

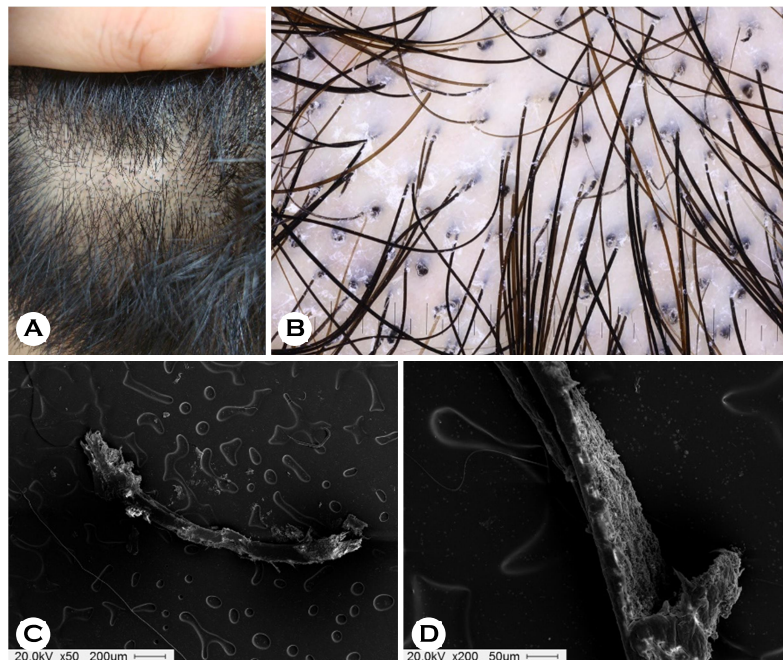
## Dermoscopic and Electron Microscopic Findings of Black dot Tinea Capitis by *Trichophyton tonsurans*

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**Fig. 1.** (A) Diffuse hair loss patch with multiple, short, broken hairs on the occipital scalp (type: black dots) (B) Dermoscopic findings indicating comma hairs, black dots, short, broken hairs, and mild scales (C-D) Scanning electron microscopy of the infected hair, showing a torn hair shaft fully filled with fungal spores, and destroyed fibril bundles

An 18-year-old female wrestler presented with a 1-month history of pruritic diffuse hairless patches on her occipital

scalp. She had no contact history with animals, and her family and past medical histories were unremarkable. Physical exam-

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ination revealed multiple short, broken hairs with minimal inflammation on the hairless area of the occiput (Fig. 1A). Dermoscopic findings indicated comma hairs, black dots, short, broken hairs, and mild scales (Fig. 1B). Scanning electron microscopy of the comma hairs revealed that the hair shaft was filled with numerous fungal spores (Fig. 1C-D). Fungal culture and PCR identified *Trichophyton tonsurans* as the causative species, so she was treated with 6 weeks of oral terbinafine (250 mg/day) and topical isconazole.

Identifying the causative species of tinea capitis (TC) is important because the most appropriate treatment depended on the causal agent. *Trichophyton* species (usually with endothrix-type) and *Microsporum* species (usually with ectothrix-type) are the most common species that cause TC<sup>1</sup>. During endothrix *Trichophyton* infection, the fungus migrates through the hair follicles and penetrates the cortex. After the invasion of the fungus into the hair cortex, the transforming arthrospores occupy and weaken the inner root sheath, forming short, broken hairs at the scalp's surface, appearing as black dots. Dermoscopy provides an immediate diagnosis of TC and may predict the type of infection<sup>2</sup>. *Trichophyton* TC usually presents as comma and corkscrew hairs, while *Microsporum* TC exhibits morse-code-like hairs<sup>2,3</sup>. Microscopic examination of the infected hairs can confirm the diagnosis of TC and may establish the type of fungal invasion.

**Key Words:** Dermoscopy, Scanning electron microscopy, Tinea capitis, *Trichophyton tonsurans*

## CONFLICT OF INTEREST

In relation to this article, we declare that there is no conflict

of interest.

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## PATIENT CONSENT STATEMENT

The patient provided written informed consent for the publication and use of her images.

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