European Journal of Molecular & Clinical Medicine

ISSN 2515-8260 Volume 08, Issue 04, 2021

The Role of Dermoscopy in Chromoblastomycosis: A Rare Case Report

S Widaty, AN Wardani, NR Sutanto, RF Hilma, R Rihatmadja, E Miranda

Affiliations:
Departement of Dermatology and Venereology, Faculty of Medicine Universitas Indonesia - Dr. Cipto Mangunkusumo National Hospital, Jakarta
Email: sandra.widaty@gmail.com

*Corresponding author
Widaty S, Departement of Dermatology and Venereology, Faculty of Medicine Universitas Indonesia – Dr. Cipto Mangunkusumo National Hospital, Jl. Salemba Raya No. 6, Jakarta Pusat, 10430, Indonesia, Tel: 6287878707048; Email: sandra.widaty@gmail.com

Abstract

Introduction: The diagnosis of chromoblastomycosis -- a rare, chronic deep fungal infection of the skin -- often eludes clinician. As a non-invasive tool, dermoscopy examination could effortlessly impart clues to help narrowing down its differential diagnoses. We demonstrate a case in which certain dermoscopic feature positively corresponded with histopathologic finding.

Case: A 71-year-old farmer presented with red mass on the dorsal right hand over the past two years. A scaly erythematous plaque measuring 7 cm x 5 cm x 0.2 cm with excoriations, and black dots was observed. Dermoscopy showed reddish-black dots, yellowish-orange area, and pink-whitish area. Histopathology revealed dense neutrophilic infiltration, intraepidermal debris, and muriform bodies, consistent with chromoblastomycosis.

Discussion: Chromoblastomycosis clinically mimics cutaneous tuberculosis, verruca vulgaris, and mycetoma, among others. Our case had shown that reddish-black dots were easily recognized under the dermoscope examination and deemed as important findings as they were correlated with muriform bodies. Such features enabled exclusion of differential diagnoses before submitting patient for biopsy, thus preventing overuse of elaborate procedures such as culture and PCR for mycobacterial infection.

Conclusion: Dermoscopic features of reddish-black dots correlated well with muriform bodies on histopathological examination; their identification is important in suspected case of chromoblastomycosis.

Keywords: Chromoblastomycosis; dermoscopic features; muriform bodies; reddish-black dots

Introduction

Chromoblastomycosis is a chronic deep cutaneous mycosis caused by pigmented fungi such as *Fonsacea sp, Phialaphora sp,* and *Cladophialophora sp,* that usually found in soil, plants, and decomposed wood.[1] It is a rare disease, in dr. Cipto Mangunkusumo National Hospital, Indonesia, there were only 3 new cases of chromoblastomycosis reported between 1989-2013.[2] Clinically, chromoblastomycosis presents as enlarged verrucous plaque or nodule, in which lower limbs and hands are the most common affected region, and rarely affects the chest, buttocks, neck, and face.[1] Chromoblastomycosis must be differentiated from other skin diseases such as cutaneous tuberculosis, verruca vulgaris, leprosy, mycetoma, sporotrichosis,

and psoriasis. Dermoscopy may play a role as a simple and non-invasive method in diagnosing chromoblastomycosis, with characteristic findings such as brown dots, crusts, scales, and yellow-orange structure.[3,4] Histopathology examination supported by culture are essential to confirm the diagnosis of chromoblastomycosis. Histopathologic features that are characteristic for chromoblastomycosis are single or clusters of round to oval golden brown sclerotic or muriform bodies.[1,2]

Case

A 71-year-old farmer in rural area in West Java was presented with a slowly spreading red mass on the right dorsal hand over the past two years following trauma during field work. Self-treatment with leaves as bandage from his backyard was done. Subsequently the mass enlarged and became ulcerated. Patient went to local hospital, biopsied, and was diagnosed as fungal infection. Patient were treated with oral itraconazole only for one month period, and was terminated due to patient's economic burden. There was no improvement observed after one month of therapy.

Upon physical examination on right dorsal hand, a large erythematous verrucous plaque measuring 7 cm x 5 cm x 0.2 cm with scales, erosions, excoriations, and black dots was observed (Figure 1a). There were no constitutional symptoms and no lymph node enlargement. Dermoscopy examination showed reddish-black dots, yellowish-orange area, pink-whitish area, and scales (figure 1b). The area of dermoscopy were marked as the site of biopsy. Upon KOH mount preparation revealed brown spores. Histopathologic features comprised of epidermal hyperplasia, intraepidermal debris, dermal dense neutrophil infiltration, and muriform bodies (figure 2a and 2b).

Patient were then treated with oral 500 mg terbinafine once daily and additional local thermal therapy using 40^{o} C water bottle twice daily for thirty minutes. Improvement was observed after one month (figure 3).

Discussion

Chromoblastomycosis is a chronic cutaneous infection caused by pigmented fungi that affects the skin and subcutaneous tissues. These fungi produced clusters or discrete brown pigmented cells known as muriform bodies.[1,2] It is a rare disease and has been reported mostly in tropical and subtropical countries, such as Africa, Brazil, India, Vietnam, and Indonesia.[1,5,6] In Indonesia reports from Dr. Cipto Mangunkusumo National Hospital, Jakarta, only cited 3 new cases of chromoblastomycosis since 1989 to 2013, whereas from Dr. Soetomo Hospital, Surabaya, 6 cases between 2010 to 2014.[2,7]

Chromoblastomycosis are commonly found on extensor area of the body, mostly on the limbs, which consistent to our case. Moreover, it is also known that the infection occurs following a trauma of the skin as the implantation site of the causative agents and penetrate into the skin. Queiroz-Tellez et al. reported that 45% of chromoblastomycosis cases as preceded with trauma.[8] Hematogenous spread is uncommon. The fungi live in the nature as the form of mycelia, and inside the tissue they produced thick-walled cells, the muriform bodies.[9]

Clinically the lesions of chromoblastomycosis are polymorphic ranging from erythematous papules, papulonodular, verrucoid, to ulcer that spread slowly to the adjacent area.[1,7] There are several clinical variations of chromoblastomycosis which are nodular, tumor, verrucous, plaque, and cicatricial type. Satellite lesions can also be found especially due to scratching and autoinoculation. On the surface of the lesion there are brown-black dots that contain muriform

bodies, which represents the transepidermal elimination of the fungal spores.[1] These diverse clinical appearances of chromoblastomycosis is a challenge for diagnosis. Chromoblastomycosis must be differentiated from tuberculosis verrucous cutis, leprosy, leishmaniasis, mycetoma, sporotrichosis, and psoriasis. In our case, clinically it appears as erythematous verrucous plaque with erosion and excoriation, and therefore may be mimicking tuberculosis verrucous cutis. Diagnosis is made based on clinical appearance, dermoscopic features, appearance of muriform bodies on KOH examination, histopathology, and identification of causative agent by tissue culture.[1,10]

Dermoscopic findings on our case are in line with previous reports. The most characteristic finding is the appearance of multiple reddish black dots that represents the elimination process of inflammatory cells and spores of the fungi. Hemorrhage can also be seen clinically as black dots. Moreover, pink-whitish area on dermoscopy examination showed a rough uneven surface of the lesion, whereas yellowish-orange structure represents mycotic granuloma.[4,11] Tang et al. reported that resolution of reddish black dots on dermoscopy is correlated with improvement of the lesion.[12] Dermoscopic feature of reddish black dots translates well to muriform bodies found on histopathologic examination. This highlighted the importance of dermoscopy on chromoblastomycosis in which exclusion of differential diagnoses before biopsy would help managing cases efficiently and prevent overuse of elaborate procedures such as culture and PCR for mycobacteria.

In our case, upon direct microscopy KOH examination there were muriform bodies found. However, the fungi were not able to grow on the culture medium, therefore we could not identify the species of the fungi. Previously it has been reported that the success rate on identifying the causative agents in our hospital laboratory was low, only approximately 30% of cases were successfully grown on culture media and identified.[2]

Diagnosis of chromoblastomycosis can easily be made upon histopathology when there are muriform bodies found.[1,7] In our case, histopathology revealed hyperplastic epidermis, and dermis filled with dense neutrophil infiltration, intraepidermal debris, and muriform bodies. Typically, there are black dots on the surface of a verrucous lesion, which represent microabscesses that contain the spores. These spores are on a process of transepithelial migration, which later released to the external environment for autoinoculation and or lymphatic spread.[10]

First line therapy of chromoblastomycosis are potent systemic antifungal agents. Other treatment modalities are surgical excision for small localized lesions, or combination therapy of oral antifungal agents and cryotherapy, laser CO2, photodynamic therapy, and local thermal therapy with pocket warmer 40-42^{0}C.[1,7,10] In our case, patient were treated with oral terbinafine 500 mg, once daily, combined with local thermal therapy with bottle warmer 40-42^{0}C twice daily, 30 minutes for each session. Terbinafine was chosen as it was available in our hospital, and history of unsatisfying outcome when patient was previously treated with itraconazole. Duration of treatment are 6-12 months depending on the clinical resolution of the lesion. One month evaluation of this combination therapy showed significant improvement.

Conclusion

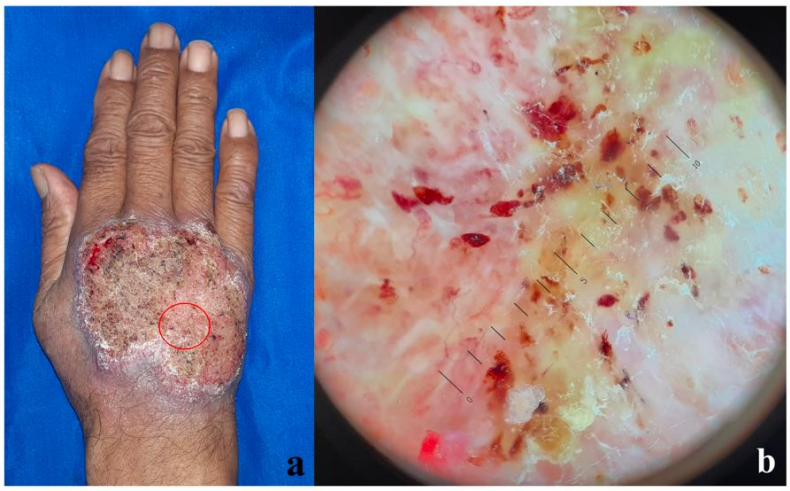
Diagnosis of chromoblastomycosis based on clinical appearance only, is challenging. Dermoscopic feature of reddish-black dots translate well with muriform bodies in histopathology, this identification is important in confirming chromoblastomycosis. This case highlights the important role of dermoscopy examination as a supporting examination in

ISSN 2515-8260 Volume 08, Issue 04, 2021

guiding diagnosis, eliminating differential diagnosis and thus help managing cases efficiently and prevent overuse of elaborate procedures such as culture and PCR.

References

1. Hay J. Deep fungal infection. In: Kang S, Amagai M, Bruckner A, Enk A, Margolis D, McMichael A, et al, editors. Fitzpatrick's dermatology. 9th edition. New York: McGraw-Hill; 2019.p.2965–87.
2. Yahya S, Widaty S, Miranda E, Bramono K. Subcutaneous mycosis at the Department of Dermatology and Venereology dr. Cipto Mangunkusumo National Hospital. J Gen Pro DVI. 2016;1(2):36–43.
3. Piccolo V. Update on dermoscopy and infectious skin diseases. Dermatol Pract Concept 2020;10(1):1–10.
4. Subhadarshani S, Yadav D. Dermoscopy of chromoblastomycosis. Dermatol Pract Concept. 2017;7(4):23–4.
5. Bajpai T, Nandedkar S, Bhatambare G, Gagrani N. Cutaneous chromoblastomycosis: A case report from central India. Int Med J Sifa Univ. 2015;2(3):59.
6. Agarwal R, Singh G, Ghosh A, Verma K, Pandey M. Chromoblastomycosis in India: Review of 169 cases. PLOS Neglected Trop Dis. 2017;11(8):e0005534.
7. Adriani A, Ametati H, Mulianto N, Anggraeni S, Suyoso S. Kromoblastomikosis. In: Bramono K, Suyoso S, Widaty S, Ramali L, Siswati A, Ervianti E, editors. Mikosis Profunda (in Bahasa Indonesia). 1st edition. 2019.p.17–24.
8. Queiroz-Telles F, McGinnis MR, SalkinI, Graybill JR. Subcutaneous mycoses. Infect Dis Clin North Am. 2003;17(1):59-85.
9. Santos ALS, Palmeira VF, Rozental S, Kneipp LF, Nimrichter L, Alviano DS, et al. Biology and pathogenesis of Fonsacaea pedrosoi, the major etiologic agent of chromoblastomycosis. FEMS Microbiol Rev. 2007;31:570-91.
10. Govindaraman P, Marimuthu V, Senthil G. Chromoblastomycosis: A case report with literature review. Int J Res Dermatology. 2016;2(4):1355–8.
11. Chauhan P, Jindai R, Shirazi N. Dermoscopy of chromoblastomycosis. Indian Dermatol Online J. 2019;10(6):759–60.
12. Tang J, Zhuang K, Ran X, Dai Y, Ran Y. Chromoblastomycosis caused by Cladophialophora carrionnii. Indian J Dermatol Venereol Leprol. 2017;83:482–5.



ISSN 2515-8260 Volume 08, Issue 04, 2021

Figure 1a. Lesion on right dorsal hand: large erythematous plaque with black dots. Red circle showed area of dermoscopy and biopsy. 1b. Dermoscopy: reddish-black dots, yellowish-orange structure, pink-whitish area, and scales.

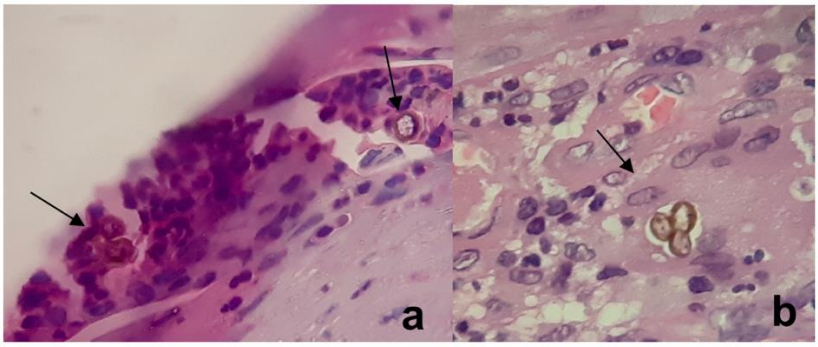


Figure 2a. Photomicrograph showing muriform bodies on the epidermis (arrow). 2b. in clusters inside giant cells (arrow). Hematoxylin & Eosin, 400x.

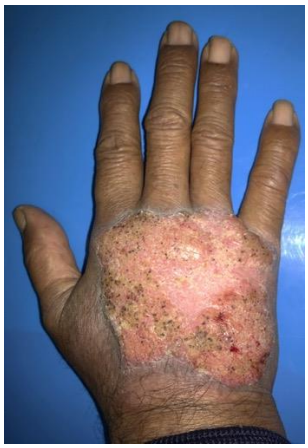


Figure 3. Improvement of the lesion after one month combination therapy consisted of oral terbinafine and thermal therapy.