

Tinea Capitis Due to *Trichophyton violaceum* var. *glabrum* in an 81-Year-Old Woman: A Case Report

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Abstract

Background: Tinea capitis is classically a disease of school-aged children and is uncommon in older adults, in whom it is frequently misdiagnosed as a non-infectious scalp dermatosis. *Trichophyton violaceum* var. *glabrum* is a rarely reported morphological variant of an anthropophilic dermatophyte that remains endemic in the Mediterranean basin and North Africa.

Case Presentation: An 81-year-old immunocompetent Moroccan woman was referred for a diffuse, insidiously progressive skin and appendage disorder of five years' duration. Examination disclosed a non-inflammatory (dry) tinea capitis with diffuse hair thinning and hairs broken flush with the scalp, violaceous erythematous annular plaques with a raised border and central clearing on the abdomen and forearms, and dystrophic onychomycosis of the fingernails and toenails. Direct microscopy of plucked hairs showed endothrix parasitism. Culture on Sabouraud dextrose agar with chloramphenicol and cycloheximide yielded, concurrently from hair, glabrous skin and nails, slow-growing (10 days), waxy, glabrous colonies devoid of aerial mycelium. Microscopy showed thick, irregular, torulose hyphae bearing intercalary and terminal chlamydospores without conidia, consistent with *Trichophyton violaceum* variety *glabrum*. Oral griseofulvin combined with 2% ketoconazole shampoo led to complete clearing of the cutaneous and nail lesions and normal hair regrowth.

Discussion: Immunosenescence and the post-menopausal decline in fungistatic sebum production create a permissive niche for anthropophilic dermatophytes on the ageing scalp. The chronic, paucisymptomatic course of the *glabrum* variant, together with its slow and atypical growth in culture, favours prolonged diagnostic delay and multisite colonisation of keratinised tissues.

Conclusion: Dermatophytes should be included in the differential diagnosis of chronic scalp scaling and alopecia in older women. Rigorous mycological expertise — direct examination combined with culture — remains essential to identify uncommon morphological variants and to initiate appropriate antifungal therapy.

Keywords: Tinea Capitis; *Trichophyton violaceum* var. *glabrum*; Older Adults; Dermatophytosis; Endothrix; Morocco

Introduction

Tinea capitis is a superficial dermatophytosis of the scalp and hair shaft caused principally by species of the genera *Microsporum* and *Trichophyton* [1]. Dermatophytes constitute the largest and most frequent group of fungal infections worldwide, affecting approximately one quarter of the global population, and tinea capitis remains the predominant form of dermatophytosis in low- and middle-income countries [2]. Its clinical expression is highly variable, ranging from paucisymptomatic non-inflammatory scaling with hair breakage to intensely inflammatory and suppurative presentations [1,3].

Among the anthropophilic species endemic to the Mediterranean basin and North Africa, *Trichophyton violaceum* is a major agent of endothrix tinea capitis [4]. In Morocco, tinea capitis is the most frequent serious fungal infection [5], and a 25-year series from our own laboratory identified *T. violaceum* as the predominant species in adults, accounting for more than three quarters of adult isolates [4]. Its *glabrum* variety, historically individualised by Sabouraud [6], is characterised in culture by waxy, glabrous colonies devoid of aerial mycelium; pale isolates of *T. violaceum*, formerly designated *Trichophyton glabrum*, have been reported only sporadically and are recognised as a genuine challenge for the clinical mycology laboratory [7]. The corresponding hair invasion is of the endothrix type, producing the characteristic “black dot” appearance [8].

Tinea capitis in older adults is uncommon, a resistance classically attributed to the post-pubertal enrichment of sebum in fungistatic medium-chain fatty acids [9]. Nevertheless, several series have shown that the condition is far from exceptional beyond childhood, particularly in post-menopausal women, in whom it is frequently mistaken for seborrhoeic dermatitis, psoriasis or another non-infectious scalp dermatosis [9-11]. We report a case of tinea capitis due to *Trichophyton violaceum* var. *glabrum* in an 81-year-old woman, diagnosed at the Central Laboratory of Parasitology-Mycology of the Ibn Sina University Hospital, Rabat, Morocco.

Case Presentation

An 81-year-old woman with no significant medical history was referred to the dermatology department of the Ibn Sina University Hospital, Rabat, for a diffuse, insidiously progressive disorder of the skin and appendages that had been evolving for five years. The history disclosed a chronological progression that began with a dermatosis of the hands and extended gradually to the trunk with marked summer exacerbation; three years later, diffuse alopecia, mild pruritus and onychomycosis of the fingernails and toenails appeared.

Physical examination revealed a symptom triad suggestive of chronic generalised dermatophytosis. The scalp showed a dry, non-inflammatory tinea characterised by diffuse hair thinning and hairs broken flush with the scalp surface that detached without resistance — a pattern consistent with endothrix invasion — with no pustules, crusting or other inflammatory component (Figure 1).



Figure 1: Dry trichophytic tinea capitis. Central Laboratory of Parasitology-Mycology, Ibn Sina University Hospital, Rabat, Morocco.

On the glabrous skin, violaceous erythematous squamous plaques with a raised active border and central clearing were observed on the abdomen and forearms (Figure 2).



Figure 2: Annular (circinate) lesions of the glabrous skin. Central Laboratory of Parasitology-Mycology, Ibn Sina University Hospital, Rabat, Morocco.

The nails showed dystrophic involvement (Figure 3), confirming colonisation of all keratinised tissues.



Figure 3: Fingernail and toenail onychomycosis. Central Laboratory of Parasitology-Mycology, Ibn Sina University Hospital, Rabat, Morocco.

The absence of animal contact, the absence of familial clustering and the paucity of inflammatory signs despite a prolonged course were strong clinical arguments in favour of a mycosis. Comprehensive mycological investigation was therefore performed at the Central Laboratory of Parasitology-Mycology on scales, hairs and nail clippings, in order to confirm the aetiology and guide treatment.

Direct microscopic examination of plucked hairs demonstrated numerous arthrospores filling the hair shaft, indicating endothrix parasitism typical of trichophytic tinea (Figure 4).

Culture on Sabouraud dextrose agar supplemented with chloramphenicol and cycloheximide yielded the same species — *Trichophyton violaceum* var. *glabrum* — concurrently from hair, glabrous skin lesions and nails, thereby confirming the multisite nature of the infection.

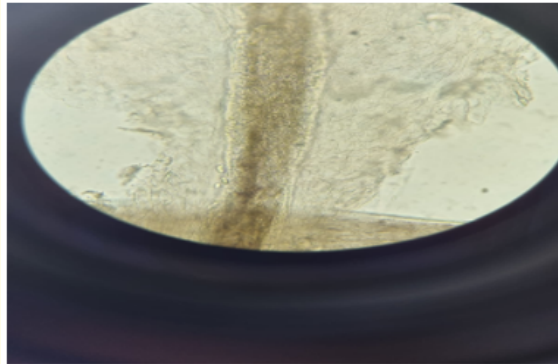


Figure 4: Direct examination of hair (light microscopy, $\times 40$) showing endothrix hair invasion with numerous intrapilar spores. Central Laboratory of Parasitology-Mycology, Ibn Sina University Hospital, Rabat, Morocco.

The macroscopic appearance of the cultures was highly suggestive of this variant: growth was very slow, colonies becoming visible only after 10 days, with a typically “naked”, waxy surface devoid of aerial mycelium and an intense violaceous pigmentation on both the obverse and the reverse (Figure 5).

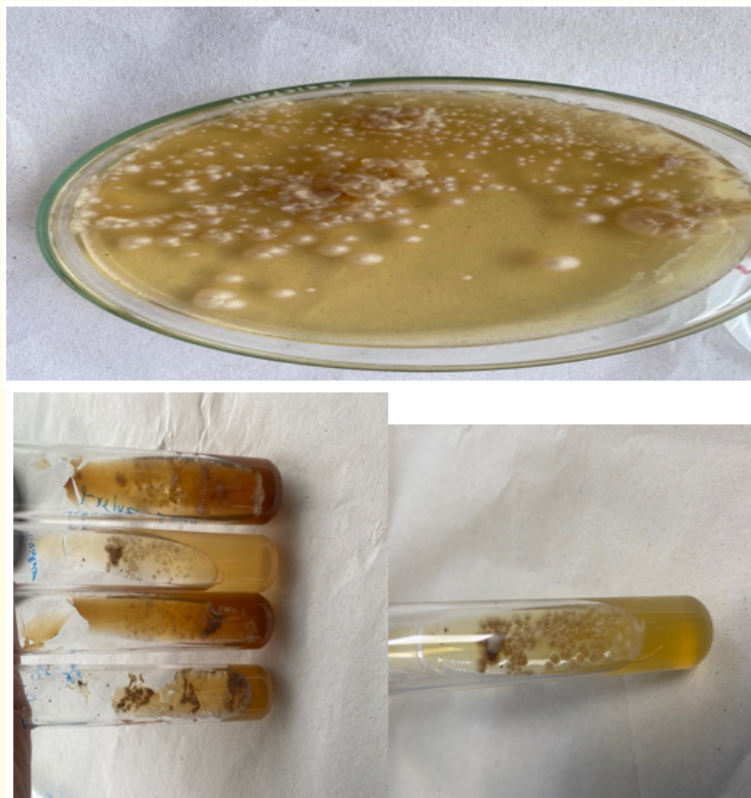


Figure 5: Colonies of *T. violaceum* var. *glabrum* on Sabouraud dextrose agar with chloramphenicol and cycloheximide. Central Laboratory of Parasitology-Mycology, Ibn Sina University Hospital, Rabat, Morocco.

Microscopic examination of the culture showed thick, irregular, torulose hyphae bearing intercalary and terminal chlamydospores, with no micro- or macroconidia (Figure 6). The combination of smooth, waxy, violaceous colonies with chlamydospores in the absence of conidia established the diagnosis of the *glabrum* variant.

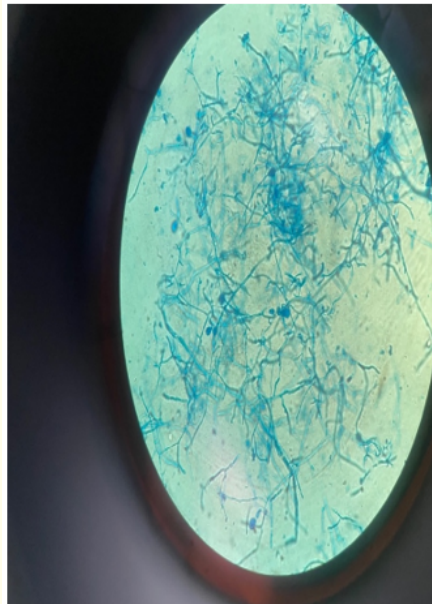


Figure 6: Microscopic appearance of *T. violaceum* var. *glabrum*: thick, irregular hyphae with intercalary and terminal chlamydospores (torulose mycelium). Central Laboratory of Parasitology-Mycology, Ibn Sina University Hospital, Rabat, Morocco.

The convergence of this chronic multisite dermatophytosis with mycological findings characteristic of *Trichophyton violaceum* var. *glabrum* allowed a formal diagnosis of tinea capitis associated with tinea corporis and onychomycosis. On this basis, a therapeutic regimen combining oral griseofulvin (200 mg daily) with 2% ketoconazole shampoo was started immediately. After six weeks of treatment, the course was marked by complete regression of the cutaneous and nail lesions together with hair regrowth of normal quality.

Discussion

Trichophyton violaceum var. *glabrum* is an ascomycetous dermatophyte belonging to the order Onygenales. As a strictly anthropophilic agent, its reservoir is exclusively human and transmission is interhuman. Although the species affects mainly children, it remains an uncommon finding in adults in Morocco [4].

The occurrence of this variant as a cause of tinea capitis in an 81-year-old patient is a noteworthy clinical observation. Trichophytic tinea capitis is classically regarded as a paediatric disease, and its occurrence in older adults has long been considered exceptional. Series from Spain, Tunisia and China, however, have documented a substantial and possibly increasing burden of adult tinea capitis, predominantly in post-menopausal women and predominantly due to strictly anthropophilic species [9,10,12]. In a 17-year Spanish series, 33 of 289 cases of tinea capitis (11.4%) occurred in adults; 30 of these were women, 70% of whom were post-menopausal, and *Trichophyton* species accounted for 76% of isolates, with *T. violaceum* the most frequent [9]. A 14-year Tunisian series similarly identified *T. violaceum* as the leading species in adult tinea capitis (46%), with associated onychomycosis in 24% of patients and tinea corporis in 15% — a multisite pattern comparable to that observed in our patient [10].

Two host-related mechanisms account for this susceptibility. First, sebaceous involution reduces the output of fungistatic medium-chain fatty acids that normally protect the post-pubertal scalp, leaving the hair follicle vulnerable to keratinophilic invasion. Second, cutaneous immunosenescence — characterised by epidermal and dermal thinning, a reduction in Langerhans cell density, impaired antigen-specific cell-mediated immunity and an expansion of regulatory T-cell populations — measurably lowers barrier immunity in older individuals and increases susceptibility to infection [13]. This decline is compounded by inflammaging, the chronic low-grade inflammatory state of ageing skin, which is associated with cellular senescence and progressive functional impairment of the cutaneous barrier [14].

Unlike the type form, the *glabrum* variant appears to possess an enhanced capacity for persistence in the form of chlamydospores, which favours chronic, paucisymptomatic infection. This clinical “discretion” is a key determinant of diagnostic delay in adults: the absence of overt inflammation allows the fungus to colonise all keratinised appendages over several years, as observed in our patient, whose disease history extended over five years. Adult tinea capitis is accordingly misdiagnosed as seborrhoeic dermatitis or as a pustular or cellulitic process in a substantial proportion of reported cases [12].

Compared with the Moroccan literature, synchronous multisite involvement — scalp, glabrous skin and nails — by the *glabrum* variant is decidedly rare. Whereas *T. violaceum* is frequently implicated in school or household outbreaks [15], its expression in an octogenarian as the *glabrum* form illustrates the concept of immunosenescence particularly well. Recent data further show that adult cases now represent a growing proportion of tinea capitis, that household transmission with complete pathogen concordance is frequent, and that asymptomatic adult carriers are common within affected households — findings that argue for systematic screening of the patient’s close contacts [16].

The isolation of *Trichophyton violaceum* var. *glabrum* in our patient underlines the persistence of this dermatophyte complex in the Mediterranean basin and raises questions about its true prevalence. Morphologically, the variant is distinguished from the type form by its glabrous, waxy colony surface and its markedly slow growth. Historically described by Sabouraud [6], the *glabrum* variant is now regarded as a rare morphological entity within the *T. violaceum* complex; pale, poorly pigmented isolates reported in the past as *T. glabrum* have been documented only sporadically, chiefly from African and Asian countries, and their identification has been explicitly described as a challenge to the clinical laboratory [7]. Worldwide, while an epidemiological transition towards imported species is observed in Europe [17], recent North African series confirm that the *T. violaceum* complex remains a leading agent of tinea capitis, and in Morocco it accounted for 51% of isolates over a 25-year period at our centre and for 77% of adult cases [4,18]. Specific identification of the *glabrum* variety nonetheless remains sporadic in the literature, which may reflect frequent confusion with the classical form or its particular nutritional requirements in the laboratory [19].

The main differential diagnosis is *T. verrucosum*, which causes suppurative tinea with megaspore ectothrix parasitism in a rural, animal-contact setting; nutritionally, *T. verrucosum* requires both thiamine and inositol for growth, whereas the growth of *T. violaceum* is stimulated by thiamine alone. These criteria also help to distinguish *T. rubrum* and *T. gourvilii*, which may occasionally produce violaceous, glabrous colonies on primary culture [19]. In our patient, the clinical appearance of the scalp lesions together with the cultural and microscopic characteristics of the isolate were all consistent with *T. violaceum* var. *glabrum*.

Limitations of the Study

Identification relied exclusively on phenotypic criteria — colony morphology, growth rate and micromorphology. Molecular confirmation by ITS region sequencing, which is currently regarded as the reference method for the definitive delineation of variants within the *T. violaceum* complex, was not available at the time of diagnosis. Antifungal susceptibility testing was likewise not performed.

Conclusion

The identification of *Trichophyton violaceum* var. *glabrum* in this case of tinea capitis illustrates the diagnostic complexity of dermatophytoses in older adults. Through its unobtrusive clinical presentation and its slow growth in the laboratory, this variant promotes a chronic course that is frequently linked to immunosenescence.

The resolution of this case underlines the role of the clinical mycologist and the need for close clinico-biological collaboration in the recognition of atypical forms. Finally, the rarity of this variant among Moroccan tinea capitis isolates calls for larger epidemiological and molecular studies, both nationally and internationally, in order to build a robust database and optimise global surveillance of the *T. violaceum* complex.

Ethics Approval and Consent to Participate

Written informed consent was obtained from the patient for the mycological investigation and for the publication of this case report and the accompanying images.

Consent for Publication

Written informed consent for publication of clinical details and clinical images was obtained from the patient.

Competing Interests

The authors declare that they have no competing interests.

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