

Tinea Capitis Due to *Microsporum vanbreuseghemii*: Report of Two Cases

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Abstract Two cases of dermatophytosis caused by *Microsporum vanbreuseghemii* are reported. A 7-year-old boy and his brother were examined for tinea capitis. Hair samples and skin scrapings were collected from each patient to microscopy and culture. Direct microscopic examination of the hairs using lactophenol revealed an ectothrix invasion. Cultures inoculated with portions of clinical material yielded *M. vanbreuseghemii* after 2 weeks. The identification of the fungi were based on colony morphology on mycobiotic agar, microscopic characteristic on slide cultures, biochemical reactions and hair perforation tests.

Keywords *Microsporum vanbreuseghemii* · Tinea capitis · Dermatophytosis · Mashhad

Introduction

Tinea capitis is the most common dermatophyte infection of the scalp affecting mainly children and

rarely adults [1]. Although dermatophytes have worldwide distribution, some species found in specific areas. *Trichophyton violaceum* and *T. verrucosum* have been reported as the most common agents of tinea capitis in Iran [3–6]. *Microsporum vanbreuseghemii* is a geophilic species and more common in Russia, India, Africa and the United States [7]. It produces occasional infections in dogs, squirrels, cats and humans [7–12]. To the best of our knowledge, dermatophytosis with *M. vanbreuseghemii* has not been documented in Iran and this is the first case of *M. vanbreuseghemii* infection in human reported in Mashhad, Iran.

Case Report

A 7-year-old boy with a history of an infected scalp for the past 2–3 weeks was referred to the Medical Mycology Laboratory of Imam Reza Hospital, Mashhad University of Medical Sciences. The patient had lesions in the occiput region. Physical examination revealed inflammatory lesions (kerion) with pustule, crust, pus and loss of hairs on the back of his head and cervical lymphadenopathy (Fig. 1a).

Based on the information of patient's father, his brother also had lesions on the scalp, so he was advised to bring the others boy to the laboratory, and he also examined for tinea capitis. The latter had scaly, erythematous plaque with hair loss on the scalp (Fig. 1b). Hair samples and scales were collected.

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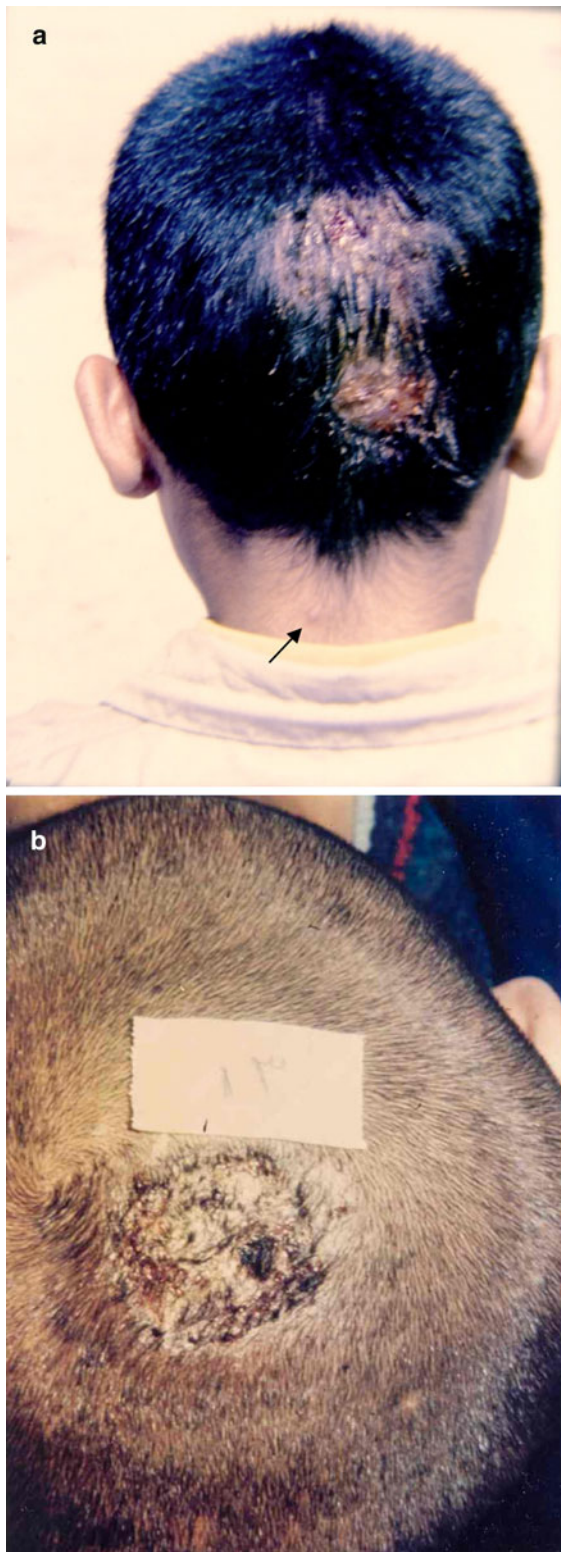


Fig. 1 Tinea capitis. **a** Kerion lesions with cervical lymphadenopathy (arrow) and **b** erythematous plaque with hair loss



Fig. 2 Colony of *M. vanbreuseghemii* on mycobiotic agar after 2 weeks

Direct microscopic examination of the hairs revealed an ectothrix invasion. Samples were cultured on Sabouraud glucose agar [Merck, Germany] with chloramphenicol and mycobiotic agar [Difco, East Molesey, UK] and incubated at 27°C. Cream-white and rapidly growing colonies with a powdery to cottony surface developed after 2 weeks. The colonies reverse were yellowish. The colonies were flat at first and later became gently folded in centre (Fig. 2). Microscopic characteristics of these fungi were the abundant formation of many large, cylindro-fusiform, 7–10-celled, thick-walled macroconidia (Fig. 3). The size of macroconidia was approximately $58\text{--}61 \times 10 \mu\text{m}$. The microconidia were smooth, ovale form and $4\text{--}8 \mu\text{m}$ in length. Hair perforation and urease tests were positive. The two isolates identified as *M. vanbreuseghemii*. The macroscopic and microscopic features of colonies that grew on culture media were similar in both cases. The patients were successfully treated with oral griseofulvin (12.5 mg/kg/day) for 5 weeks.

Discussion

Tinea capitis is a fungal infection of the scalp. It affects primarily prepubertal children. The epidemiology of tinea capitis varies within different geographical areas throughout the world [1, 2]. Several authors have reported tinea capitis as one of the most common dermatophytosis in Iran [4–6, 13, 14]. The aetiological agents of tinea capitis vary according to the geographical region. On the basis of the study of Ginter-Hanselmayer et al. [1], *M. canis* is still the most

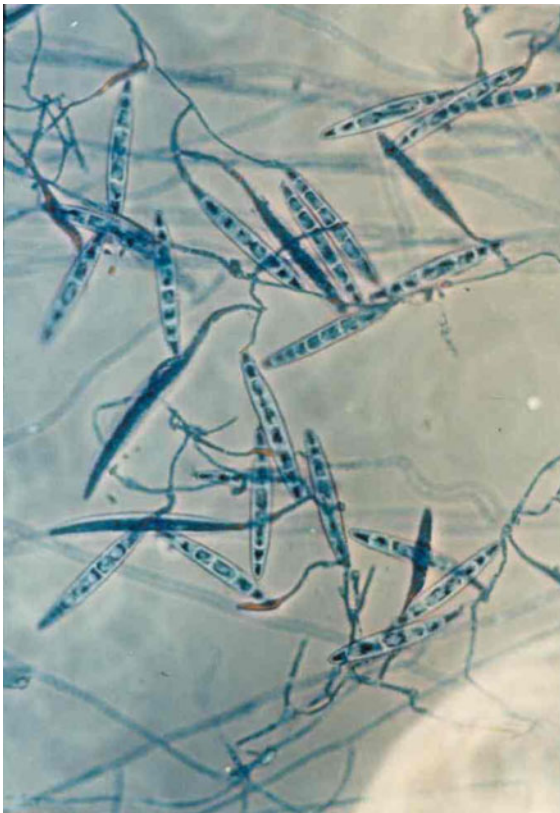


Fig. 3 Cyindro-fusiform macroconidia of *M. vanbreuseghemii*

common reported causative agent of tinea capitis in Europe. Lari et al. [4] and Bassiri-jahromi et al. [3] reported *Trichophyton violaceum* as the most common aetiological agent of tinea capitis in Tehran [Iran], whereas chadeganipour et al. [5, 6] and Omidynia et al. [14] reported *T. verrucosum* and *T. schoenleinii* as the most causative agents of tinea capitis in Isfahan and Hamedan, respectively.

Microsporium vanbreuseghemii is a geophilic species rarely involved in ringworm of man, dog, squirrel and cat [7]. *M. vanbreuseghemii* was first isolated in 1959 from a squirrel and in 1960 from a dog [10]. The clinical features of the tinea capitis caused by *M. vanbreuseghemii* are similar to those of infections caused by other geophilic dermatophytes. Tinea capitis due to geophilic and zoophilic dermatophytes is often inflammatory [15, 16]. In the present study, the lesions were also purulent and inflammatory; this is in agreement with the finding of other authors.

Tinea capitis is very contagious, especially within families and school children. This infection may be

passed among humans by direct contact with infected people or with contaminated subjects. Several authors have reported recovering *M. vanbreuseghemii* from soil [17, 18] and contact to soil or infected animal can cause disease in human. We have not been able to determine certainty source of infections. The patient's history showed that they had not contact with animals; therefore, soil has been probably the source of infection, and we speculate that the first patient has been infected by contact with soil and the infection has been then spread by human-to-human contact. Although few cases of tinea capitis due to *M. gypseum* have been reported [3, 4, 13], there have been no records of *M. vanbreuseghemii* in Iran. In conclusion, *M. vanbreuseghemii* is reported for the first time as the cause of dermatophytosis in Iran (Mashhad).

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