

Chromoblastomycosis caused by *Cladophialophora carrionii*

Sir,

Chromoblastomycosis is a chronic, granulomatous mycosis usually involving the skin and subcutaneous tissues of extremities and mainly caused by *Fonsecaea*, *Phialophora* and *Cladophialophora* spp.¹ Chromoblastomycosis tends to be difficult to diagnose and treat and it relapses frequently.² We report a case of chromoblastomycosis caused by *Cladophialophora carrionii* which has been twice misdiagnosed as sporotrichosis.

A 57-year-old homemaker from Jiangsu Province of eastern China presented to our clinic with a 2-year history of an asymptomatic skin lesion on her left wrist. The patient had been clinically diagnosed as sporotrichosis 1 year before at a local hospital with a lesional skin biopsy revealing purulent granulomatous response in the dermis. Oral solution of 10% potassium iodide (20 ml/day) was effective, but the previous lesion recurred in the past 2 months after therapy interruption. She was otherwise well and could not recollect any history of trauma.

Physical examination revealed a solitary, crusted, erythematous nodule measuring 2.5 cm in diameter on the left wrist [Figure 1a], beyond which were sporadic “black dots.” The rest of the systemic examination was unremarkable. Dermoscopic view (AM7515MZT Handheld Digital Microscope, ×50) of the lesion exhibited prominent white and pink background, scales and sporadic irregular blackish-red dots [Figure 1b].

Direct microscopy of wet-mount examination (20% potassium hydroxide) was negative. Three samples of crusts and excreta from the lesion were cultured on Sabouraud glucose agar and incubated at 28°C. After 2 weeks, dusty, dark olive-green colonies were observed on all the three media [Figure 2a]. A pure culture of the colonies was later obtained on Sabouraud glucose agar and incubated at 28°C for nearly 2 weeks, showing the same colonies [Figure 2b]. Microscopic examination of a slide culture showed conidiophores bearing outwardly spreading, sparsely branching, long acropetal chains of ellipsoidal, smooth-walled, symmetrical, one-celled conidia which were consistent with the morphological characteristics of a

Cladophialophora species [Figure 2c]. Polymerase chain reaction and sequencing of the internal transcribed spacer region of the nuclear ribosomal RNA gene proved that *C. carrionii* (Accession No. in GenBank KX29073) was involved.

Before the outcome of mycological examination of fungal culture and subsequent molecular diagnostics, the patient was diagnosed as sporotrichosis once again based on the past history and clinical manifestation. Mycological examination eventually led to the right diagnosis of chromoblastomycosis.

Although misdiagnosis had been made, the treatment was accidentally correct. The patient was initially started on oral terbinafine (500 mg/day), topical naftifine-ketoconazole cream and thermotherapy with an electric fomenting tape (2 h/day with temperature up to 42°C) which resulted in continuous clinical improvement after 4-week treatment [Figure 3a and b]. Notably, dermoscopy during treatment revealed gradual resolution of “blackish-red dots” [Figure 1d and f]. After 16-week treatment of terbinafine (500 mg/day for 11 weeks and then 250 mg/day for 5 weeks), the lesion completely healed with acceptable atrophic scarring [Figure 4a and b] and fungal direct examination and culture were negative, so the treatment was interrupted. No recurrence occurred during the patient’s 8-month follow-up.

Neither sporotrichosis nor chromoblastomycosis is commonly reported in China’s eastern provinces such as Jiangsu. Sporotrichosis has been mostly reported in China’s northeast provinces, for example, Heilongjiang, Liaoning and especially Jilin.³ The predominant causative pathogen of chromoblastomycosis in northern China is *C. carrionii*, while infections in southern regions are mostly ascribed to *Fonsecaea monophora*.^{4,5}

Chromoblastomycosis mainly affects men on the legs and has polymorphic clinical presentation, including nodular, verrucous or vegetant, tumoral, cicatricial and lymphangitic (sporotrichoid)



Figure 1a: Lesion on the patient’s left wrist on initial treatment. Showed black dots

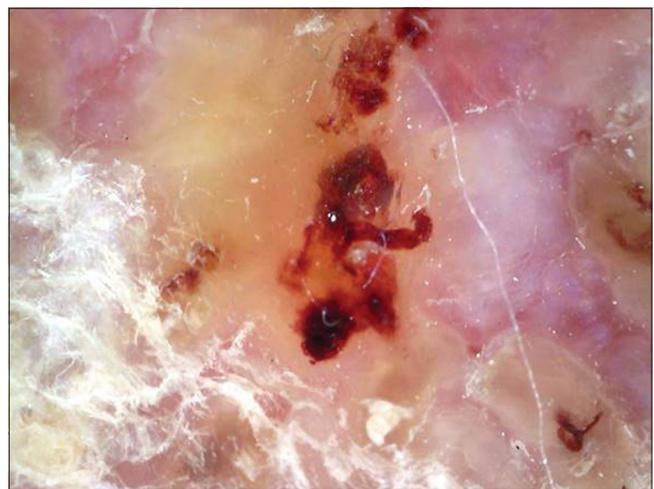


Figure 1b: Dermoscopy of the lesion on initial treatment. Showed irregular blackish-red dots which were gradually resolved during treatment (×50)

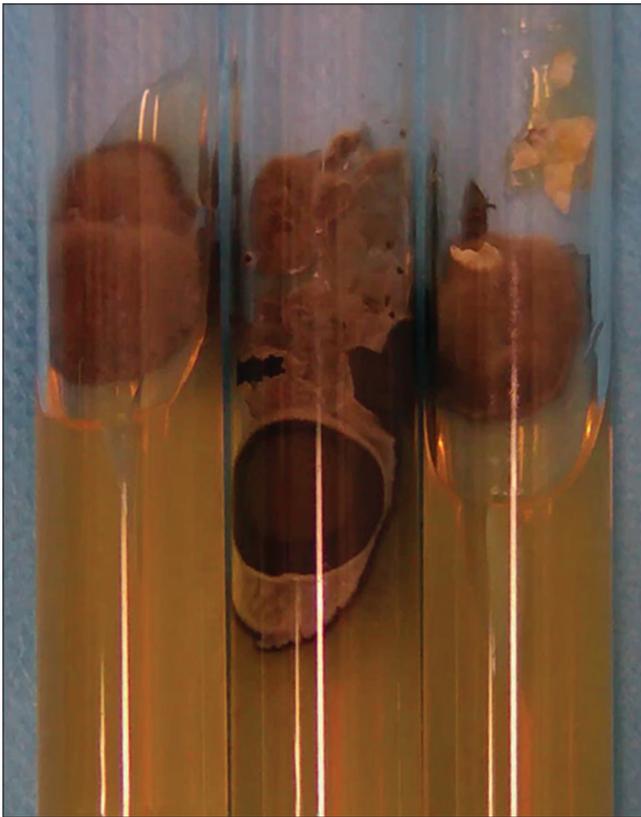


Figure 2a: Culture showed dusty, dark olive-green colonies (Sabouraud glucose agar, 28°C, 2 weeks)



Figure 2b: A pure culture of the colonies (Sabouraud glucose agar, 28°C, 2 weeks)



Figure 2c: The microscopy of the slide culture showing conidiophores bearing outwardly spreading, sparsely branching, long acropetal chains of ellipsoidal, smooth-walled, symmetrical, one-celled conidia (potato dextrose agar, 28°C, 10 days) ($\times 400$)

forms.¹ The initial diagnosis in our clinic was sporotrichosis as well, since the epidemiology and clinical manifestation were more consistent with sporotrichosis instead of other diseases and the case history showed that oral solution of potassium iodide (20 ml/day) was effective. Considering that the skin biopsy had been performed, the patient was directly started on antifungal treatment without another biopsy. However, it was confirmed by subsequent mycological examination that chromoblastomycosis was the right diagnosis.

Dermoscopically, white and pink background corresponds to asperous lesion and irregular blackish-red dots to the black dots. Black dots represent transepithelial elimination of products of the inflammatory response and hemorrhage.⁶ Transepithelial elimination has been widely recognized as a histopathologic phenomenon in the removal of foreign material or altered tissue components from the skin.⁷ Chromoblastomycosis is characterized by mixed mycotic granuloma and transepithelial elimination of the invading agent and the epithelium plays an active role in removing the fungus and constituting an additional defensive mechanism.⁸ In addition, under dermoscopy, the “blackish-red dots” resolve gradually which indicates that the resolution corresponds to the improving pathogenetic condition. Thus, the irregular blackish-red dots by dermoscopy might be a clue to the diagnosis of chromoblastomycosis.

Itraconazole or terbinafine is indicated as the first-line therapy for chromoblastomycosis with cure rates ranging from 15% to 80% according to the published data.⁹ In addition, thermotherapy is an effective treatment for chromoblastomycosis, for temperatures over 40°C–42°C kill the causal fungi.¹⁰ Thermotherapy works not only by direct fungicidal destruction, but also likely through enhanced cellular immune reactions.¹⁰



Figure 3a: Lesion on the patient's left wrist after 4-week treatment



Figure 4a: Lesion on the patient's left wrist after 16-week treatment

In conclusion, we describe an atypical case of chromoblastomycosis caused by *C. carrionii* which is a mimic of sporotrichosis. Mycological examination, instead of simple skin biopsy or clinical manifestation, is the gold standard for the diagnosis. Dermoscopy can be an effective and noninvasive method to indicate the diagnosis of chromoblastomycosis based on the presentation of irregular blackish-red dots. In the present case, treatment combining oral terbinafine, topical naftifine-ketoconazole cream and thermotherapy was found to be the best choice.

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Conflicts of interest

There are no conflicts of interest.

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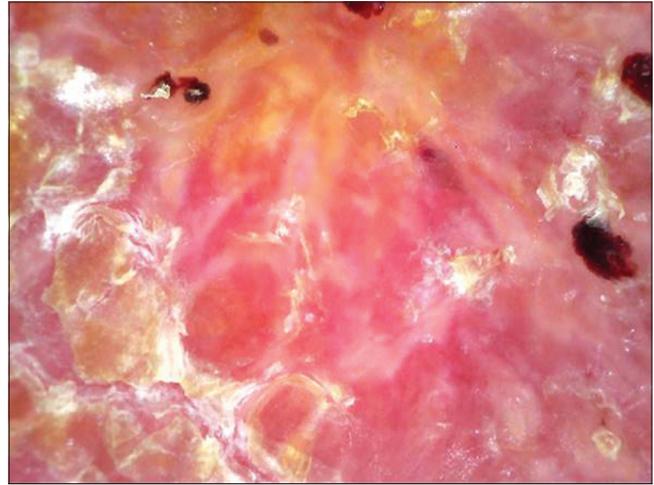


Figure 3b: Dermoscopy of the lesion after 4-week treatment. Showed irregular blackish-red dots which gradually resolved during treatment (×50)



Figure 4b: Dermoscopy of the lesion after 16-week treatment. Showed irregular blackish-red dots which gradually resolved during treatment (×50)

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