinical practice and reinforces the importance of maintaining a high index of suspicion for leprosy in endemic regions.

METHODS : We describe the clinical course of a 72-year-old male from Chennai evaluated over a three-year period across multiple healthcare facilities. Clinical history, diagnostic investigations, specialist referrals, and management strategies were systematically reviewed. The diagnostic pathway was mapped to identify missed opportunities and causes for delay in establishing the diagnosis of Hansen's disease.

RESULTS: The patient first presented in July 2022 with bilateral hand numbness, difficulty buttoning shirts, and spontaneous blisters. A private neurologist diagnosed carpal tunnel syndrome, and carpal tunnel release surgery was performed without improvement. At a government tertiary hospital, slit-skin smears tested negative for Mycobacterium leprae, leading to exclusion of leprosy and referral to neurology. Nerve conduction studies suggested median nerve neuropathy, and extensive work-up for autoimmune and vascular causes remained inconclusive. The patient was repeatedly managed with intermittent steroids for presumed neuropathy, yielding only temporary relief.

Over the next two years, symptoms progressed, with recurrent hand ulcers and extension of numbness to the lower limbs. In August 2025, the neurologist referred the patient to a central government neurology research institute, where a sural nerve biopsy confirmed Hansen's disease, with Fite-Faraco stain demonstrating clusters of lepra bacilli. The patient was subsequently referred back to the government tertiary hospital, where MDT was initiated in September 2025, more than three years after symptom onset.

CONCLUSION: This case illustrates the diagnostic challenges of leprosy in the absence of skin lesions and negative slit-skin smears, particularly for specialists outside dermatology in endemic regions. The prolonged delay in initiating MDT underscores systemic gaps in physician awareness beyond dermatology and public health. The lessons learned reinforce the importance of integrating leprosy training into continuing medical education for neurologists, rheumatologists, and general practitioners. Early recognition of neuropathy patterns, judicious use of confirmatory tools such as nerve biopsy when smears are negative, and timely referral are essential to prevent irreversible morbidity. Strengthening clinical vigilance and interdisciplinary collaboration remains a cornerstone in advancing toward the goal of true leprosy elimination.

KEYWORDS : Neural Leprosy, clinical diagnosis, multidrug therapy, neglected disease

INTRODUCTION

Leprosy remains a public health problem in several endemic regions, including India, which contributes nearly half of the world's new cases annually despite achieving elimination status at the national level.[1] The disease presents with a wide clinical spectrum, ranging from indeterminate macules to advanced multibacillary cases with deformities. Pure neuritic leprosy (PNL), in which peripheral nerve involvement occurs without obvious skin lesions, accounts for approximately 5–10% of leprosy cases in India[2] and less than 5% globally.[3] This form is diagnostically challenging and is often missed or mistaken for other neurological disorders. Over-reliance on slit-skin smear negativity, absence of dermatological findings, and specialty-specific diagnostic biases contribute to prolonged delays in initiating multidrug therapy (MDT).[4] We report a case from Chennai District where leprosy was overlooked for more than three years, underscoring the consequences of diagnostic neglect in an endemic urban setting.

RESULTS

A 72-year-old male from Chennai, presented in July

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2022 with bilateral hand numbness, difficulty in buttoning shirts, and spontaneous blisters over the fingers. He also complained of intermittent burning sensations.

At his first consultation with a private neurologist, he was diagnosed with carpal tunnel syndrome and underwent bilateral carpal tunnel release surgery. The intervention provided no relief.

Later in November 2022, he was referred by the neurologist to the dermatology department of Government Medical College hospital. A slit-skin smear was performed there turned out to be negative and leprosy diagnosis was ruled out and he was referred to the neurology department there for nerve conduction study.

Nerve conduction studies showed bilateral median nerve neuropathy, later progressing to ulnar involvement. He was also evaluated extensively for autoimmune and vascular neuropathies, including antinuclear antibody profile and vasculitis markers, all turned out to be inconclusive. He came back to the private neurologist and was treated intermittently with oral corticosteroids, which offered only temporary relief. During this period, his symptoms progressed. He developed recurrent blisters turned into ulcers on his hands. By early 2025, he reported numbness in the feet and difficulty in walking.

In August 2025, the same private neurologist referred him to a central government neurology research centre for advanced evaluation and nerve biopsy. A sural nerve biopsy done there revealed chronic inflammatory infiltrates with granuloma formation. Fite-Faraco staining demonstrated clusters of acid-fast bacilli consistent with Mycobacterium leprae.

The private neurologist referred him back to the Government Medical College Hospital for further treatment. He was diagnosed with pure neuritic leprosy and initiated on multibacillary MDT in September 2025, more than three years after onset of symptoms. Supportive physiotherapy and ulcer care were also introduced.

DISCUSSION

This case highlights multiple missed opportunities for early diagnosis of leprosy despite the patient residing in an endemic district. The diagnostic delay of over three years resulted in progression of neuropathy. While skin smears are valuable, they are frequently negative in PNL and should not be used to exclude the diagnosis.[2,5] Many clinicians, especially non-dermatologists, equate leprosy only with skin involvement, overlooking its neuritic presentations.[6] Neurologists and surgeons often focus on common neuropathies such as entrapment syndromes, vasculitis, or autoimmune causes, delaying recognition of leprosy.[7] Lack of nerve biopsy utilization: Nerve biopsy, though invasive, remains the gold standard for confirming PNL, especially when skin smears are negative.[8]

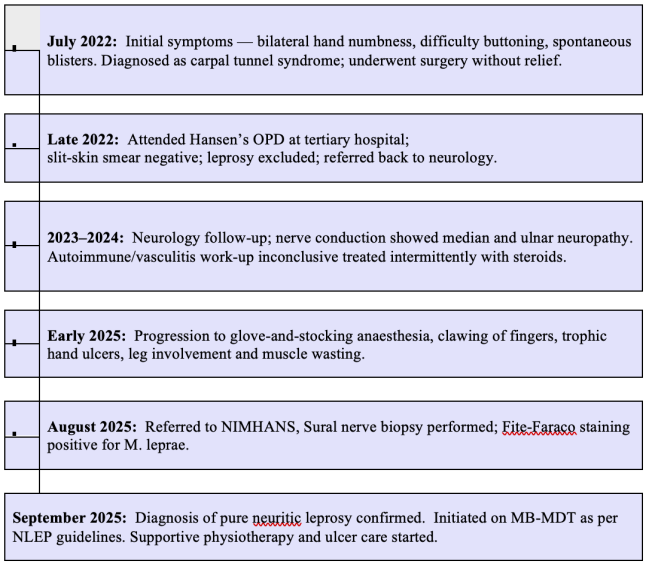

Figure 1: Timeline of symptoms, investigations, and diagnosis.

Previous studies from India report average diagnostic delays of 1–3 years in PNL, with many patients developing irreversible disability by the time MDT is initiated.[9,10] Our patient underwent unnecessary surgery and prolonged steroid therapy, reflecting both financial and health burdens.

This case presentation highlights the importance of: maintaining a high index of suspicion for leprosy in endemic areas, considering nerve biopsy early when neuropathy is unexplained, cross-disciplinary training for neurologists, rheumatologists, and general physicians, reinforcing leprosy awareness in continuing medical education programmes.

CONCLUSION

Pure neuritic leprosy should remain a key differential diagnosis in endemic regions when evaluating unexplained peripheral neuropathy. Negative skin smears should not be used to rule out leprosy. Early referral, judicious use of nerve biopsy, and timely initiation of MDT are essential to prevent disability and achieve true elimination.

CONFLICT OF INTEREST

None

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disease) update, 2022: moving towards interruption of transmission. Wkly Epidemiol Rec. 2023;98(35):413-28.

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