

4. Centers for Disease Control and Prevention (CDC). Agranulocytosis associated with cocaine use: four states, March 2008–November 2009. *MMWR Morb Mortal Wkly Rep.* 2009;58:1381–5.
5. Veronese FV, Dode RS, Friderichs M, Thomé GG, Da Silva DR, Schaefer PG, et al. Cocaine/levamisole-induced systemic vasculitis with retiform purpura and pauci-immune glomerulonephritis. *Braz J Med Biol Res.* 2016;49:e5244, <http://dx.doi.org/10.1590/1414-431X20165244>.
6. Emil NS, Cisneros DR, Penmetsa S, Duchesne JH, Sibbitt WL Jr, Gibb JI, et al. Atypical Chronic Inflammatory ANCA-Positive Deforming Arthritis After Cocaine-Levamisole Exposure. *J Clin Rheumatol.* 2020;26:24–32, <http://dx.doi.org/10.1097/RHU.0000000000000910>.
7. Ventura Vilamala M, Caudevilla Gállego F, Vidal Giné C, Grupo Investigadores SELECTO. Cocaína adulterada con levamisol: posibles implicaciones clínicas [Levamisole-adulterated cocaine: potential clinical implications]. *Med Clin (Barc).* 2011;136:367–8, <http://dx.doi.org/10.1016/j.medcli.2010.02.037>.
8. Odrionic S, Quraishy N, Manroa P, Kier Y, Koo A, Figueroa P, Hamilton A. Cocaine-induced microangiopathic hemolytic anemia

mimicking idiopathic thrombotic thrombocytopenic purpura: a case report and review of the literature. *J Clin Apher.* 2014;29:284–9, <http://dx.doi.org/10.1002/jca.21316>.

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Inflammatory Tinea Capitis Due to *Trichophyton rubrum*[☆]



Tinea capitis inflamatoria por *Trichophyton rubrum*

Dear Editor:

A 78-year-old woman, living in an urban area, reported an approximately 3-month history of an inflammatory purulent lesion on the scalp and a 1-year history of toe nail onychomycosis and tinea pedis treated with topical ciclopirox and sertaconazole. Examination findings showed a wide scarring alopecia area on the scalp with perifollicular pustules and crusts which, after having been removed, exhibited a bleeding, erosive surface (Fig. 1). No adenopathies and no general symptoms of infection were found. There was no history of animal contact and no clinical signs of immunodeficiency.

For diagnosis, swab samples of yellowish secretion of the pustules were obtained and *Trichophyton rubrum* was identified by culture and microscopic examination. We also took a biopsy, in which histopathological study showed perivascular infiltration by lymphocytes in the upper dermis. Septate hyphae were not revealed by periodic acid-Schiff staining (PAS). Bacterial cultures showed mixed microbiota.

Finally, a diagnosis of tinea capitis due to *T. rubrum* was made.

In the matter of treatment, the patient improved her condition with a course of twelve weeks of two hundred and fifty milligrams per day of oral terbinafine and topical ketoconazole treatment (Fig. 2).

Tinea capitis is common in children, but several studies have shown that it also can be seen in adults, particularly in postmenopausal women, a phenomenon

that may be explained by the involution of sebaceous glands following decreased blood oestrogen levels,^{1,2} and immunocompromised people, as immunologic dysfunction may increase risk of infection through an impaired cell-mediated response.³

In our geographical area, most of the cases of tinea capitis affecting the adult population are caused by species of the genus *Trichophyton*.¹

However, *T. rubrum* is a very uncommon cause of tinea capitis in the general population. This particular dermatophyte led to a robust case of tinea capitis in our patient, likely due to autoinoculation from tinea pedis and onychomycosis. In contrast to other dermatophyte species, *T. rubrum* can cause both an endothrix and an ectothrix infection in the setting of hair invasion, maybe this is what allows long-term colonization.^{2,3,4}

Adult tinea capitis may have polymorphic and atypical clinical presentations, leading to difficulty in diagnosis and a delay in treatment. The differential diagnosis in our area included erosive pustular dermatosis of the scalp, folliculitis decalvans and cutaneous cryptococcosis. Erosive pustular dermatosis of the scalp is a rare inflammatory disease of unknown aetiology that usually occurs in the elderly and is a diagnosis of exclusion. Patients commonly present tiny pustules on the scalp, forehead or temples. The pustules are usually sterile, but they can become secondarily colonized by bacteria. Folliculitis decalvans is a highly inflammatory form of cicatricial alopecia where perifollicular papules and pustules complete the clinical picture. Often, *Staphylococcus aureus* can grow. Finally, cutaneous cryptococcosis is an infection caused by *Cryptococcus neoformans*.⁵ The skin lesion sometimes consists of large crusted ulceration on the scalp that could resemble tinea capitis, but this usually occurs in immunocompromised hosts.

In terms of treatment, the choice of the antifungal drug depends on the characteristics of the patient, the type and extent of infection, and the possibility of drug interactions.

Situations where systemic therapy is indicated include tinea involving two or more areas, tinea corporis with extensive involvement, tinea pedis such as moccasin or vesicular type, and failure of treatment with topical agents.⁶

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Figure 1 Wide scarring alopecia area on the scalp with perifollicular pustules and crusts.



Figure 2 Complete healing after treatment.

Not only griseofulvin has been widely used as oral anti-fungal drug but also terbinafine. Ketoconazole, itraconazole and fluconazole are used in a lesser extent. Several and important adverse reactions have been reported with griseofulvin and some studies have shown a higher efficacy of terbinafine compared to griseofulvin in half the time in tinea capitis caused by *Trichophyton* with a better profile of tolerability.⁷

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References

1. Lova-Navarro M, Gómez-Moyano E, Martínez Pilar L, Fernandez-Ballesteros MD, Godoy-Díaz DJ, Vera-Casaño A, et al. Tinea

capitis in adults in southern Spain. A 17-year epidemiological study. *Rev Iberoam Micol.* 2016;33:110–3.

2. Ziemer A, Kohl K, Schröder G. *Trichophyton rubrum*-induced inflammatory tinea capitis in a 63-year-old man. *Mycoses.* 2005;48:76–9.
3. Hambro CA, Yin NC, Yang C, Husain S, Silvers DN, Grossman ME. *Trichophyton rubrum* tinea capitis in an HIV-positive patient with generalized dermatophytosis. *JAAD Case Rep.* 2017;3:19–21.
4. Kuklová I, Štokr J, Lacina L. *Trichophyton rubrum* suppurative tinea of the bald area of the scalp: *T. rubrum* tinea of the bald area of the scalp. *Mycoses.* 2011;54:84–6.
5. Rodríguez Lozano J, Almagro M, del Pozo J, Mosquera J, Fernández Jorge B, Paradelo S, Fonseca E. Disseminated cryptococcosis in an elderly woman. *Acta Derm Venereol.* 2005;85:557–8.
6. Kaul S, Yadav S, Dogra S. Treatment of dermatophytosis in elderly, children, and pregnant women. *Indian Dermatol Online J.* 2017;8:310–8.
7. Jaén-Larrieu A, Vicente-Villa A, Aguilera-Pérez P, González-Enseñat MA, Juncosa-Morros T, Fumadó-Pérez V. Tinea capitis treatment in Spain. *J Am Acad Dermatol.* 2009;61:1079–80.

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