

# Tinea capitis caused by *Trichophyton violaceum* in an immunocompetent elderly patient: a case report and review of literature

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August 18, 2023

## Introduction

Tinea capitis is a common infection of the scalp and hair caused by dermatophyte fungi that principally affects children<sup>1</sup>. It is an uncommon infection in adults and generally occurs in postmenopausal women and immunocompromised patients. Adult tinea capitis may have atypical clinical presentations<sup>2-4</sup>. The causative pathogens in children and adults belong to two genera: *Trichophyton* and *Microsporum*<sup>5</sup>. The clinical manifestations characterized by an erythematous and scaly plaques, itching, suppurative swelling with purulent discharge, areas of alopecia and regional lymphadenopathy. It is often misdiagnosed as a bacterial infection, leading to unnecessary antibiotic prescription or surgical intervention. Treatment delay may result in permanent hair loss<sup>6-7</sup>. The diagnosis of tinea capitis is made by fungal culture (gold standard), microscopy, wood's lamp and trichoscopy<sup>5-8</sup>.

## Case report

A 75-year-old female presented with a three-month history of pruritic purulent and crusted lesions over the scalp. She had been treated with multiple oral antibiotics and a topical cream consisting of clobetasol and salicylic acid for one month without any improvement. The patient had no medical history other than hypertension. She was in a good general condition and had not received any immunosuppressant drug. There was not any similar disease in other family members. Physical examination showed multiple erythematous-edematous papules and plaques with yellow crust, pustule formation, and hair loss involving the vertex and occipital area of the scalp (Fig 1). There were no other lesions in any other parts of the skin, nails and mucosa. Values of serum blood chemistry were in the normal range. The patient's immune profile was normal. The direct exam with 20% KOH showed an endothrix infection and the mycological culture showed the growth of *Trichophyton Violaceum*. Bacterial culture was negative. Skin biopsy of the scalp lesions showed an acute superficial and deep folliculitis with intrafollicular mycelial fungal infection consistent with tinea capitis (endothrix), on hematoxylin and eosin staining (Fig 2A & 2B). PAS-stained slides showed endothrix septate hyphae invading the hair shafts (Fig 2C). Fluorescent microscopy showed endothrix infection by green fluorescent, septate hyphae and spores (Fig 2D). The patient was treated with prednisolone 15mg daily for one month and oral itraconazole 400 mg daily, which was gradually tapered to 100 mg daily at the last two months. Also, the patient and all family members were treated with 2.5% selenium sulfide shampoo. There was complete clearance of the lesions and acceptable hair regrowth (Fig 3).

## Discussion

The amount of fungistatic saturated fatty acids in sebum increases at puberty and therefore dermatophyte colonization of the scalp disappears in this age<sup>9</sup>. This is thought to explain the rarity of tinea capitis in

adults. Although the disease was once thought to be rare in adulthood, studies have been increasingly reporting tinea capitis among adults especially in immunocompromised patients, menopausal and elderly women<sup>2 34</sup>. Our patient was a 75-year-old menopause female, but not immunocompromised. In most of the reported cases, including our case, the diagnosis was delayed. This delay is probably due to both the rarity of this infection in adults and its atypical clinical presentation. The disease may resemble bacterial folliculitis, folliculitis decalvans, dissecting cellulitis, pityriasis amiantacea and its related etiologies, and scarring alopecia like lupus erythematosus<sup>10</sup>. In many studies the correct diagnoses were established by tissue culture<sup>23</sup>. Although, for some authors, griseofulvin remains the treatment of choice for tinea capitis in children and adults, both terbinafine and itraconazole are considered acceptable alternatives<sup>2 3 4</sup>. Due to the numerous reports describing treatment-resistant dermatophytosis, which has emerged as a global public health threat,<sup>11 12 1314</sup> we started the treatment with high dose itraconazole as 400 mg daily. Also, we prescribed prednisone 15mg daily at the first month because of the severe inflammation. Our patient responded well to this treatment and there was complete clearance of the lesions with acceptable hair regrowth.

We reviewed tinea capitis case reports in adults indexed in PubMed between 2018 and 2023. To be included in the review, articles had to be available in the English language. Inclusion criteria included patient age [?]18 years, diagnosis of tinea capitis, no history of immunosuppression or receiving any immunosuppressant drugs, no history of other medical conditions or history of other dermatophytosis infection in other parts of the skin, no history of gardening, pet-keeping, contact with domestic animals or other individuals with the same manifestations or dermatophytosis infection and no history of contact with objects containing fomites, including brushes, combs, bedding, clothing, toys, furniture, and telephones (Table 1).

We found a total of 11 cases. Of these cases, the prevalence was higher in women (8/11) and the average age was 48.36. Three cases did not have a mycological culture and didn't mention the dermatophyte isolated. *Trichophyton tonsurans* was the most common dermatophyte, followed by *Trichophyton violaceum*. Most cases were treated with oral terbinafine 250 mg daily. One patient was treated with oral griseofulvin 500 mg every 12 hours and another one with oral itraconazole 200 mg twice daily. Most patients received combination therapy consisting of oral and topical antifungal agents. All patients reported were cured successfully without any side effects. Two cases had disseminated lesions on the face<sup>15</sup>, extremities and nails<sup>1516</sup> years after the scalp manifestations. One case caused by *Trichophyton tonsurans* suffered subsequent herpes zoster infection, which shows that tinea capitis may be a risk factor for varicella zoster virus reactivation<sup>17</sup>.

## Conclusion

Herein, we report a case of tinea capitis in a 75-year-old immunocompetent female and review the literature on this rare entity from 2018 to 2023. Despite the rarity of the disease in adults, tinea capitis should be included in the differential diagnosis of the inflammatory scalp lesions in adult or elderly patients, even in immunocompetent individuals. A KOH examination (and/or fungal culture) should be performed, to provide early and accurate treatment to minimize complications and sequelae of the disease.

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