ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 12 | December - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

DIAGNOSTIC UTILITY OF UV DERMOSCOPY IN TINEA CAPITIS

Dermatology

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ABSTRACT

Tinea capitis in children can be difficult to confirm when mycological tests are delayed or negative. A 4-year-old boy presented with diffuse alopecia and scaling. Dermoscopy showed comma, bent, zigzag, and broken hairs with perifollicular scaling, while ultraviolet dermoscopy revealed bluish-green fluorescence and clearer visualization of infected hairs. KOH mount and fungal culture were negative, yet the child improved with oral griseofulvin and topical antifungals. Ultraviolet fluorescence dermoscopy emerges as a rapid, non-invasive tool that supports early diagnosis and monitoring of tinea capitis when conventional methods are inconclusive.

KEYWORDS

Tinea Capitis; Dermoscopy; Paediatric Dermatology; Wood's Lamp; Ultraviolet Rays; Fluorescence

INTRODUCTION:

Tinea capitis is a dermatophytosis of the scalp caused mainly by Microsporum and Trichophyton species. It most commonly affects children aged between 3 and 7 years. It presents with a spectrum of clinical patterns, including gray patch, black dot, kerion, and favus. The specific presentation of ectothrix and endothrix, depends on the type of fungal invasion and the host's immune response. Although the clinical diagnosis is mostly straightforward, confirmation with fungal culture is time-consuming and may yield false-negative results [1].

Trichoscopy has emerged as a rapid, non-invasive tool for diagnosing and monitoring therapeutic responses in tinea capitis, characterized by features such as comma hair, corkscrew hair, morse-code-like hair, zigzag hair, bent hair, black dots, and perifollicular scaling [2]. Wood's lamp is a simple, cost-effective tool that shows bright green fluorescence, primarily in Microsporum and some cases of Trichophyton infections. Ultraviolet-induced fluorescence dermoscopy [UVFD] is a novel technique that combines wood's lamp fluorescence with magnified dermoscopic visualization, improving diagnostic accuracy [3,4].

Case Presentation:

A 4-year-old child was brought to the dermatology OPD by his mother with complaints of multiple patches of hair loss, spanning a duration of 3 months. Clinical examination showed multiple well-circumscribed patches of hair loss and fine scaling, involving almost the entire scalp (Figure 1a). Trichoscopy (Dermlite DL5, ×10 magnification) revealed comma hairs, bent hairs, zigzag hairs, broken hairs, perifollicular and interfollicular scaling (Figure 1b). UV dermoscopy (DermLite DL5, 365 nm) showed bluish-green fluorescence of infected hairs and enhanced visualization of the trichoscopic findings (Figure 1c, d).

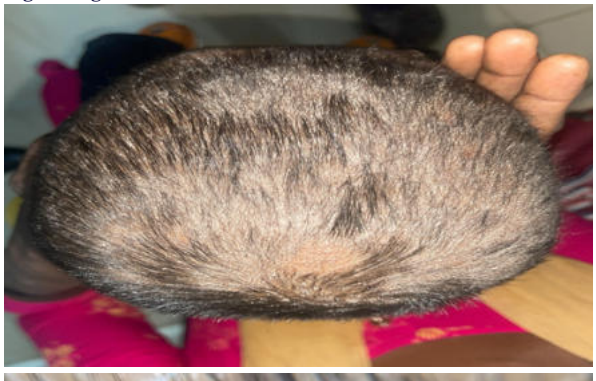
The scales and hair clippings were sent for KOH mount and fungal culture but did not show any fungal elements and no growth on SDA agar.

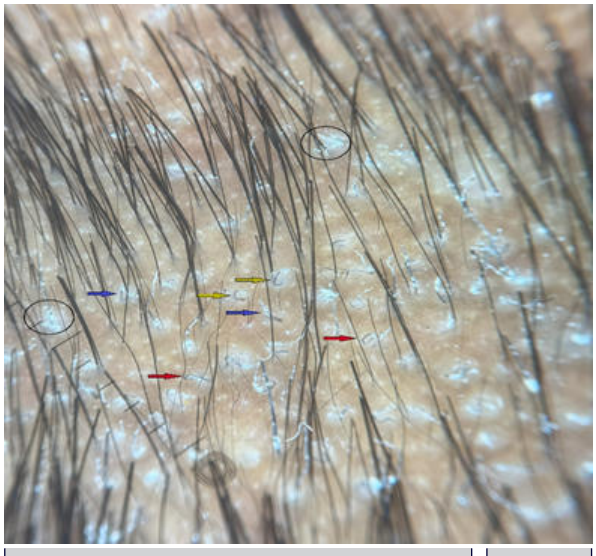
The child was treated with oral griseofulvin, topical luliconazole lotion, and an antifungal shampoo. The serial monitoring done monthly for 4 months, showed clinical and dermoscopic improvement.

CONCLUSION:

UV dermoscopy is a rapid, non-invasive, cost-effective adjunct in the diagnosis of tinea capitis. In this case, it supported early treatment initiation despite negative laboratory findings. UVFD not only detects fungal fluorescence but also enhances the visualization of specific trichoscopic findings. Although it is effective in detecting Microsporum infections, it may not show fluorescence in all cases caused by Trichophyton species. As such, a negative fluorescence should not rule out tinea capitis. In these scenarios, clinical suspicion guided by history (such as animal exposure) and signs, such as scaly patches and broken hair, remains essential. UV dermoscopy becomes a valuable tool, helping clinicians make timely, evidence-based treatment decisions when conventional diagnostics are inconclusive or unavailable.

Figure Legend:





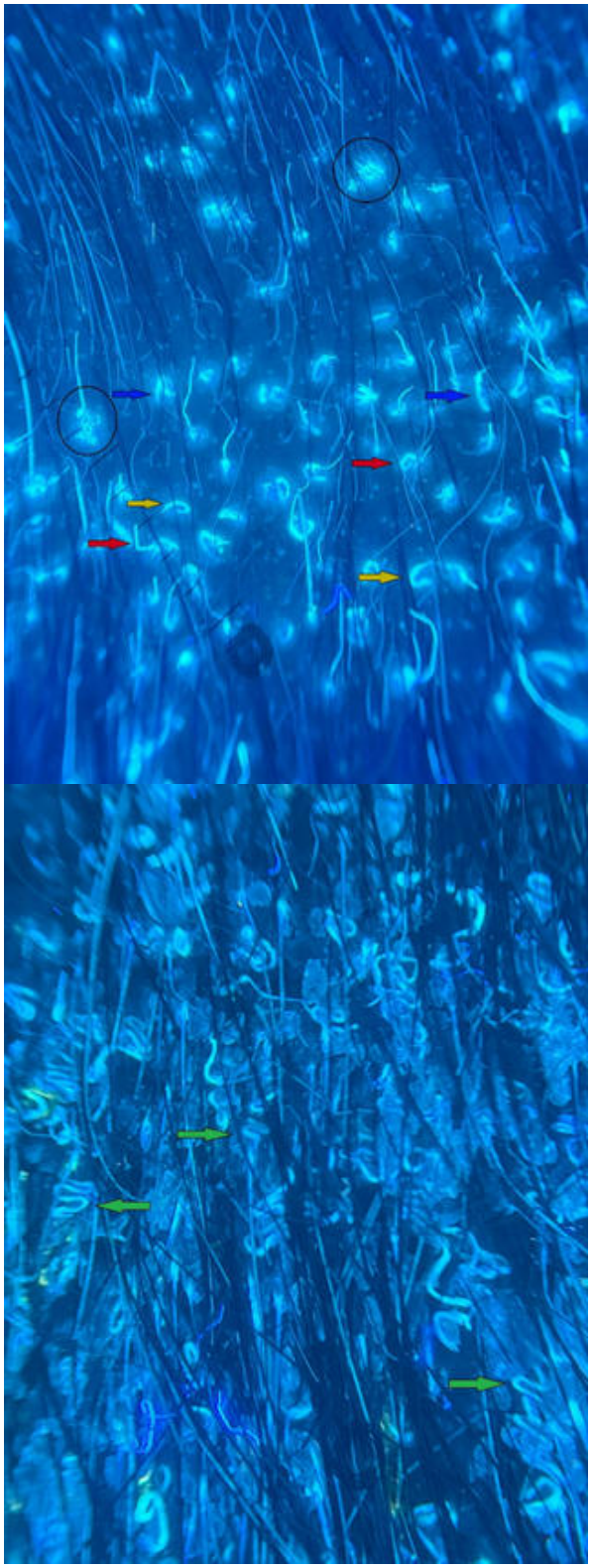


Figure 1. Tinea Capitis (a) Clinical image showing patchy hairloss and diffuse scaling.(b) Non-contact polarized dermoscopy (Dermlite DL5, ×10 magnification) revealing comma hairs(yellow arrow), bent hair(red arrow), broken hair(blue arrow), and perifollicular scaling(black circle).(c) Non-contact UV dermoscopy (365 nm, DermLite DL5) showing bluish-green fluorescence of infected hair shaft and enhanced visualization of comma, bent and broken hairs, and scaling.(d) UV dermoscopy showing zigzag hairs(green arrow) and diffuse scaling.

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