

Dermoscopic and Scanning Electron Microscopic Finding of Ectothrix Tinea Capitis by *Microsporum canis*

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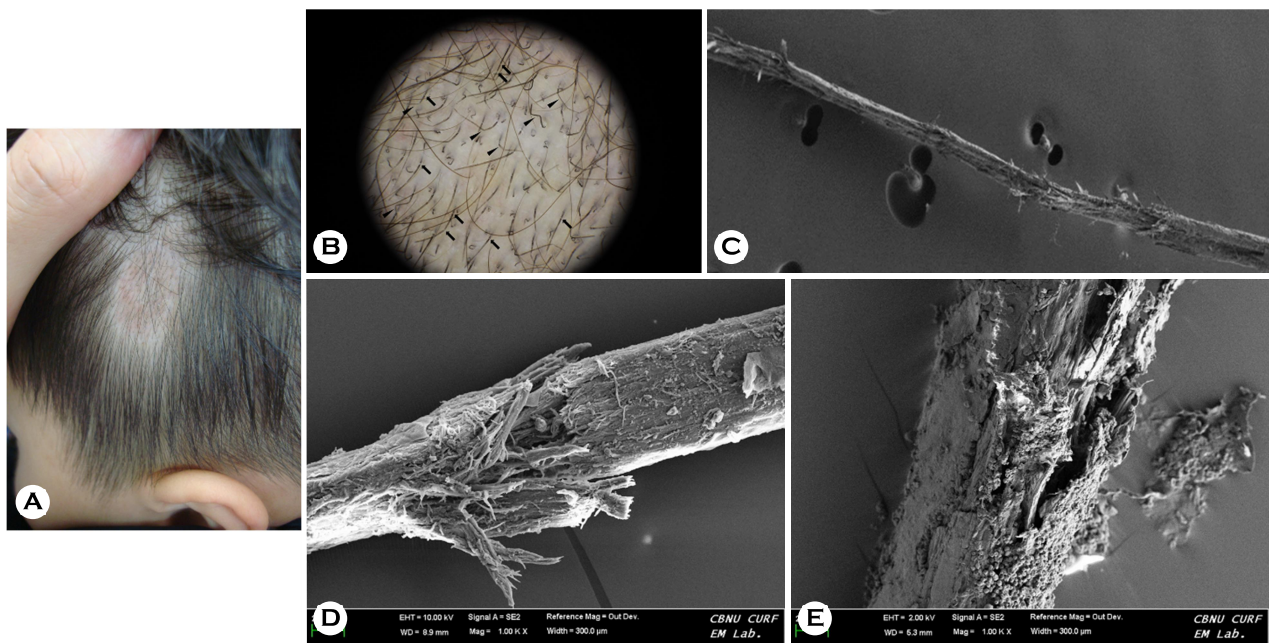


Fig. 1. (A) Localized hair loss patch with multiple broken hair on left parietal scalp (B) Dermoscopic findings showing Morse code-like (black arrow), zigzag (arrowhead), comma, and broken hairs on the scaly hair loss patch. (C-E) Scanning electron microscopy of the Morse code-like hair revealing multiple incomplete breaks (tearing) of the hair shafts. The damaged areas of the hair shaft are surrounded by massive fungal arthroconidia, resulting in the destruction of the cuticles.

A 3-year-old boy presented with localized bald patches on his temporal scalp, which had been present for a month. He

had been in close contact with a dog and his family and past medical histories were unremarkable. Physical examination

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revealed multiple round erythematous scaly patches with broken hair in the hairless area. Dermoscopic examination showed Morse code-like and sharp-angled zigzag hair with transverse white bands across the hair shaft (Fig. 1A). Scanning electron microscopy of the affected hair revealed thin and destroyed cuticles covered with numerous fungal arthroconidia corresponding to the white bands on the hair shaft (Fig. 1B-1E). *Microsporum canis* was identified as the causative species via fungal culture and polymerase chain reaction. The patient received a treatment of oral griseofulvin (125 mg/day) and topical terbinafine for 8 weeks.

Dermatophyte infections of the hair can result in three distinct patterns of fungal invasion: ectothrix, endothrix, or favus, depending on the specific species involved¹. Ectothrix tinea capitis, often associated with *Microsporum canis*, is characterized by the accumulation of arthroconidia around the exterior of the hair shaft, leading to the circumferential destruction of the hair cuticle². As the infected hair continues to grow, the affected portion rises above the scalp surface and becomes more prone to bending or breaking due to increased fragility. This gives rise to the appearance of Morse code-like or bent zigzag hair with transverse white bands, indicating focal weakening of the hair shaft caused by fungal invasion³. Understanding this information can assist clinicians in predicting the type of fungal invasion and comprehending the formation mechanism behind the distinctive dermoscopic features observed in cases of ectothrix tinea capitis.

Key Words: Dermoscopy, *Microsporum canis*, Scanning electron microscopy, Tinea capitis

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 the use of her images.

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