

CASE REPORT

Chronic pruritus due to atypical scabies: Dermatoscopic identification using the ‘Jet with a Trail’ sign

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Abstract

Scabies is a common parasitic dermatosis in tropical countries and a frequent cause of chronic pruritus. Atypical and steroid-modified presentations often obscure classical clinical features, leading to misdiagnosis and delayed treatment. Dermatoscopy has emerged as a rapid, non-invasive bedside diagnostic tool that enhances diagnostic accuracy by enabling direct visualisation of the mite within its burrow.

We report a 23-year-old student teacher who presented with a four-month history of generalised pruritus, previously treated as dermatitis and superficial fungal infection without improvement. Clinical suspicion of scabies was confirmed dermatoscopically by identifying the characteristic “jet with a trail” sign. The patient responded well to topical permethrin therapy. This case highlights the value of dermatoscopy in diagnosing scabies in clinically ambiguous presentations and supports its routine use in endemic settings such as Sri Lanka.

Introduction

Scabies is a highly contagious ectoparasitic infestation caused by *Sarcoptes scabiei* var. *hominis* and remains a significant public health problem

worldwide, particularly in tropical and resource-limited regions.¹ Overcrowding, close interpersonal contact, and limited access to healthcare contribute to sustained transmission. In countries such as Sri Lanka,

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scabies continues to be commonly encountered in dermatology and primary care practice.

Clinically, scabies is characterized by intense pruritus, typically worse at night, along with polymorphic cutaneous lesions including papules, nodules, vesicles, and burrows.² The distribution is often characteristic, involving interdigital spaces, flexor aspects of the wrists, axillae, periumbilical region, genitalia, and buttocks. Despite these classical descriptions, the diagnosis is often challenging. Burrows may be difficult to identify due to excoriation, secondary infection, or eczematization. Furthermore, empirical use of topical corticosteroids may alter the clinical morphology, resulting in steroid-modified scabies.

Such atypical presentations often lead to misdiagnosis as eczema, contact dermatitis, or superficial fungal infection, resulting in prolonged morbidity and ongoing transmission. Traditional diagnostic methods, such as skin scraping and microscopy, are useful but may be limited by operator dependency and false-negative results.²

Dermatoscopy has emerged as a valuable non-invasive diagnostic tool that allows in vivo visualization of the mite and its burrow. The characteristic “jet with a trail” sign provides a rapid and reliable method of confirming scabies at the bedside.^{3,4} This case illustrates the utility of dermatoscopy in diagnosing scabies in a patient with chronic pruritus and atypical clinical features.

Case Presentation

A 23-year-old student teacher presented with generalised itching of four months' duration. The pruritus was persistent, more severe at night, and significantly interfered with sleep and daily activities. She had been treated previously with topical corticosteroid-anti-fungal combination preparations for presumed dermatitis and superficial fungal infection, with no sustained improvement.

There was no personal or family history of atopy or other dermatological conditions. She did not report systemic symptoms such as fever or weight loss. Although no clear contact history was initially identified, further inquiry revealed that a

household member had experienced intermittent itching.

On examination, multiple linear excoriations were observed over the trunk and extremities, reflecting chronic scratching. Superficial erosions and crusted lesions were present in several areas. Occasional erythematous papules were noted on the palms and axillary folds. Classical burrows were not readily appreciable on gross examination, likely obscured by excoriation and secondary inflammatory changes.

Despite the absence of visible burrows, the chronicity of pruritus, nocturnal exacerbation, involvement of acral and intertriginous areas, and lack of response to corticosteroid therapy raised a strong clinical suspicion of scabies.

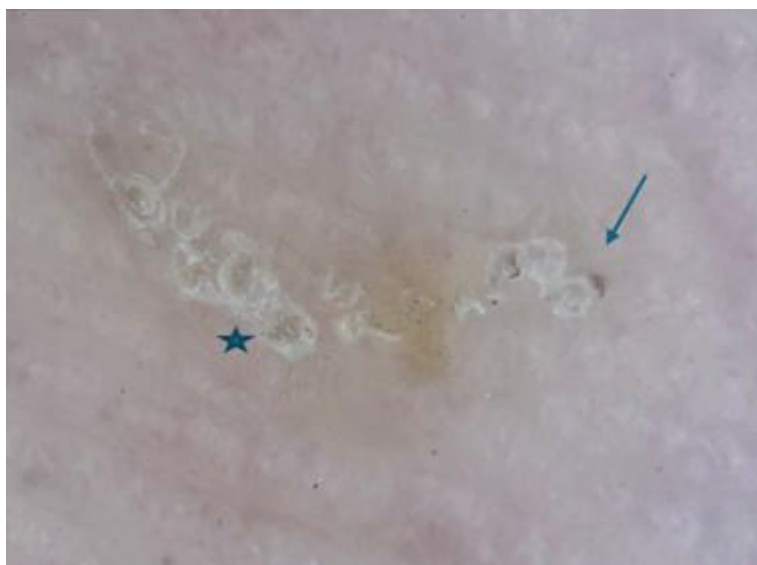
Dermatoscopy was performed over selected papular lesions using a handheld dermatoscope (3Gen DL4). Examination revealed a dark brown triangular structure at the leading edge of a thin whitish serpiginous line within the superficial epidermis. This finding corresponded to the characteristic “jet with a trail” sign. The triangular structure represented the anterior portion of the mite, including the head and forelegs, while the trailing whitish line represented the intraepidermal burrow within the stratum corneum. In some areas, tiny brown dots were visible along the burrow, corresponding to faecal pellets (scybala) (Figure 1A-D).

Diagnosis and management: These dermatoscopic findings confirmed the diagnosis of scabies. The patient was treated with topical permethrin 5% cream applied overnight from the neck downwards and repeated after one week. All close contacts were advised to undergo simultaneous treatment. Environmental measures, including washing clothing and bedding in hot water, were recommended.

At follow-up after two weeks, the patient reported marked improvement in pruritus. Cutaneous lesions had significantly resolved, and no new lesions were observed. Residual itching was mild and attributed to post-scabetic pruritus, which was managed with emollients and antihistamines.



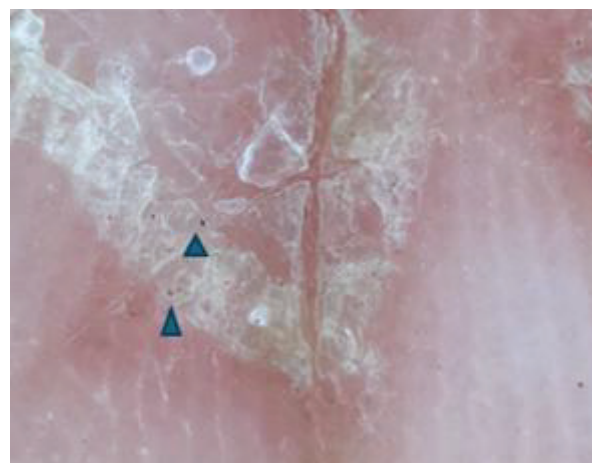
A



B



C



D

Figure 1. (A) Subtle pruritic erythematous papules over the palms. (B&C) Dermatoscopic appearance of palmar lesions – whitish serpiginous line (★) with the dark brown triangular structure (▲) at the leading edge corresponded to the characteristic “jet with a trail” sign. (D) Visible brown dots along the burrow (▲), corresponding to faecal pellets (scybala).

Discussion

Scabies remains a diagnostic challenge, particularly in patients with atypical or modified presentations. Misdiagnosis is common, especially when patients are treated empirically with topical corticosteroids, which can suppress inflammation and alter the clinical appearance. This may result in delayed diagnosis and prolonged disease transmission.

The pathognomonic feature of scabies is the burrow, created by the fertilised female mite as it tunnels within the stratum corneum to lay eggs.² However,

burrows are fragile structures and are often destroyed by scratching. In addition, they may be difficult to detect in patients with darker skin or extensive excoriation. Consequently, reliance on clinical examination alone may not always be sufficient.

Dermatoscopy has gained increasing importance as a diagnostic tool in dermatology. In scabies, it allows direct visualization of the mite within its burrow. The “jet with a trail” or “delta-wing jet” sign is highly specific and represents the anterior part of the mite as a dark triangular structure, followed by the whitish

serpiginous burrow.^{3,4} This distinctive pattern enables rapid and accurate diagnosis at the bedside.

Studies have demonstrated that dermatoscopy improves diagnostic sensitivity and reduces the need for invasive procedures such as skin scraping.^{4,6} It is particularly useful in cases of steroid-modified scabies, early infestation, and in patients where classical burrows are not easily visible. Additionally, dermatoscopy can be used to guide targeted skin scraping, thereby improving diagnostic yield.

In resource-limited settings, dermatoscopy offers a practical and cost-effective solution. It is portable, non-invasive, and provides immediate results. Early diagnosis facilitates prompt treatment, reduces transmission, and prevents complications such as secondary bacterial infection and post-streptococcal sequelae.¹

This case underscores the importance of maintaining a high index of suspicion for scabies in patients with chronic pruritus that does not respond to conventional therapy. Even in the absence of classical clinical signs, dermatoscopy can reveal diagnostic features and confirm the diagnosis. Incorporating dermatoscopy into routine clinical practice can significantly enhance diagnostic accuracy and improve patient care.

Conclusion

Scabies remains a prevalent and often misdiagnosed condition in tropical regions. Atypical and steroid-modified presentations may obscure classical features, leading to delayed diagnosis and treatment. Dermatoscopy is a valuable, non-invasive bedside tool that allows direct visualization of the mite and its burrow. The “jet with a trail” sign is a distinctive dermatoscopic feature that confirms the diagnosis with high specificity. Routine use of dermatoscopy in patients with chronic pruritus can help early detection, proper management, and interruption of disease transmission within the community.

Ethics Statement

Written informed consent was obtained from the patient for publication of clinical details and images.

Authors' contributions

TB managed the patient, conceptualized the case report, drafted the manuscript, and critically revised the content; approved the final version for publication. NT contributed to patient management and critically revised the manuscript; approved the final version for publication.

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