International Journal of Research in Medical Sciences
Belda W et al. Int J Res Med Sci. 2023 Aug;11(8):3034-3038
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20232442

Case Report

Chromoblastomycosis with 18 years of evolution

Walter Belda*, Caroline H. C. Carvalho, Luiz F. D. Passero

Department of Dermatology, Faculty of Medicine of the University of São Paulo, São Paulo, Brazil

Received: 19 June 2023
Accepted: 14 July 2023

***Correspondence:**
Dr. Walter Belda,
E-mail: walterbelda26@gmail.com

ABSTRACT

Chronic infectious, granulomatous and suppurative dermatosis, classified among the subcutaneous mycoses, caused by species of pigmented dematiaceous fungi, more prevalent in tropical and subtropical regions and caused by the traumatic implantation of dematiaceous fungal species, where the presence of muriform bodies are an expression of the causal agent in the grafted tissue, characteristic of chromoblastomycosis considered the second implantation mycosis in the world, it manifests itself with slow and progressive growth lesions of exophytic and verrucous plaques and black dots on the surface. The disease is considered a neglected and occupational disease, which occurs mainly among agricultural workers, and coconut and babassu harvesters, lumberjacks and traders of agricultural products. It is important to highlight that people at risk of contracting chromoblastomycosis work in tropical countries, where the temperature can be above 40 °C in summer, and generally refuse to wear protective equipment during the day (shoes, gloves, and clothes), although they know that this type of prophylactic measure can prevent different types of diseases. These vulnerable people often live in low-income countries and sometimes live far from medical services and, once infected, do not seek medical attention. We report below an exuberant and unusual case of lower limb chromoblastomycosis with a history of 18 years of evolution. The diagnosis was established by direct mycological examination, culture and microculture that identified the agent of the *Fonsecaea* species, and histopathological examination.

Keywords: Chromoblastomycosis, Treatment, Differential diagnosis

INTRODUCTION

Chronic, granulomatous and suppurative infectious dermatosis, classified among the subcutaneous mycoses, caused by species of pigmented dematiaceous fungi, more prevalent in tropical and subtropical regions and caused by the traumatic implantation of dematiaceous fungal species, where the presence of muriform bodies are an expression of the causal agent in grafted tissue, characteristic of chromoblastomycosis.

The initial lesion appears at the site of inoculation, but some patients do not report any inoculation. It initially presents as an isolated macular lesion, progressing to a papular, elevated lesion, with a smooth and pink surface that gradually increases in size over a few weeks, gradually evolving into a papulosquamous form, sometimes with a polymorphic appearance, which can be confused with several others infectious or non-infectious diseases. The lesions progressively assume the characteristic verrucous appearance. At first, the lesions are asymptomatic and usually do not interfere with the patient's activities. Over time, pruritus can set in and, in moderate forms, it can be intense and accompanied by local pain.[1] It progresses in extension and does not directly affect muscles or bones.

However, its slow advance by contiguity produces fibrotic changes and lymphatic stasis, leading to lymphedema, which in some cases resembles elephantiasis. Secondary recurrent bacterial infection is another frequent complication. This process exacerbates the involvement of lymphatic vessels.[2] When it starts in the lower limbs, the condition tends to expand to the knee, thigh, or dorsum of the foot, sparing the plantar region.[3]

Since the description of the first case of chromoblastomycosis, different clinical forms have been described and a variety of pathogenic fungal species have been incriminated in the development of this disease. These species live in organic material in the soil, plants, and aquatic environments; thus, in addition to being considered a new disease, there is a complex epidemiological picture associated with the transmission of this agent.[6]

CASE REPORT

A 53-year-old male patient reported the appearance of a verrucous-looking lesion while working in the fields, initially small on the dorsum of the foot, without symptoms, which progressed slowly to the ankle, leg and thigh, starting with 18 years ago. After a few months of its appearance, he sought medical attention on several occasions, being medicated with local and systemic antibiotics without result. With little improvement in the condition and as it did not compromise his professional activity, he abandoned medical follow-up. He came to our service 18 years after the onset of the condition, presenting extensive involvement of the right lower limb, with lesions of a verrucous and keloid appearance, which extended from the dorsum of the foot to the groin, affecting the anterior and posterior face of the leg and thigh, compromising and making knee flexion difficult, accompanied by swelling of the entire leg (Figures 1 and 2). He reported local discomfort and sometimes a fetid odor emanating from the lesions.

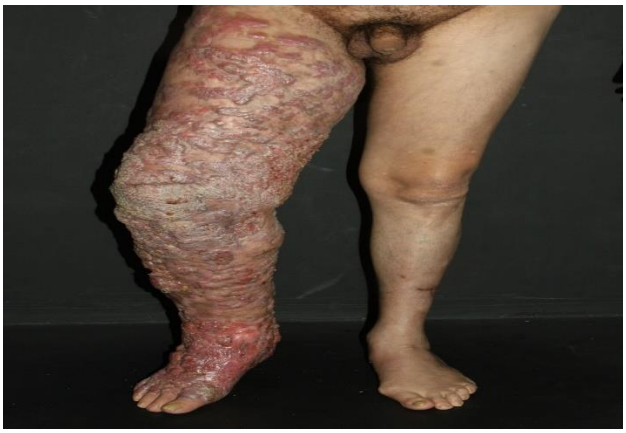

Figure 1: Verrucous lesion affecting the entire anterior face of the leg.

Microscopic examination of scales of the lesion in 10% potassium hydroxide (KOH) wet mount revealed the presence of muriform cells (Figure 3). Histopathological study performed in the skin section collected from the right foot dorsum showed pseudoepitheliomatous hyperplasia in the epidermis and muriform cells surrounded by granuloma in the dermis (Figure 4). Culture of the smears from the lesions, performed in Sabouraud dextrose agar medium, led to the morphological identification of a *Fonsecaea* species as the etiological agent after the 15th day of culture (Figures 5 and 6). Blood-biochemical levels of glycemia, cholesterol, hepatic transaminases, gamma-glutamyl transferase, triglycerides, bilirubin, urea and creatinine were normal; additionally, the patient was serologically negative for hepatitis, syphilis and HIV.

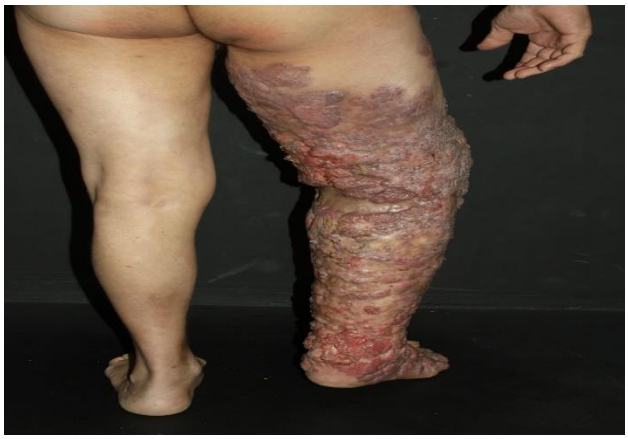

Figure 2: Verrucous lesion affecting the entire posterior face of the leg.

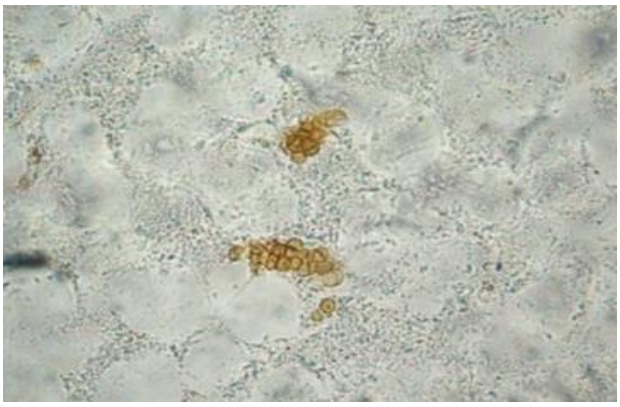

Figure 3: Microscopic examination of scales of the lesion in 10% potassium hydroxide revealed the presence of muriform cells.

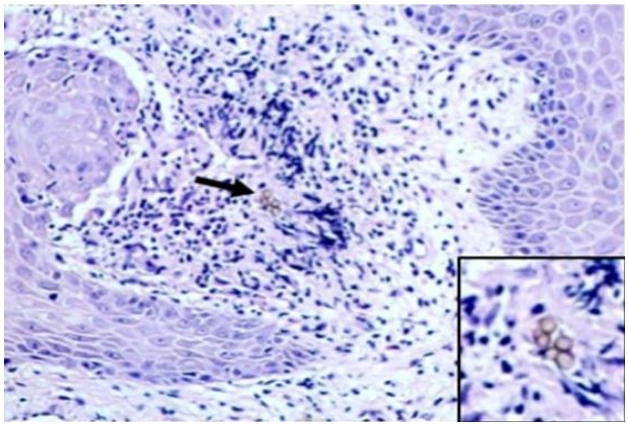

Figure 4: Pseudoepitheliomatous hyperplasia in the epidermis and muriform cells surrounded by granuloma in the dermis.

Figure 5: Culture of the smears from the lesions in Sabouraud dextrose agar medium.

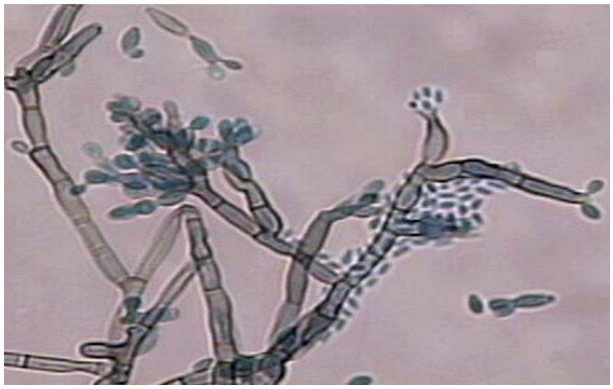

Figure 6: Microculture.

DISCUSSION

Since the description of the first case of chromoblastomycosis by Max Rudolph in 1914, in patients residing in Minas Gerais, Brazil, different clinical forms have been described and a variety of pathogenic fungal species have been incriminated in the development of this disease.[4] These species live in organic material in the soil, plants, and aquatic environments; thus, in addition to being considered a new disease, there is a complex epidemiological picture associated with the transmission of this agent

In Africa it occurs mainly in Madagascar and South Africa; in Asia it predominates in India, China, Japan, also occurring in Australia and the Americas, mainly Brazil, Mexico and Venezuela.[5] It is rare in the United States and Europe.[6-9] The disease has also been described from Guatemala to Panama, Costa Rica and Honduras.[10-13]

It occurs most frequently within a zone between 30° north latitudes and 30° south latitude, coinciding with tropical and subtropical regions.[1]

The mean incubation period of the disease is unknown, and its evolution is slow and progressive, in a painless way, affecting mainly the lower limbs, followed by the upper limbs and rarely the cephalic segment. Eventually, in long-term lesions, carcinomatous transformation may occur, although such tumors exhibit slow progression and have a non-invasive profile.[14] However, some tumors may show an invasive and aggressive profile, which may be the result of long-term chronic inflammation due to the presence of muriform cells.[15] The main differential diagnoses of chromoblastomycosis should be made with clinical pictures of fungal diseases such as lobomycosis, sporotrichosis, protothecosis, paracoccidioidomycosis, eumycetoma, phaeohyphomycosis, granulomatous dermatophytosis and Majochi's granuloma; with bacterial diseases such as verrucous tuberculosis, leprosy, actinomycosis, nocardiosis, botryomycosis, tertiary syphilis and atypical mycobacterioses, with parasitic diseases such as tegumentary leishmaniasis, and with non-infectious diseases such as squamous cell carcinoma, keratoacanthoma, lupus erythematosus, cutaneous sarcoidosis and mycosis fungoides.. The clinical aspect of the lesions, location, clinical history and evolution can help to limit the differential diagnosis.

In their treatment, except for small initial lesions that can be cured by surgical removal, chromoblastomycosis lesions constitute a real therapeutic challenge for doctors and patients. There are no publications in the literature of randomized or comparative clinical and therapeutic trials that can show which is the best treatment. For therapeutic success to be achieved, one must consider the patient's health status, socioeconomic conditions, possibility of adherence to the proposed therapy and the presence of comorbidities.[16]

There are several options for the therapeutic approach, such as Moh's micrographic surgery.[17] Cryosurgery with liquid nitrogen is a method advocated by different authors, but the rates of recurrence are considerable, and often leave achromic and unsightly scars.[18] The use of CO_2 laser as monotherapy or combined with therapeutic measures has also been described.[19] Recently, the use of photodynamic therapy has been tested based on the effectiveness of the method demonstrated in vitro against species of the *Fonsecaea pedrosoi* complex and with clinical use results described as promising.[20] Classic therapy with oral antifungals continues to be used with the administration of itraconazole (100-400 mg/day) associated with 5-fluorocytosine (50-150 mg/kg/day) – divided into 4 doses.[21] The use of itraconazole as monotherapy in doses of 200-400 mg/day, despite presenting satisfactory results, has been avoided, being preferable its association with terbinafine (250-500 mg/day), for long periods.[22] However, according to published data, success rates with terbinafine or itraconazole vary from 15 to 80%, depending on the severity of the disease.[1] In recent years, there have been several reports of small case series evaluating the combination of antifungal drugs such as itraconazole or terbinafine with immunomodulatory compounds such as glucan and topical imiquimod, as well as the use of imiquimod as monotherapy with promising results.[23-25] Acitrein, in association with itraconazole, is another drug

recently used as adjuvant therapy, particularly in more extensive cases, which has shown great promise in rapidly reducing the verrucous appearance, facilitating and reducing the treatment time for this pathology.[26]

The choice of therapeutic method in chromoblastomycosis should take into account factors inherent to the different therapeutic options, compared with the clinical characteristics of the lesions, as well as those inherent to the patient's socioeconomic conditions and the possible existence of associated comorbidities, with early diagnosis being important so that the prognosis can be positive and fully satisfactory.

CONCLUSION

The treatment of chromoblastomycosis constitutes a challenge for physicians and patients, as well as its diagnosis, particularly in those patients with long-standing verrucous lesions, or with an unusual clinical appearance, particularly in patients with a clinical picture as extensive as the one reported in this case. Histopathological examination, associated with direct mycological examination and culture in appropriate media are essential in identifying the causal agent, providing the differential diagnosis with the numerous pathologies that present a similar clinical picture. Due to the possible complications that may occur as a result of the delay in its diagnosis, this is imperative to be done early, preventing clinical conditions such as the one shown in this report from occurring, as well as unnecessary treatments and their chronicity, thus increasing the possibility of cure.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Queiroz-Telles F. Chromoblastomycosis: A neglected tropical disease. Rev Inst Med Trop São Paulo. 2015;57:46-50.
2. Weedon D, van Deurse M, Allison S, Rosendahl C. Chromoblastomycosis in Australia: an historical perspective. Pathology. 2013;45:489-91.
3. Queiroz-Telles F, de Hoog S, Santos DW, Salgado CG, Vicente VA, Bonifaz A, et al. Chromoblastomycosis. Clin Microbiol Rev. 2017;30:233-76.
4. Rudolph M. Uber die brasilianisch “Figueira” (Vorlaufige Mitteilung). Arch Schiffs-und Tropen-Hyg. 1914;18:498-9.
5. Soto MCR, Malaga G. Subcutaneous mycoses in Peru: a systematic review and meta-analysis for the burden of disease. Int J Dermatol. 2017;10:1037-45.
6. Buot G, Bachmeyer C, Benazeraf C. Chromoblastomycosis: an unusual diagnosis in Europe. Acta Derm Venereol. 2005;85:259-60.
7. Queiroz-Telles F, Fahal AH, Falci DR. Neglected endemic mycoses. Lancet Infect Dis. 2017;17:367-77.
8. Agarwal R, Singh G, Ghosh A. Chromoblastomycosis in India: review of 169 cases. PLoS Negl Trop Dis. 2017;11:1-13.
9. Pindycka-Piaszczyńska M, Krzyściak P, Piaszczyński M, Cieślik S, Januszewski K, Izdebska-Straszak G, et al. Chromoblastomycosis as an endemic disease in temperate Europe: first confirmed case and review of the literature. Eur J Clin Microbiol Infect Dis. 2014;33(3):391-8.
10. Álvarez-Montiel I, Bonifaz AA. Cromoblastomicosis en placa superficial. Manifestación de una variante poco habitual. Dermatol Ver Mex. 2014;58:529-33.
11. Ramírez O. Cromoblastomicosis en El Salvador. Arch Col Med El Salv. 1956;9:218-23.
12. Torres-Guerrero E, Isa-Isa R, Isa M, Arenas R. Chromoblastomycosis. Clin Dermatol. 2012;30:403-8.
13. Cueva AJ. Cromoblastomicosis en Honduras. Rev Med Hondur. 1956;24:112-21.
14. Foster HM, Harris TJ. Malignant change (squamous carcinoma) in chronic chromoblastomycosis. Aust N Z J Surg. 1987;57:775-7.
15. Belda Jr. W, Criado PR, Casteleti P, Passero LFD. Chromoblastomycosis evolving to sarcomatoid squamous cell carcinoma: a case report. Dermatol Rep. 2021;13:2.
16. Martinez RL,Tovar LJM .Cromoblastomycosis. Clin Dermatol. 2007;25:188-94.
17. Pavlidakey GP, Snow SN, Mohs FE. Chromoblastomycosis treated by Mohs micrographic surgery. J Dermatol Surg Oncol. 1986;12:1073-5.
18. Castro LGM, Pimentel RR, Lacaz CS. Treatment of chromomycosis by cryosurgery with liquid nitrogen: 15 tear’s experience. Int J Dermatol. 2003;42:408-12.
19. Tsianakas A, Pappai D, Basoglu Y, Metze D, Tietz HJ, Luger TA, et al. Chromomycosis successful CO2 laser vaporization. J Eur Acad Dermatol Venereol. 2008;22:1385-6.
20. Lyon JP, Moreira LM, Carvalho VS. In vitro photodynamic therapy against Fonsecaea pedrosoi and Cladophialophora carrionii. Mycosis. 2013;56:157-61.
21. Bolzinger T, Pradinaud R, Saint-Marie D. Traitment de quatre cas de chromomycose à Fonsecaea pedrosoi par l’association 5-fluorocytosine-itraconazole. Nouv Dermatol. 1991;10:462-6.
22. Gupta AK, Taborda PR, Sanzovo AD. Alternative week and combination itraconazole and terbinafine therapy for chromoblastomycosis caused by Fonsecaea pedrosoi in Brazil. Med Mycol. 2002;40:529-34.
23. Azevedo CDM, Marques SG, Resende MA, Gonçalves AG, Santos DV, da Silva RR, et al. The use of glucan as immunostimulant in the treatment of a severe case of chromoblastomycosis. Mycoses. 2008;51:341-4.

24. Texeira de Sousa MG, Belda Jr W, Spina R, Lota PR, Valente NS, Brown GD, et al. Topical application of imiquimod as a treatment for chromoblastomycosis. Clin Infect Dis. 2014;58:1734-7.
25. Belda Jr W, Criado PR, Passero LFD. Successful treatment of chromoblastomycosis caused by Fonsecaea pedrosoi using imiquimod. J Dermatol. 2020;1-4.
26. Belda Jr W, Criado PR, Passero LFD. Treatment of chromoblastomycosis with combinations including acitretin: a report of two cases. Am J Trop Med Hyg. 2020;103:1852-4.

Cite this article as: Belda W, Carvalho CHC, Passero LFD. Chromoblastomycosis with 18 years of evolution. Int J Res Med Sci 2023;11:3034-8.