SUMEJ
Sumatera Medical Journal
Journal homepage: https://talenta.usu.ac.id/smj

Case Report

Late Detection with Claw Hand Deformity in a Leprosy Person: A Case Report

Surender Benedict*, Zulkifli Harun
Pekan District Health Office, Jalan Haji Montok, Pekan, Pahang, 26600, Malaysia
*Corresponding Author: suryender1@gmail.com

ARTICLE INFO
Article history:
Received 24 March 2025
Revised 3 July 2025
Accepted 16 July 2025
Available online 1 January 2026

E-ISSN: 2622-1357
P-ISSN: 2622-9234

How to cite:
Surender Benedict, Zulkifli Harun, "Late Detection with Claw Hand Deformity in a Leprosy Person: A Case Report", SUMEJ, Vol. 09, No. 01, January 2026.

https://doi.org/10.32734/sumej.v9i1.20279

ABSTRACT
Background: Leprosy is a chronic infectious disease caused by Mycobacterium leprae. It remains a major public health problem and is often neglected, especially in remote communities. **Objective:** This case report describes a patient with late detection of multibacillary leprosy who presented with advanced deformity, and highlights the factors contributing to delayed diagnosis. **Methods:** A clinical assessment and detailed history were conducted on a 78-year-old man from the Orang Asli community in Pekan, Pahang. The diagnosis was made clinically and later confirmed through a skin slit smear with acid-fast staining. Disability grading was performed according to the World Health Organization criteria. **Results:** The patient presented with a left claw hand deformity that had progressed for two years without treatment, accompanied by ulceration and sensory loss. He was classified as having grade 2 deformity. Multidrug therapy (MDT) was started promptly at the primary care clinic, and his symptoms improved after treatment initiation. Stigma and low awareness of leprosy were identified as the main factors contributing to the delay in seeking care. **Conclusion:** This case illustrates the consequences of late detection of leprosy, which can lead to permanent disability. Early recognition and prompt initiation of MDT remain essential to prevent progression and reduce disability, especially in underserved communities.

Keywords: leprosy, multibacillary, multidrug therapy, mycobacterium leprae

1. Introduction

Leprosy is a chronic granulomatous disease caused by Mycobacterium leprae [1]. It is primarily transmitted through airborne droplets during exposure to an untreated individual. Leprosy causes permanent deformities if left untreated and is curable with multidrug therapy [2]. It is characterized by a notably long incubation period, averaging approximately five years, although it may vary significantly, ranging from six months to two decades [3]. A total of 6 cases of leprosy with grade 2 deformity were diagnosed in the district of Pekan, Pahang, from 2022 to 2023. The prevalence rate increased from 1.56 per 100,000 population in 2022 to 3.13 per 100,000 population in 2023. Rajaram et al. report a retrospective study conducted involving 223 new leprosy cases registered from April 2012 to March 2017, revealing that 14 of these cases presented with grade 2 deformities. The analysis demonstrates a concerning upward trend in the incidence of grade 2 deformities during this timeframe [4].

This case highlights how delayed diagnosis of leprosy can result with disabilities, particularly in indigenous communities. The lack of awareness and stigma leads to late presentation and delays the treatment. This case emphasizes the role of primary healthcare in early detection, timely intervention, and empowering communities through awareness.

2. Case Presentation

A 78-year-old man from the Orang Asli community in Pekan, Pahang, with a medical history of hypertension and dyslipidemia, presented with a left claw hand deformity that had persisted for the past two years. Accompanying symptoms included loss of eyebrow and thickening of the right ear, as well as decreased sensation in the left hand.

Clinical examination revealed notable leonine facies, bilateral loss of eyebrow, and an erythematous lesion with thickening of the right ear. The patient exhibited a left ulnar claw hand deformity. The deformity was characterized by hyperextension at the metacarpophalangeal (MCP) joints of the left ring and little finger and flexion at the proximal interphalangeal (PIP) joints (Figure 1). It was associated with muscle wasting in the left thenar and hypothenar regions. The ulnar nerve of the left wrist was thickened on palpation. Sensory testing confirmed a significant loss of sensation, and voluntary muscle testing indicated a weakened grip of the left hand. According to the World Health Organization's classification for leprosy, he was assessed with grade 2 deformity.

Figure 1. Features of left ulnar claw hand deformity involving the ring and little finger

A skin slit smear procedure was performed and taken from 6 sites on 17th November 2023. The specimen was stained with modified Ziehl-Neelsen stain, which revealed the presence of acid-fast bacilli (Figure 2). The results were a bacteriological index (BI) of 4.7 and a morphological index (MI) of 1.7, confirming a diagnosis of multibacillary leprosy.

He was started on multidrug therapy (MDT) - Rifampicin, Clofazimine, and Dapsone on 3rd December 2023. The patient exhibited significant improvement in his lesions, ulceration, and symptoms following multidrug treatment (MDT). Subsequently, he was referred to occupational therapy.

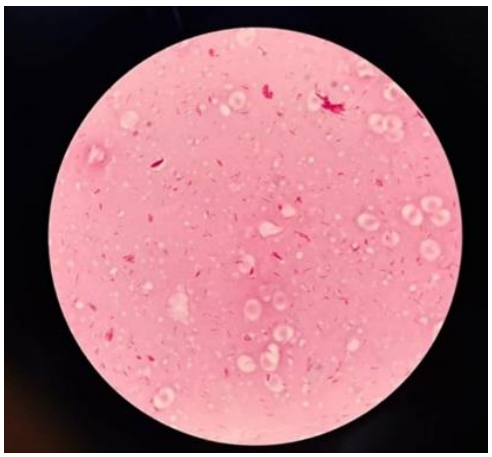

Figure 2. Slit skin smear examination revealed the presence of active-fast bacilli

3. Discussion

The World Health Organization (WHO) has undertaken significant initiatives to combat leprosy, aiming to reduce its prevalence to less than one case per 10,000 individuals. The implementation of multidrug therapy (MDT) [5]. MDT employs a synergistic combination of three essential antimicrobial agents: dapsone, rifampicin, and clofazimine. There has been a notable decline in both the prevalence of the disease and the relapse rates among treated populations [6].

The timely identification of health issues is paramount in mitigating the potential development of disabilities. Deps PD et al. showed that several intertwined factors contribute to this delay, notably traditional beliefs, inadequate awareness of early symptoms, stigma surrounding the disease, reliance on natural healers, and insufficient engagement with health services [7]. Despite its extended incubation period and delayed diagnosis, leprosy exhibits a similar paradigm regarding transmission risk. Prolonged exposure to individuals infected with the disease, particularly within household or community settings, significantly heightens the likelihood of infection [8].

Grade 2 deformities present significant challenges that impede an individual's ability to perform activities of daily living (ADLs). Physical rehabilitation plays a crucial role in the recovery and enhancement of an individual's physical capabilities [9]. Occupational therapy, which focuses on enabling individuals to engage in meaningful activities despite their limitations, plays a crucial role in this context. Central to the practice of occupational therapy is the integration of assistive technology and adaptive devices, specifically designed to compensate for the impairments caused by leprosy [10].

A tragic consequence of delayed diagnosis can be prevented by a fundamental shift from reactive to proactive in detecting leprosy. It is not merely a matter of ignorance, but a confluence of factors, and perhaps most importantly, a lack of trust in the established healthcare system. Apart from treating chronic illnesses such as hypertension and dyslipidemia, healthcare professionals must be equipped with knowledge to recognize the subtle early signs of leprosy with empathy and understanding to overcome barriers to early diagnosis [11]. Early detection without delay treatment will prevent disabilities and break the chain of transmission. Integrating the leprosy screening into the routine health check-up in primary healthcare can contribute significantly to detecting early, controlling the disease, and creating awareness among the community.

4. Conclusion

This is a case of late detection with grade 2 deformity resulting in a critical stage in the progression of the disease, characterized by significant nerve damage and subsequent physical impairments. It is predominantly attributed to two significant factors: a lack of public awareness and the stigma associated with the disease. However, the commencement of multidrug therapy showed a significant enhancement in clinical symptoms.

5. Data Availability Statement

The original contributions presented in the study are included in the article/supplementary material; further inquiries can be directed to the corresponding author.

6. Ethical Statement

Written informed consent was obtained from the patient for the publication of this case report and accompanying images.

7. Author Contributions

All authors contributed to conceptualization, manuscript drafting, writing, and finalizing the manuscript.

8. Funding

No funding in this research/study.

10. Acknowledgements

We wish to express our sincere gratitude to the Pekan District Health Officer for his support. We further acknowledge the unwavering commitment of the Tuberculosis and Leprosy Unit staff of the Pekan District Health Office. Finally, we deeply appreciate the invaluable assistance and patient-centered dedication of the medical officer, medical assistants, and nurses from Klinik Kesihatan RPS Runchang and Klinik Desa Kota Perdana, whose contributions were essential to this case report.

11. Conflict of Interest

The authors declare no conflict of interest.

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