

Dermoscopy in the Diagnosis of Scabies

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ABSTRACT

Scabies is one of the most common skin infestations and the diagnosis is mostly based on clinical presentation and suggestive history. A confirmatory diagnosis is highly desirable as the treatment requires strict compliance from the patient as well as close contacts. Existing diagnostic methods are time consuming and not very sensitive. This article describes the use of dermoscopy to facilitate the in-vivo diagnosis of this infestation.

Keywords: Dermoscopy, Scabies, Entomodermoscopy.

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INTRODUCTION

Scabies, caused by the mite *Sarcoptes scabiei*, is a contagious skin infestation characterized by nocturnal pruritus, visible burrows, and high infectivity.¹ Diagnosis is readily made clinically by the distribution of skin lesions, their appearance, itching, and similar complaints in close contacts. However, quite often, atypical clinical patterns, patient peculiarities, or immunocompromised conditions can challenge a clinical diagnosis¹; hence, diagnostic tests are needed. An ideal diagnostic test for scabies should be highly sensitive, reasonably specific, easy to administer, cost-effective, and time efficient.² Traditionally, the diagnosis is based on demonstration of mite, its eggs, or feces. *Ex vivo* microscopic examination of skin scrapings prepared as mineral oil or potassium hydroxide (KOH) mounts show the presence of the mite or its eggs.¹ Scybala can also be considered diagnostic in the absence of these; however, KOH dissolves the scybala. Adhesive tape test has also been used and skin biopsy may occasionally be required.¹

Dermoscopy is a handy tool originally used for evaluating pigmented lesions and melanoma. However, over the years, numerous indications have cropped up including its role in diagnosing infestations (entomodermoscopy).² Dermoscopy combines light source and magnifying lens in such a way that it enables visualization of patterns not visible with clinical inspection alone.² The evidence available regarding the role of dermoscopy in the diagnosis of scabies has found it to be very useful.³⁻⁵ Dermoscopy is especially useful in patients with previous steroid treatment, scabies incognito, or in infants or the elderly.⁴

The signs diagnostic of scabies described on dermoscopy include:

- The classic S- shaped burrow seen as a curvilinear trail of scale (Fig. 1).^{4,5}
- Dark, triangular, or V-shaped structure corresponding to the fore portion of the mite (head and pair of legs; Fig. 1). This has variably been referred to as the "triangle sign," "delta glider," "delta wing jet," "jet plane" or spermatozoid appearance. The rest of the body of the mite shows up as relatively translucent.^{4,5}
- The presence of the burrow with the mite at its end has been called the "jet with contrail" appearance or the "jet liner with its trail" (Fig. 1A).^{4,5}
- Scabies eggs can be seen as ovoid structures lying within the burrows (Fig. 2). "Mini triangle sign" refers to the maturing scabietic eggs that show the minute heads of the maturing mite within the egg.²

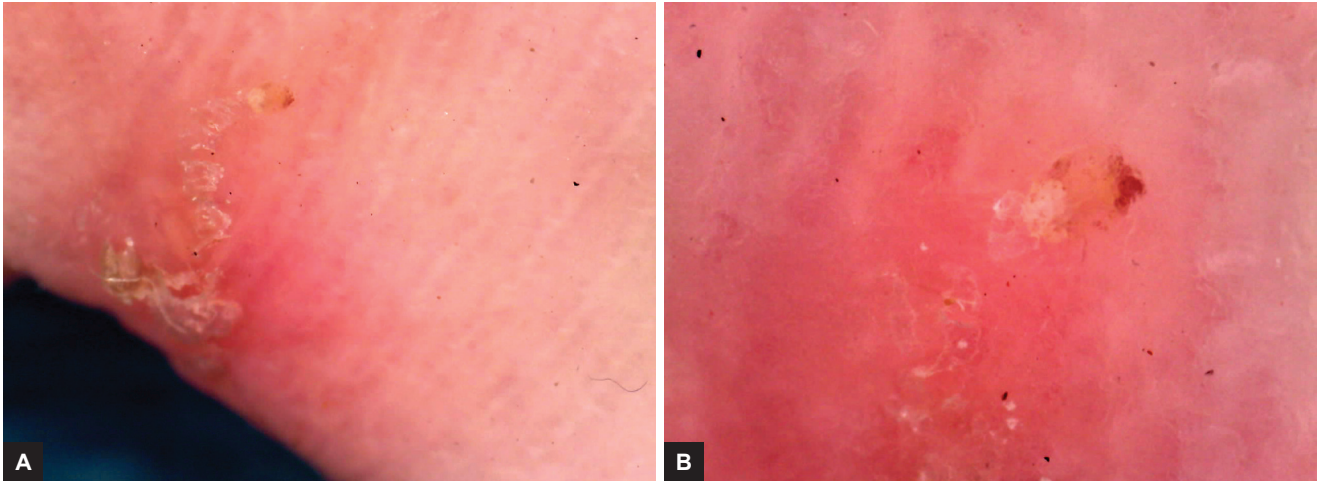
Dermoscopy offers several advantages. Dermatoscope's portability, ease of use, and lower maintenance cost score above microscopes. Patient's compliance is also improved as it is a painless technique and mite can be demonstrated to them. Skin scrapings done "with microscopy" (under dermoscopic guidance) helps improve the diagnostic output.⁴ Detection rate with dermoscopy has been found to be two times higher than without it.⁴ Walter et al⁶ compared dermoscopy with skin scrapings and adhesive tape test. They found the sensitivity of dermoscopy to be 0.83 (95% confidence interval (CI) 0.70-0.94), which was significantly higher than that of adhesive tape test (0.68 with 95% CI 0.52-0.81, $p < 0.001$) while sensitivity of scraping was even lower (0.46 with 95% CI 0.34-0.58).⁶

At the same time, there are certain limitations. Dermatoscopy is not yet accepted as a general diagnostic method

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Figs 1A and B: (A) Finger web showing the appearance of an S-shaped trail of scale suggestive of a burrow. At the distal end, a triangular appearance signifying the head and forelimbs of the mite can be seen (20×); (B) higher magnification of the same burrow showing better details of the mite structure (50×)



Fig. 2: Another small linear burrow showing the presence of maturing minute mite heads suggestive of "mini triangle sign" (50×)

for scabies. Dupuy et al⁷ found instrument expense and user experience as potential limitations. However, they concluded that experience is rapidly gained "on the job." Also, expenses are likely to come down with more widespread indications and increasing availability of dermatoscopes with dermatologists. Dermoscopy has been found to have 91% sensitivity, 86% specificity, 88% positive predictive value, and high diagnostic accuracy.⁷

Dermoscopy is a sensitive diagnostic tool with many emergent applications. A thorough knowledge of the various dermoscopic features in scabies can help prove to be a third eye in the diagnosis of scabies.

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