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

Case Report

Challenges in Diagnosing Leprosy Mimicking Tinea Versicolor

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ARTICLE INFO

Article history:
Received 8 April 2026
Revised 18 April 2026
Accepted 23 April 2026
Available online 1 May 2026

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

How to cite:
Surender Benedict, Zulkifli Harun, Masri Quak Saifuddin,"Challenges in Diagnosing Leprosy Mimicking Tinea Versicolor", SUMEJ, Vol. 09, No. 02, May 2026.

https://doi.org/10.32734/sumej.v9i2.25140.

ABSTRACT

Background: Leprosy is a significant concern within the medical fraternity due to its enduring prevalence across various countries. It is frequently misdiagnosed due to its clinical presentation, which can closely resemble that of tinea versicolor. **Objective:** This case report highlights a 26-year-old Orang Asli woman from Pekan, Pahang, who exhibited multiple hypopigmented lesions on her right flank for 1 year. Initially misdiagnosed as tinea versicolor by a general practitioner, her condition showed no improvement despite appropriate antifungal treatment. The patient's history revealed close contact with persons with leprosy, and she resides in an endemic area. **Methods:** A clinical assessment was conducted, including medical history, contact history, and physical examination. A slit-skin smear was performed to establish the diagnosis. **Results:** A skin slit smear was performed, which yielded positive results and confirmed multibacillary leprosy. Consequently, multidrug therapy was promptly initiated in the primary care clinic. The lesions improved, indicating a positive response to multidrug therapy (MDT). **Conclusion:** This case underscores the critical importance of maintaining a high index of suspicion for leprosy in endemic regions, particularly when patients present with lesions that may masquerade as other dermatological conditions.

Keywords: leprosy, multibacillary, tinea versicolor, multidrug therapy, misdiagnosed case

1. Introduction

Leprosy is a chronic infectious disease caused by Mycobacterium leprae. This disease primarily affects the peripheral nerves, skin, and the upper respiratory mucosa [1]. Despite significant advancements, leprosy persists as a critical public health challenge, far from eradication. It continues to afflict thousands across the globe, resulting in severe and often permanent neurological impairments for many affected individuals [2]. In patients hailing from endemic areas, the presence of suggestive skin lesions or symptoms of peripheral neuropathy should raise suspicion for the disease [3]. Numerous instances of leprosy misdiagnosis have been documented in the medical literature, primarily due to the disease's ability to manifest in atypical presentations [4, 5]. Awareness of the potential for misdiagnosis, especially in endemic regions, underscores the necessity for prompt referral of patients to specialized centres for accurate diagnosis and appropriate management of the disease [6].

One of the key challenges in leprosy management is its potential for misdiagnosis, as lesions may mimic common dermatological conditions such as tinea versicolor. This overlap often leads to delayed treatment and continued transmission of the disease. This case report highlights the importance of early recognition of leprosy from other skin disorders, particularly in endemic settings. It underscores the need for a high index of suspicion and timely diagnostic confirmation to prevent misdiagnosis and ensure the prompt initiation of appropriate therapy.

2. Case Presentation

A 26-year-old Orang Asli woman, with no past medical history, presented with multiple hypopigmentation lesions on the right flank over the past 1 year. The patient reported no other accompanying symptoms, such

as reduced sensation, numbness, or deformities. In October 2024, she consulted a general practitioner for medical treatment and was diagnosed with tinea versicolor. Following this diagnosis, she was prescribed an antifungal treatment. However, there was no clinical improvement despite treatment adherence, prompting reconsideration of the initial diagnosis. In February 2025, she was identified during active case detection in an endemic area located within an indigenous village in Pekan, Pahang. The chronicity of the lesions, lack of response to antifungal therapy, contact with leprosy persons, and residence in an endemic area raised suspicion of an alternative diagnosis.

Upon examination, the patient presented with multiple hypopigmentation lesions on the right flank (Figure 1). The facial appearance remained unremarkable, exhibiting no thickening of the bilateral ears or hyperpigmented skin lesions. Palpation of various nerve sites, including the ulnar, lateral popliteal, posterior tibial, median, and radial nerves, revealed normal findings. Sensory testing confirmed sensation intact, and voluntary muscle testing indicated strong and normal power grip. No deformities were identified during the examination.

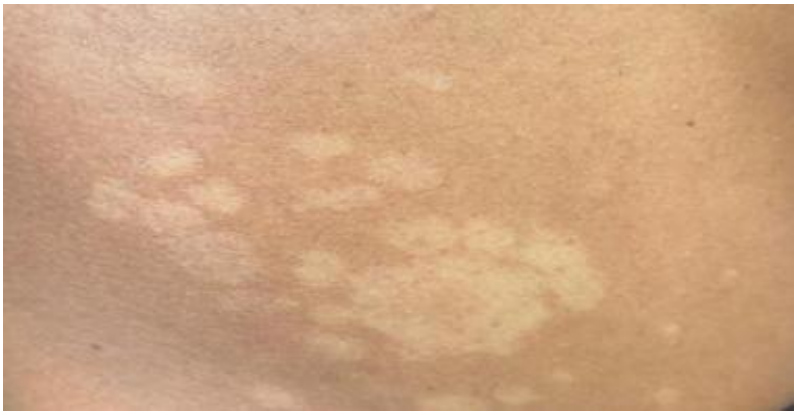

Figure 1. The presence of multiple hypopigmentation lesions located on the right flank

A skin slit smear was conducted, with specimens collected from four distinct sites. These specimens were subjected to staining via a modified Ziehl-Nielsen technique, which successfully identified the presence of acid-fast bacilli (Figure 2). The results were a bacteriological index (BI) of 0.7 and a morphological index (MI) of 0.0, confirming a diagnosis of multibacillary leprosy.

The patient was referred to the primary care clinic in Pekan for further management. Subsequently, without delay, the patient was initiated on first-line multidrug therapy (MDT), encompassing Dapsone, Rifampicin, and Clofazimine in March 2025. Following the initiation of treatment, notable improvement in the lesions was observed, indicating a positive response to multidrug therapy (MDT).

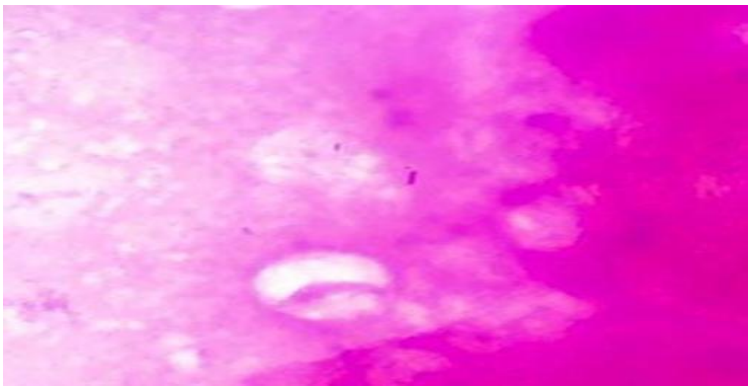

Figure 2. Slit skin smear examination revealed the presence of active-fast bacilli

3. Discussion

Leprosy is frequently misdiagnosed as tinea versicolor. According to the Malaysian Clinical Practice Guidelines of Leprosy (2023), a leprosy case is defined by the presence of one or more cardinal signs: hypopigmented or erythematous skin lesions with definite sensory loss; peripheral nerve involvement with thickened nerves and sensory or motor impairment; and/or a positive slit-skin smear demonstrating acid-fast

bacilli (AFB) [7]. However, tinea versicolor is a superficial fungal infection caused by Malassezia species, presenting as hypopigmented or hyperpigmented scaly macules or patches without sensory loss or nerve involvement. Diagnosis of tinea versicolor is usually clinical, but can be confirmed with potassium hydroxide (KOH) examination demonstrating hyphae and spores. Additionally, the two conditions differ significantly in management. Leprosy requires multidrug therapy (MDT), whereas tinea versicolor typically responds well to topical antifungal treatment [8].

Leprosy has historically been associated with profound stigma, resulting in considerable social exclusion and discrimination against those affected. Many individuals have opted to hide their symptoms due to the fear of rejection and ostracism, which frequently leads to delays in seeking medical treatment. This enduring stigma adversely affects not only the health of individuals but also undermines public health efforts to manage the disease effectively [9, 10].

Enhancing community awareness and education regarding leprosy is imperative to combat stigmatization and promote early intervention. The misdiagnosis observed in this case, along with the lack of response to initial treatment, underscores the diagnostic challenges posed by presentations of leprosy in clinical practice. Despite the endemic presence of leprosy in certain areas, healthcare professionals may frequently overlook this condition in their differential diagnoses. This occurs due to a lack of awareness or an underestimation of its prevalence. The timely diagnosis and early treatment of leprosy are crucial for interrupting its transmission chain. Without early prompt intervention, the disease can lead to irreversible nerve damage, resulting in significant impairment and disability [10-12].

4. Conclusion

This case serves to highlight the persistent public health challenges posed by misdiagnosis of leprosy in Malaysia, particularly in the endemic area. It is crucial to recognize that several prevalent dermatological conditions, such as tinea versicolor, can closely resemble leprosy, often resulting in diagnostic delays that may extend for many years. Timely identification and intervention are essential to avert the potential progression to disability and disfigurement associated with this disease.

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.

9. 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 officers, medical assistants, and nurses whose contributions were essential to this case report.

10. Conflict of Interest

The authors declare no conflict of interest.

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