

## BRIEF ARTICLES

## Black Dot Tinea Capitis: Magnified

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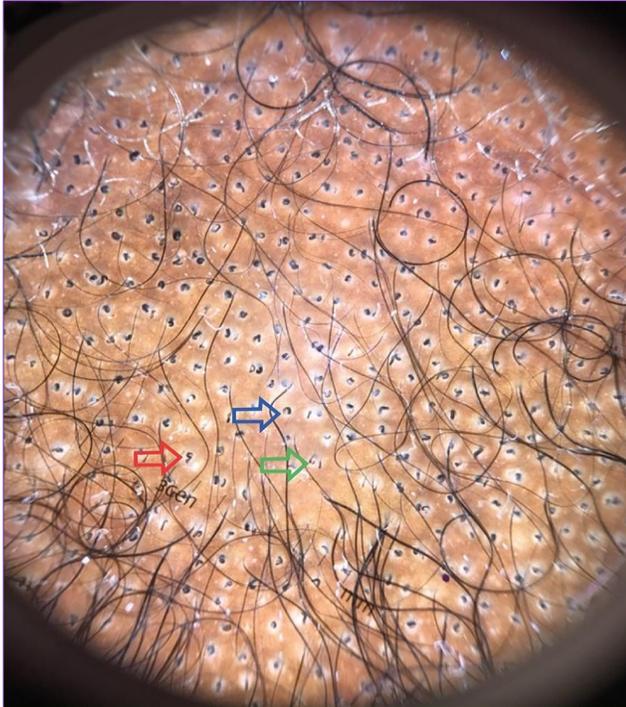
## CASE REPORT

A 2-year-old African American girl with no past medical history presented to dermatology with a one-month history of hair loss on the vertex of her scalp and associated mild itch. Physical exam was significant for a well-demarcated patch of alopecia associated with black dots (Figure 1). Under trichoscopy, a prominent presentation of broken hairs was found, including a comma-shaped hair (blue arrow), a broken hair (green arrow) and a corkscrew hair (red arrow) (Figure 2). Woods lamp examination showed no fluorescence and lymph nodes were not palpable. Fungal culture of the affected scalp returned positive for *Trichophyton species* and a diagnosis of noninflammatory black dot tinea capitis was established.

**Figure 1.** A well-demarcated patch of hair loss on the vertex of the patient's scalp



**Figure 2.** Trichoscopic image showing a corkscrew hair (red arrow), a comma hair (blue arrow), and a broken hair (green arrow)



## DISCUSSION

*Trichophyton species* are responsible for greater than 90% of tinea capitis cases in North America.<sup>1</sup> However, noninflammatory tinea capitis may be difficult to distinguish from other hair disorders in children such as seborrheic dermatitis, alopecia areata, trichotillomania, or Langerhan histiocytosis as they can present with scaling, inflammatory papules, hair loss, or pruritis.<sup>1</sup> In children with skin of color, erythema may be hard to appreciate, making it even harder to diagnose.

Trichoscopy is a fast, non-invasive and useful tool for the diagnosis in such cases. Alopecia areata presents with black dots, dystrophic hairs, exclamation mark hairs, and circle hairs. Circle hairs are thin, long, regularly twisted hairs with tapered ends compared to comma hairs which are dark,

short hairs of uniform color, thickness, and sharp diagonal ends.<sup>2</sup> Trichotillomania displays black dots, broken hairs of variable lengths, coiled hairs, flame hairs, v-sign, and tulip hairs with surrounding normal hair. If trichoscopy is inconclusive, KOH test, fungal culture, or biopsy can be helpful.

In this case, clinical and trichoscopic exams were consistent with non-inflammatory “black dot” tinea capitis characterized by well-demarcated patches with black dots visualized on trichoscopy that represent broken hairs at or just below the scalp surface. The *Trichophyton species* most commonly infect hairs in an ectothrix pattern where arthroconidia attach themselves around the hair shaft. These hairs become brittle and break at the level of the scalp, leaving microscopic ‘dots’ that represent the remaining hair in the follicle.<sup>1</sup> Under magnification, tinea capitis can present with many microscopic findings including broken hairs, corkscrew hairs, comma hairs, barcode hairs, zigzag hairs, and black dots.<sup>3</sup> Comma hairs, seen on the scalps of all skin types, are specific for tinea capitis, whereas corkscrew hairs have been described only in African-American children.<sup>2</sup> Identifying comma hairs spares the need for biopsy in children by excluding the most common differential diagnoses of patchy alopecia in this age.

Treatment involves systemic antifungal therapy with griseofulvin or terbinafine, as they have the highest clinical and mycologic cure rates.<sup>4</sup> The duration is 4-6 weeks with terbinafine or 6-12 weeks with griseofulvin. Terbinafine is the treatment of choice for tinea capitis caused by *Trichophyton spp.* whereas griseofulvin remains first choice for tinea capitis caused by *Microsporum canis*.<sup>4</sup> All close-contacts should be examined and started on antifungal shampoo long-term.<sup>1</sup> The patient was prescribed griseofulvin 25

mg/kg/day twice daily for 6 weeks, which resulted in complete resolution.

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**References:**

1. Gupta, A. K. & Summerbell, R. C. Tinea capitis. *Med Mycol* 38, 255-287 (2000).
2. Slowinska, M. et al. Comma hairs: a dermatoscopic marker for tinea capitis: a rapid diagnostic method. *J Am Acad Dermatol* 59, S77-79, doi:10.1016/j.jaad.2008.07.009 (2008).
3. Bourezane, Y. & Bourezane, Y. Analysis of trichoscopic signs observed in 24 patients presenting tinea capitis: Hypotheses based on physiopathology and proposed new classification. *Ann Dermatol Venereol* 144, 490-496, doi:10.1016/j.annder.2016.12.012 (2017).
4. Gupta, A. K. et al. Tinea capitis in children: a systematic review of management. *J Eur Acad Dermatol Venereol*, doi:10.1111/jdv.15088 (2018).