

# Tumorous Type of Chromoblastomycosis: A Case Report

Roveline Anissa<sup>1</sup>, Tutty Ariani<sup>2</sup>

<sup>1</sup>Andalas University, Medical Faculty, Department of Dermatovenereology / Dr. M. Djamil Hospital  
Perintis Kemerdekaan, Padang, West Sumatra 25171, Indonesia  
rovelinerayendra[at]gmail.com

<sup>2</sup>Andalas University, Medical Faculty, Department of Dermatovenereology / Dr. M. Djamil Hospital  
Perintis Kemerdekaan, Padang, West Sumatra 25171, Indonesia  
tuttymasri[at]gmail.com

**Abstract:** ***Background:** Chromoblastomycosis (CMB) is a chronic cutaneous and subcutaneous mycosis caused by dematiaceous fungi, characterized by hyperproliferation of the tissues involved and by the presence of sclerotic bodies. Tumorous type of CMB maybe progress as result of late of seeking for treatment. If not recognized at an early stage, this disease might develop into complication and refractory to antifungal therapy. **Case report:** A case of 52-year-old male a farmer with history of erythematous lump with rough surface on the right foot that slowly felt pain and itchy that increased since 15 years ago, working diagnosed as chromoblastomycosis. **Dermatology state:** There was tumor sized 3x4x4cm on the sole of right foot, accompanied with excoriation, superficial ulcer and reddish crusts on the top of tumor. **Dermoscopic finding** was the presence irregular black dots and yellowish orange ovoid structure. **Direct light microscopy of skin scrapings samples using potassium hydroxide 20% showed multiple sclerotic bodies** Histopathological examination showed pseudo-epitheliomatous hyperplasia, granulomatous reaction and sclerotic bodies. The examination was confirmed by culture of fungi found *Fonsecaea pedrosoi*. **Discussion:** Clinical appearance, potassium hydroxide 20%, histopathology examination and tissue culture supported the diagnosis of chromoblastomycosis. Uncompliance of treatment may lead several problems, such as difficulty in managing therapy because of the recrudescence character of the disease, potential association with the growth of epidermoid carcinoma in affected regions, and poor quality of life.*

**Keywords:** *fonsecaepedrosoi*, chronic infection, chromomycosis

## 1. Introduction

Chromoblastomycosis, also known as chromomycosis is a chronic, progressive cutaneous and subcutaneous fungal infection following the traumatic implantation of certain pigmented or dematiaceous fungi into the dermis through the skin of exposed body parts. The most common of causative agent are *Phialophora verrucosa*, *Fonsecaea pedrosoi* and *Fonsecaea compactum*. The fungi can be isolated in the environment from wood, plant debris and soil.<sup>1,2</sup>

Infection initiates after several kinds of micro- or macrotraumatic wounds and the etiological agents gain entrance through the cutaneous barrier, usually in exposed and nonprotected areas of the body. Feet, knees, lower legs, and hands are the most common sites. The primary lesion may progress and evolve in several types of skin lesions including nodular, verrucous, tumorous or cauliflower-like form, cicatricial, plaque-like lesions and mixed form and categorized as mild, moderate and severe disease. The initial lesion may spread locally and produced satellite lesions and pruritus is the main clinical manifestation. The diagnosis is based on clinical features and a demonstration of the fungi in skin scraping and histopathological section in the form of sclerotic bodies and in culture fungal.<sup>3</sup>

The main treatments for chromoblastomycosis are itraconazole, 200 mg daily, terbinafine 250 mg daily and in extensive cases, IV amphotericin B (up to 1 mg/kg daily). In any event, treatment is continued until there is clinical resolution of lesions, which usually takes several months.

Extensive lesions often respond poorly to conventional treatment and combinations of antifungal drugs, for example, amphotericin B and flucytosine or itraconazole and terbinafine. Additionally, CMB has other therapeutic modalities, such as conventional surgery, cryotherapy, heat therapy and photodynamic therapy.<sup>1,4</sup>

## 2. Case Report

A 52-year-old man came to Dermatology-Venereology outpatient clinic Dr. M. Djamil Hospital Padang with chief complaint an erythematous lump with rough surface on the right foot that slowly felt pain and itchy that increased since 15 years ago. He is a farmer, living in rural areas. His lesion is solitary with rough surface, chronic and more increased in size in left toes. Physical examination revealed tumor sized 3x4x4 cm on the sole of right foot, accompanied with excoriation, superficial ulcer and reddish crust on the top of tumor, there was ulcer sized 1,5x1,5x0,5 cm with well defined-raised border, the base was yellowish-reddish crust (figure 1.A). Erythematous and verrucous plaque on the right instep with brownish-blackish crusts and reddish crust between digits IV-V right foot with hard palpation (figure 1.B). From dermoscopy feature were found multiple irregular blackish red dots and yellowish orange ovoid structure along white and pink areas and crusting (Figure 1.C). Direct light microscopic of skin scraping sample using potassium hydroxide 20 % (KOH) showed sclerotic bodies/copper pennies.

Histopathological features of presented case epidermis shows pseudoepitheliomatous hyperplasia with irregular

achantosis proliferatively into dermis and grow superficially. Mitosis is difficult to found. Dermis consists of granulomatous reactions Showing higher magnification of red box on figure there is granuloma with round thick-walled dark brown sclerotic bodies.

This patient was diagnosed tumorous type chromoblastomycosis and treated with itraconazol for 3 month. According to published data, cure rates with itraconazole or terbinafine may range from 15 to 80 %, depending on the etiologic agent, severity of the disease and criteria of cure used for therapy evaluation.<sup>20</sup>



**Figure 1:** (A & B) Patient's picture at the first time visit; erythematous lumps with reddish-blackish crusts (C) Dermoscopy found multiple irregular blackish red dots (blue arrow) and yellowish orange ovoid structure Histopathology result; suprabasal split contains of acantholytic cells, basal cells were arranged as "row of thombstone". (H&E,40x) (D)

### 3. Discussion

Chromoblastomycosis (CMB) is a chronic fungal infection of the skin and the subcutaneous tissue caused by a transcutaneous traumatic inoculation of a specific group of dematiaceous fungi occurring mainly in tropical and subtropical zones worldwide. Early diagnosis, early appropriate therapy and regularly evaluated should be stimulated to improve quality of life and prevent complications and morbidities.<sup>4</sup> We reported a case of tumorous type of chromoblastomycosis and make differential diagnosis as squamous cell carcinoma. Diagnosis was made based on anamnesis, physical examination and laboratory findings.

Chromoblastomycosis observed commonly in men aged 30–50 years, with occupational risk for farmers, gardeners, lumberjacks or personal exposed to soil and plants. During labor activities, individuals living in areas of endemicity are probably infected through diverse traumas related to environmental materials. The initial site of the infection is usually in exposed and non protected areas of the body such as feet, legs, arms or upper arm.<sup>5</sup>

This study reported a case of chromoblastomycosis in 52 years old male agricultural worker with history of erythematous lump with rough surface on the right foot that slowly felt pain and itchy that increased since ± three months ago. Initially it appeared fifteen years ago. The patient did not recall the history of any trauma in the site of lesions. Yahya S et al. (Jakarta, 2016) reported, there was a greater number of male than female patients of chromoblastomycosis with ratio (3:1) and mostly were in the age group of 30-50 years. Agarwal R et al. (India, 2017) reported, a majority of the patient chromoblastomycosis (74.1%) were involved in various agricultural activities directly or indirectly. Any history of trauma was recalled only in 33.8% of the studied cases. The lower extremity was the most common site afflicted, followed by the upper extremity.<sup>6</sup>

A primary lesion of chromoblastomycosis may begin as erythematous papule or a warty growth, which gradually enlarged from the site of infection assuming various type of lesions and size.<sup>7</sup> Queiroz-Tellez et al. described six types of lesions (nodular, verrucous, tumorous, cicatricial, erythematous plaque and mixed form) with different grades of severity (mild, moderate and severe). Due to the clinical appearance are polymorphic, chromoblastomycosis are often confused with several infectious and non infectious diseases.<sup>8</sup>

A primary lesion in this patient presented as an itchy papules that gradually increased in size and grew into tumour like lesion with blackish red dots elements at superficial. The new lesions developed in the form of satellite lesions presented as brownish red verrucous plaque with blackish red dots elements at superficial, brownish yellow verrucous.

The blackish red dots, known as "cayenne pepper appearance" are the pigmented fungal elements that can be easily found superficially on the lesions. These structures observed by the naked eye or dermoscopy examination, represent small hematic crusts, cellular debris, and fungal structures resulting from transepithelial elimination.<sup>9</sup> In this patient, the black dots were seen as irregular hematic crusts with various size spread over the lesion.

Dermoscopy examination has correlation with clinical finding. The most characteristic dermoscopic finding is the presence of multiple blackish red dots and yellowish orange ovoid structures along the white and pink area, scale and crust. The blackish red dots correspond to the black dots observed clinically, that describe the process of transepidermal elimination of inflammatory cells, fungal elements, and haemorrhage. This transepidermal elimination is thought to be an important defense mechanism in restricting the fungal infection. Resolution of blackish reddish dots has been noted with the clinical and pathological clearance of the lesion. White and pink areas correspond to uneven areas. Yellowish orange ovoid structures correspond with the presence of granulomas, but are not specific to chromoblastomycosis as they can also be seen in other granulomatous disorders.<sup>9,10</sup> The dermoscopic findings in this patient show multiple irregular blackish red dots and yellowish orange ovoid structures along the white

and pink area and crust. In dermoscopy examination also found keratin mass and reddish-brownish crusts, accompanied with ulceration.

The diagnosis of chromoblastomycosis requires laboratory confirmation by direct mycological examination and/or histopathology even though clinical and dermoscopic finding are close to diagnosis. The visualization of sclerotic bodies (muriform cells, copper pennies) in clinical specimens is compulsory for confirmation of the diagnosis of this disease. Single or clustered sclerotic bodies are depicted as round to polyhedral (chestnut-like) cells with a diameter of 5 to 12  $\mu\text{m}$ . These cells are typically dark pigmented, thick walled, and crossed by both transverse and longitudinal septa resembling a brown brick wall. Fungal culture is required to identify the causative agent of chromoblastomycosis.<sup>11</sup>

Direct light microscopy of skin scrapings samples using potassium hydroxide 20% (KOH 20%) from this patient showed multiple round, thick-walled brownish bodies known as sclerotic bodies or copper pennies. Skin scraping was taken from small, black dots on the skin surface that represent the transepidermal elimination of fungal element. Chandran V, et al. (India, 2012) reported that sclerotic body were demonstrable in scraping from black dots in 42.8%.<sup>12</sup>

In fungal culture, these fungi are very similar in gross macroscopic appearance, producing black colonies with downy surface. In our case, fungal culture after 21 days revealed, macroscopic: brownish-blackish color colonies with downy surface and microscopic: brownish septate hyphae with erected conidiophores and ovoid conidia located either at the end or at the side of conidiophores. The isolation of fungal morphologically compatible with *Fonsecaea pedrosoi*.

Histopathology is important for confirmed the diagnosis of chromoblastomycosis. Histopathologically, chromoblastomycosis is characterized by epidermis with pseudoepitheliomatous hyperplasia and dermis presents dense granulomatous inflammation, consisting of mononuclear cells (histiocytes, lymphocyte and plasma cell), epithelioid cells, multinucleated giant cells (Langhans and foreign body types) and polymorphonuclear. Identification of the characteristics sclerotic bodies is a point diagnostic of chromoblastomycosis.<sup>13</sup>

The histopathology examination by using haematoxylin and eosin stain of this patient revealed an epidermis with pseudoepitheliomatous hyperplasia in the lining stratified squamous epithelium. Numerous granulomatous with multinucleated foreign body type of giant cells were seen in the subepidermal connective tissue. There was a multinucleated foreign-body type of giant cells that contained pigmented spore resembling sclerotic body and were surrounded by neutrophils and lymphocytes infiltrate.<sup>14</sup> These histopathologic features supported the direct mycological finding and led to the diagnosis of chromoblastomycosis.

Chromoblastomycosis lesions are very difficult to treat. Chromomycosis may be classified according to their

severity.<sup>15</sup> Based on criteria described by Queiroz-Telles et al., the lesions of this patient categorized as moderate chromoblastomycosis with tumorous form lesions (table.2).

#### 4. Conclusion

*We reported a case of tumorous type of chromoblastomycosis caused by Fonsecaea pedrosoi.*

Clinical appearance, KOH 20%, histopathology examination and tissue culture supported the diagnosis of chromoblastomycosis.

Early diagnosis, early appropriate therapy and regularly evaluated should be stimulated to improve quality of life and prevent complications and morbidities.

Chronic chromomycosis can be arising to squamous cell carcinoma, so important to regularly evaluate the patient

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### **Author Profile**

**Roveline Anissa**, is a resident of dermatology and venereology, medical faculty, Andalas university.

**Tutty Ariani** received the dermatologist degrees in Medical Faculty, Andalas University in 2012. She also received a Fellow Indonesian Society of Dermato Venereology (FINSVDV)in 2019. She is now worked in Dr M Djamil Hospital, Padang, West Sumatera, Indonesia as a Head of allergy-immunology division.