

A Rare Case of Extensive Tinea Capitis and Corporis in a Young Adult due to *Trichophyton verrucosum*

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Abstract**Case Report**

Extensive dermatophytosis is rarely associated with infection by *Trichophyton verrucosum*. We report here the first Moroccan case to our knowledge, presenting extensive dermatophytosis due to *Trichophyton verrucosum*. A 23-year-old young adult presented with multiple itchy skin lesions on the face, back, and head. Clinical examination of the glabrous skin lesions revealed scaly plaques with a pustulo-inflammatory margin and centrifugal extension with central healing. Those on the scalp were more scaly and carried weakened easily peelable hairs. *Trichophyton verrucosum* var. *ochraceum* grown from lesions was identified by mycological examinations. Complete lesions regression was obtained at the end of the antifungal treatment.

Keywords: Dermatophytosis, Trichophyton Verrucosum, Tinea corporis, Tinea capitis, Terbinafine.**Copyright © 2024 The Author(s):** This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Dermatophytosis are cosmopolitan diseases caused by microscopic keratinophilic filamentous fungi. They are frequent reasons for consultation in dermatology and represent approximately 30% of superficial mycoses and 50% of causes of onychopathy [1]. They are responsible, in humans and animals, for superficial lesions called dermatophytosis. Extensive clinical forms are exceptional in immunocompetent individuals. They most often occur in children and post-pubertal young adults [2]. *Trichophyton rubrum*, *Trichophyton mentagrophytes* and *Microsporum canis* are the most reported etiological agents [3].

T. verrucosum is a very rare etiological cause of extensive dermatophytosis [2]. It is a zoophilic species responsible for bovine and ovine dermatophytosis. Its transmission to humans occurs through contact with infected animals, infected hair, and soiled soil or through contaminated objects. The clinical expression of *T. verrucosum* dermatophytosis is polymorphic and sometimes misleading, ranging from simple erythematous plaques, to suppurative and aggressive lesions of the skin and scalp [4]. We report here a rare case of extensive *tinea capitis* and *tinea corporis* in a young adult caused by *T. verrucosum*.

CASE REPORT

A 23-year-old man patient, serving in Outat El Haj (city in the Eastern Middle Atlas), was admitted to the dermatology department of Moulay Ismail military hospital in Meknes (Morocco) for multiple itchy skin lesions on the face, back, and head (day 1). Clinical examination of the glabrous skin lesions revealed scaly plaques with a pustulo-inflammatory margin and centrifugal extension with central healing. Those on the scalp were more scaly and carried weakened easily peelable hairs (Fig. 1). The rest of the general examination was unremarkable.

On questioning, the patient reported the application, two months ago, a topical Corticosteroid following a consultation with a city doctor for one and small erythematous itchy plate at the occipital region. The evolution was marked by the extension of the lesion to the face and back, which motivated the patient to consult a dermatologist. Living with pets has not been found. However, the patient reported that he visits his parents one weekend every two weeks in a rural area in the Khemisset region (city of the Rabat-Salé-Kénitra region), and that cattle and sheep farming is part of his family's farming activities.

A superficial sample was performed by scraping at the periphery of the lesions and recovery of the most fragile scalp hairs (day 2). Direct examination of the skin scales lightened with a potassium hydroxide (10%) preparation showed the presence of thined, septate and branched mycelial filaments. That of the hairs showed a megasporic ecto-endothrix pilar parasitism form (Fig. 2). Culture on Sabouraud-Chloramphenicol and Sabouraud-Chloramphenicol-cycloheximid medium agar at 37 °C allowed obtaining little extensive colonies, slightly wrinkled, glabrous, ocher in color and with a warty center (day 16). Microscopic examination of the culture showed the presence of irregular mycelial

filaments, arthrosporous and toruloid, with intercalary and terminal chlamydospores (Fig. 3). The type of hair parasitism, the growth delay, and the macroscopic and microscopic characteristics of the culture were in favor of *T. verrucosum* var. *ochraceum*. The sequencing of the ITS1 and ITS2 regions for a more formal identification of the species was not realized due to lack of means.

Our patient received treatment with oral and topical application terbinafine for two months. The evolution was favorable with complete lesions regression.



Figure 1: Dermatophytic lesions of the glabrous skin and scalp caused by *T. Verrucosum*

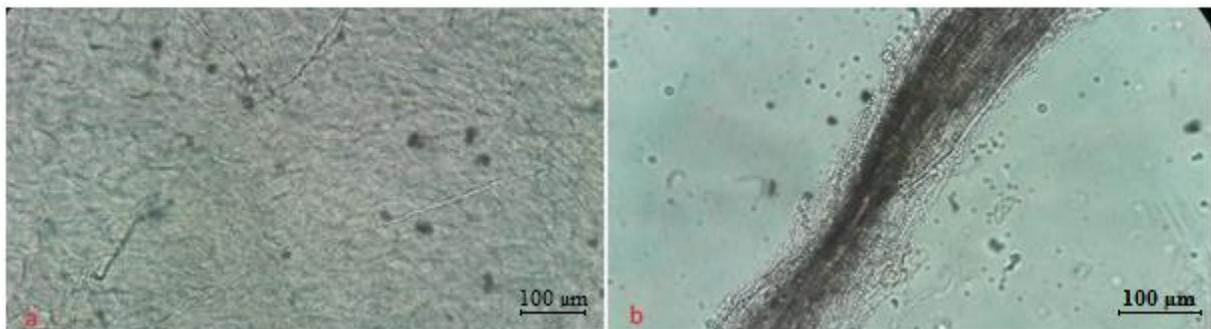


Figure 2: Direct examination after clarification with potassium hydroxid. (a) mycelial filaments in the scales; (b) megasporic ecto-endothrix pilaris parasitism



Figure 3: (a) Macroscopic appearance of *T. verrucosum* colonies; (b) Microscopic appearance of colonies showing irregular, arthrosporous and toruloid mycelial filaments

DISCUSSION

The originality of this case stems from the rarity of this etiological agent and the extensive nature of dermatophytic plaques in our patient, and from being the first Moroccan case reported to our knowledge presenting extensive dermatophytosis due to *T. verrucosum*. The lesion presented at the outset by this patient was relatively misleading in its location and clinical appearance. Such presentations often constitute a diagnostic trap in general medicine consultation [5].

T. verrucosum is a zoophilic cosmopolitan dermatophyte responsible for lesions in cattle and, occasionally, sheep and horses. It is frequent in breeding areas and affects the rural population or in contact with these animals by their profession [5]. Infections linked to this fungus have seen their incidence reduced in recent years thanks to improved hygiene conditions and the vaccination of livestock in some countries [6]. Moroccan epidemiological reports related a low prevalence of *T. verrucosum* dermatophytosis. Indeed, this dermatophyte was the least isolated aetiological agent in three retrospective studies of *Tinea capitis*, where its prevalence varied between 0.6% and 2.4% [7-9]. As it was absent in two other similar studies [10, 11]. Our patient was the first case of dermatophytosis caused by *T. verrucosum* recorded in our institution and the first Moroccan case reported of extensive dermatophytosis with this dermatophyte.

The clinical manifestations of *T. verrucosum* dermatophytosis are nonspecific and may also present an atypical pattern or mimic other dermatological diseases in immunocompetent patients. According to a series of 178 cases of dermatophytosis *T. verrucosum*, the most frequent of glabrous skin lesions were erythematous followed by pustulo-inflammatory forms, mainly affecting the upper limbs and face. *Tinea capitis* were scaly and pustule-inflammatory. kerion celsi type lesions were the least diagnosed [12]. The extensive or invasive forms reported in the literature particularly concerned patients treated with systemic and / or local corticosteroids following initial diagnostic errors [13-14]. The lesion of our patient, in its first stage, was misleading by its clinical presentation by mimicking eczema. Due to the initial misdiagnosis and the prescription of topical steroids, infection worsened appearance with numerous erythematous and mildly pustulo-inflammatory plaques on the scalp, face, and back.

Currently, there are no recommendations for the treatment of extensive or invasive dermatophytosis. Recently reported cases of success have been reported with treatment with posaconazole, itraconazole and terbinafine [13-15]. In our patient, treatment with terbinafine topically and systemically for 8 weeks was successful.

CONCLUSION

T. verrucosum is an uncommon zoophilic dermatophyte in humans. It is responsible for superficial dermatophytosis of the skin and scalp with clinical polymorphic appearance. In patients with immunosuppressive factors, it can cause atypical infections, with unusually extensive or invasive lesions. Although rare, special care is required to avoid misdiagnosis and the wrong prescription of drugs. Effective prevention and treatment strategies must be put in place to control this infection and similar zoonotic.

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