

Non-invasive Imaging Techniques for the Diagnosis of Chromoblastomycosis

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Introduction

Chromoblastomycosis is a fungal infection that results from traumatic implantation of dematiaceous fungi through the skin [1]. It manifests clinically as oligosymptomatic or asymptomatic skin lesions, which would explain why patients only tend to seek medical care after months or even years of living with the disease. Other common presentations include tumoral, cicatricial and sporotrichoid forms [1]. Direct microscopy proves the presence of 5-12 µm sized thick-walled dark-colored structures called Medlar bodies. Histopathology shows pseudoepitheliomatous hyperplasia with intraepidermal abscess and Medlar bodies [2].

Case Presentation

A young girl presented with a facial erythematous scaly plaque with central clearing that had been present for three months (Figure 1A). Dermoscopy at ×20 (Medicam 1000, Fotofinder System) showed dilated hyperkeratotic hair follicles and tiny brown dots (Figure 1B) that were better visible at ×400 (Fotofinder Medicam 1000, Fotofinder System; Figure 1C). Reflectance confocal microscopy ([RCM] VivaScope 3000; Figure 2B) and line-field confocal optical coherence tomography ([LC-OCT]; Figure 2, C-E) revealed enlarged hair follicles and multiple hyperreflective roundish structures in the superficial dermis. RCM also

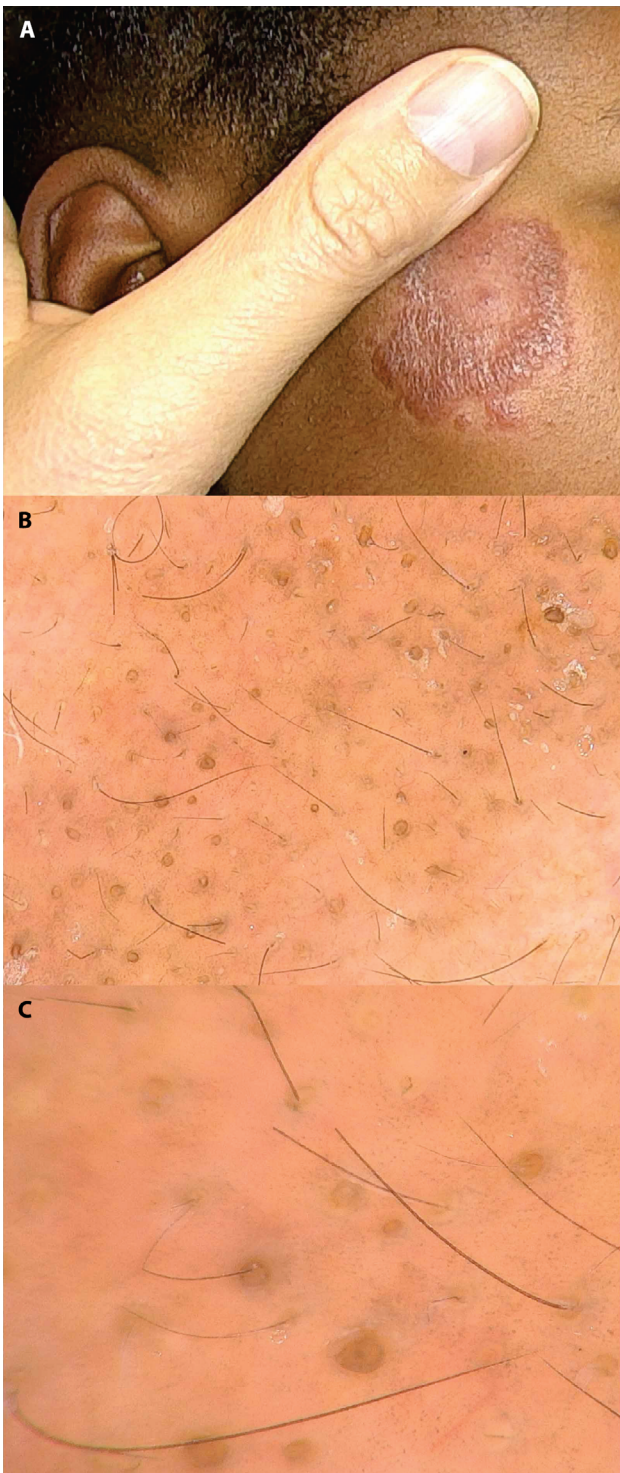


Figure 1. (A) Clinical, (B) dermoscopic, and (C) dermoscopy $\times 400$ images.

found numerous hyperreflective dendritic cells inside the epidermis and the hair follicle epithelium. Histopathology demonstrated a granulomatous dermal infiltrate appearance with giant cells resorbing exogenous material

(Figure 2A). Direct microscopy proved the presence of fungal structures suggestive of chromoblastomycosis. Itraconazole 200 mg/day for six months was prescribed, with complete response.

Discussion

Dermoscopic features have been reported in few cases as white areas corresponding to hyperkeratosis, orange areas corresponding to a granulomatous infiltrate, and reddish black dots and globules related to hemorrhage and the transepidermal elimination of fungal elements. Widespread brown dots seen in our case have also been described (sand-like pattern), and we hypothesized that they could correspond to fungal elements within the papillary dermis. We highlight that super-high magnification dermoscopy at $\times 400$ can better indicate these structures, which are barely visible at $\times 20$ dermoscopy, as has already been reported in other pigmented mycosis. Moreover, hair follicle hyperkeratosis was an additional feature in our case, possibly due to the facial site. RCM and LC-OCT are recent noninvasive imaging techniques that can be used to help to diagnose some skin infections. In our case, we observed with both techniques diffused clearly visible hyperreflective roundish bodies that could correspond to melanosome and fungal structures and could explain the dots seen at dermoscopy. This description was confirmed by other previous studies, where bright white spherical bodies was observed e related to fungal infection [3]. High-frequency ultrasonography allowed identification of the presence of epidermal thickening and well-defined hyperechogenic round structures in the epidermis and in the superficial dermis, which histopathology described as a granulomatous infiltrate with giant cells surrounding pigmented spherical fungal structures [4].

Conclusion

In conclusion, $\times 400$ dermoscopy, RCM, and LC-OCT represent new imaging techniques that can be used as innovative tools for the diagnosis and for the monitoring of skin tumors and infectious and inflammatory diseases [5,6]. In this case, they were useful for the diagnosis of chromoblastomycosis through the identification of the possible presence of the fungal elements.

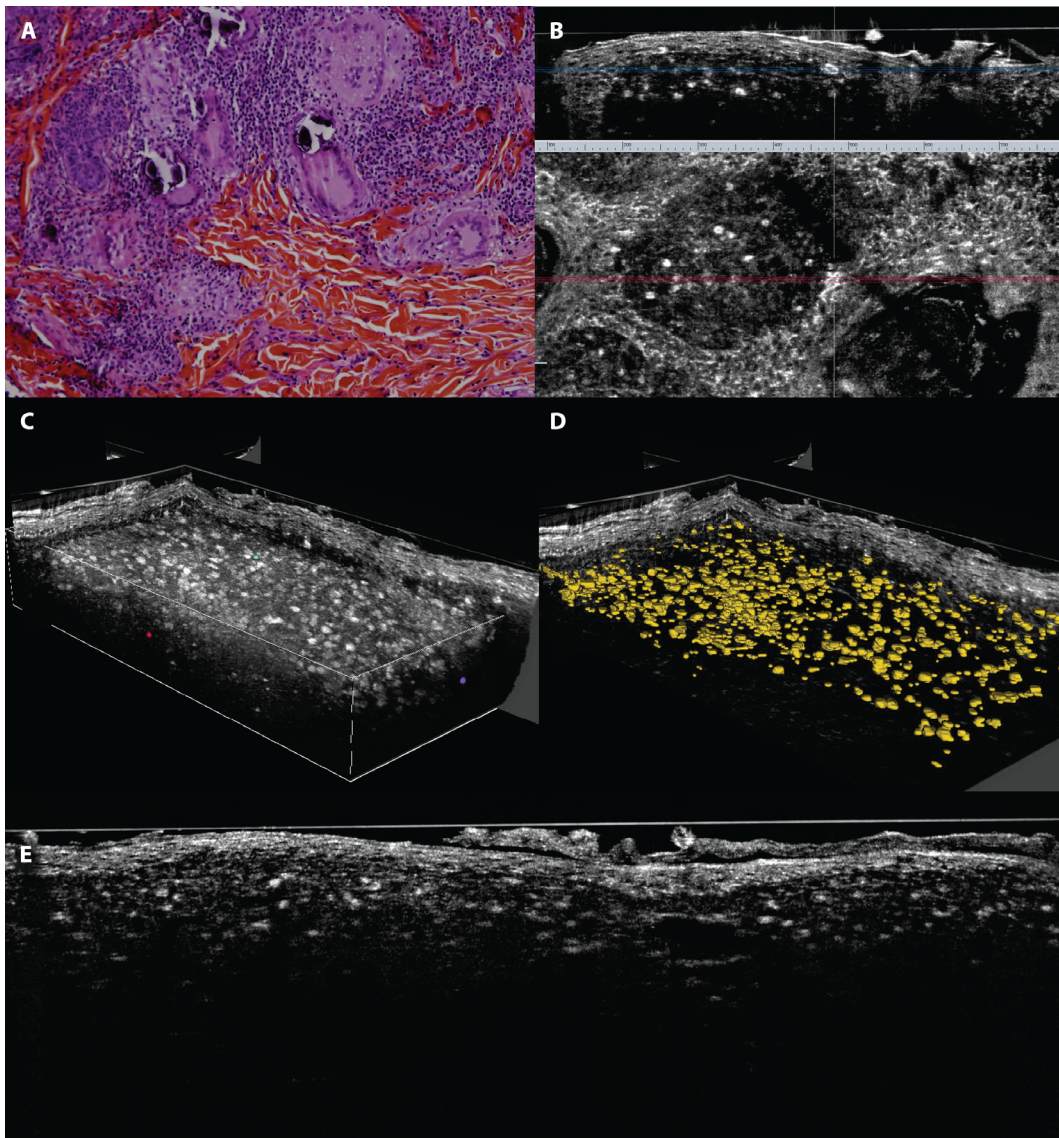


Figure 2. (A) Histological, (B) reflectance confocal microscopy (RCM), and (C-E) line-field confocal optical coherence tomography (LC-OCT) images. Both RCM and LC-OCT show hyperreflective roundish structures in the superficial dermis suggestive of fungal structures.

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