

# An unusual case of nasal chromoblastomycosis degenerating into squamous cell carcinoma from a nonendemic region

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## ABSTRACT

Chromoblastomycosis (CBM) is a granulomatous mycosis rarely described outside tropical countries. Degeneration into squamous cell carcinoma (SCC) is its most serious complication. We report the first case of nasal CBM degenerating into SCC. In 2006, a sixty-year-old male presented himself with an infiltrated plaque on the right thigh. The diagnosis of CBM was confirmed by the presence of fungal elements. In 2019, the patient had developed a mass coming from the right nasal cavity. It had rapidly involved the nasal dorsum. An ulcer-budding nasal tumor and an elevated erythematous and verrucous plaque on the thigh were noted. A biopsy revealed a granulomatous dermis with fungal elements. Other nasal biopsy fragments showed differentiated SCC. A fungal culture inoculated with tissue from both lesions showed dark colonies. The diagnosis of nasal CBM with SCC degeneration was reached. The patient presented asymptomatic endonasal CBM that had slowly evolved and recently degenerated.

**Key words:** Chromoblastomycosis; Nose; Squamous cell carcinoma

## INTRODUCTION

Chromoblastomycosis (CBM) is a slowly progressive granulomatous mycosis of the skin and subcutaneous tissue caused by inoculation of dematiaceous fungi mainly on the lower limbs. This infection occurs in tropical and subtropical regions, but there have been several case reports from temperate regions. If not diagnosed and treated at an early stage, it may rarely undergo malignant transformation into squamous cell carcinoma (SCC), which is its most serious complication [1]. Herein, we report an unusual case of CBM from Tunisia, a nonendemic area, occurring in a distant site from the original lesion and degenerating into SCC.

## CASE REPORT

In 2006, a sixty-year-old healthy male from north Tunisia presented himself to our dermatology department with an infiltrated 6 × 5 cm erythematous plaque on the right thigh. A histopathological examination revealed the presence of fungal elements. A mycologic examination confirmed the diagnosis of CBM, but the species was not identified. On interrogation, the patient reported no travels to tropical areas, but worked as a masseur in a Turkish bath in conditions of high humidity and heat. The patient also remembered having been injured in this site two years ago at work. The patient was treated with terbinafine at a dose of 500 mg/day. There was a significant decrease in the size of the lesion, but he was lost to follow-up after three months. Several years

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later, he developed a fleshy reddish mass coming from the right nasal cavity with mucopurulent discharge. Over the last three months, it had rapidly extended and involved the nasal dorsum. An examination revealed a bleeding 4 × 3 cm ulcer-budding nasal tumor with an irregular edge surmounted by telangiectasias (Fig. 1). Dermoscopy revealed a vascular pattern with polymorphous vessels. No cervical lymph nodes were palpable. On the right thigh, we found a 12 × 13 cm slightly elevated pruritic erythematous and verrucous plaque with atrophy and depigmentation in most places (Fig. 2). The rest of the examination was normal. There was no evidence of immunodeficiency. Clinically, the differential diagnoses of the tumor form of CBM and SCC were considered. Biopsies were taken from several sites of the nasal lesion and the plaque on the thigh. Histopathology revealed the presence of fungal elements in a granulomatous reaction and



**Figure 1:** A bleeding ulcer-budding nasal tumor with an irregular edge surmounted by telangiectasias.



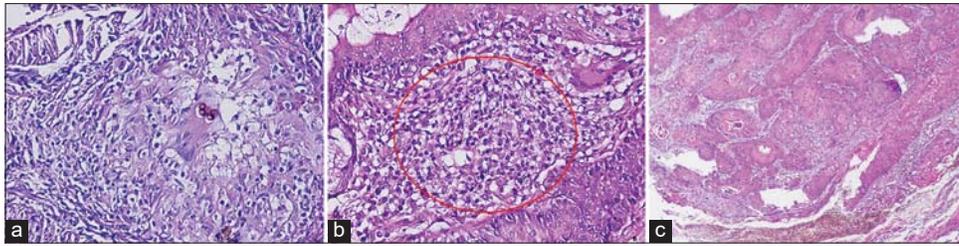
**Figure 2:** A slightly elevated, 12 × 13 cm, erythematous and verrucous CBM plaque with atrophy and depigmentation on the right thigh.

mixed inflammatory infiltrate (Figs. 3a and 3b). Other endonasal and nasal dorsum biopsy fragments showed moderately differentiated SCC (Fig. 3c). A direct microscopic examination showed fumagoid cells (Fig. 4a). Fungal cultures of the two samples on Sabouraud dextrose agar showed a growth of pigmented, velvety-dark colonies (Figs. 4b – 4d). A microscopic examination of the colonies revealed cylindrical septate hyphae, and conidiophores swollen at their termination carrying ovoid conidia suggestive of the *Fonsecaea pedrosoi* species (Fig. 4e). From these features, the diagnosis of nasal CBM with SCC degeneration was reached. A neck-chest-abdomen CT scan was normal. We started a combined therapy consisting of terbinafine at 500 mg and itraconazole at 200 mg daily, and referred the patient to the oncosurgery department.

## DISCUSSION

CBM is one of the most prevalent transcutaneous traumatic implantations in individuals living in tropical and subtropical climate areas of America, Asia, and Africa [2]. However, sporadic cases are being increasingly more often described in temperate zones, such as Western Europe and North Africa. In Maghreb countries, and particularly in Tunisia, CBM has been rarely reported: so far five cases have been published [3]. All etiological agents of CBM are black fungi with low pathogenicity thermosensitive at 40–42°C and living as saprophytes in the soil, plants, thorns, debris, and transported wood. They have also been isolated in saunas, where the conditions of high humidity and heat create a tropical microclimate that might explain the development of fungi even in temperate areas [4]. This is probably the case in our patient, who worked as a masseur in a Turkish bath.

The typical lesions usually tend to be found in exposed and nonprotected areas of the body, especially the feet and legs. According to Minotto R et al., 27% of cases involve other areas, including the medial canthus of the eye, the ears, neck, shoulder, chest, wrists, and buttocks [5]. The nasal cavity is rarely affected by CBM and there have been only a few such cases described [6]. Our patient's first lesion occurred unusually in an unexposed location—the inner part of a thigh—which might also be explained by his professional occupation. In general, CBM is a localized infection invading body sites in the immediate area of the original lesions, but usually without metastasis to distant sites. The site of our patient's second lesion might have been explained by autoinoculation due to itching.



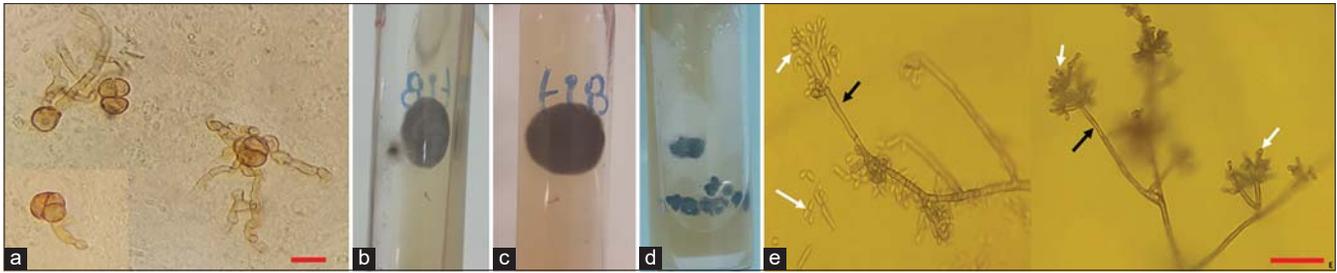
**Figure 3:** (a) Chromoblastomycosis, with the organisms brown, round, and with a thick wall (PAS, 400x). (b) Granulomatous dermatitis, tuberculoid granuloma (H&E, 200x). (c) Well-differentiated squamous cell carcinoma (H&E, 40x).

**Table 1:** A summary of reported cases of chromoblastomycosis with malignant transformation

Authors (ref.)	Sex/age	Disease duration	Geography	Affected site(s)	Agent	Type of neoplasia	Evolution
Queiroz-Telles et al. [10]	M/66	36	Brazil	Lower left limb	---	Well-differentiated SCC	Healing after surgical resection
Caplan [9]	M/60	11	Nicaragua	Left leg and thigh	<i>F. pedrosoi</i>	Epidermoid anaplastic carcinoma	Healing after surgical resection
Foster & Harris [11]	M/middle-aged	>10	Solomon Islands	Shoulder	Not reported	Well-differentiated SCC	Healing after surgical resection
Foster & Harris [11]	M/66	20	Australia	Left knee	Not reported	Well-differentiated SCC	Death after widespread metastases
Takase et al. [12]	M/62	8	Japan	Lung	<i>F. pedrosoi</i>	SCC	Not reported
Paul et al. [13]	M/67	28	Guiana	Left knee	<i>F. pedrosoi</i>	SCC	Healing after surgical resection
Jacob et al. [14]	M/47	33	India	Upper limb	-	SCC	Death after surgical resection + radiotherapy
Majeed et al. [15]	M/87	25	Pakistan	Foot	-	SCC	-
Esterre et al. [8]	F/61	6	Madagascar	Left ankle	<i>C. carrionii</i>	Moderately differentiated SCC	Healing
Esterre et al. [8]	M/39	5	Madagascar	Leg	<i>C. carrionii</i>	Moderately differentiated SCC	Healing
Torres et al. [1]	M/72	31	Mexico	Buttocks, perineum, groin	<i>F. pedrosoi</i>	Moderately differentiated epidermoid carcinoma	Death
Jamil et al. [16]	M/69	21	Malaysia	Right hand	<i>F. pedrosoi</i>	SCC	Healing after surgical resection
Rojas et al. [17]	M/63	18	Venezuela	V Lower left limb and back	<i>C. carrionii</i>	SCC	Death
Azevedo CM [18]	M/55	15	Brazil	Left leg	<i>Fonsecaea</i> spp.	Well-differentiated SCC	Healing after surgical resection
Azevedo CM [18]	M/81	20	Brazil	Left leg	<i>Fonsecaea</i> spp.	Well-differentiated SCC	Healing after surgical resection
Azevedo CM [18]	M/65	26	Brazil	Right leg	<i>Fonsecaea</i> spp.	Poorly differentiated SCC	Death after metastasis to the lower abdomen
Azevedo CM [18]	M/64	20	Brazil	Second finger of the right hand	<i>Fonsecaea</i> spp.	Poorly differentiated SCC	Following the CBM
Azevedo CM [18]	M/45	11	Brazil	Left leg	<i>Fonsecaea</i> spp.	Poorly differentiated SCC	Healing after surgical resection
Azevedo CM [18]	M/68	10	Brazil	Right arm	<i>Fonsecaea</i> spp.	Well-differentiated SCC	Following the CBM
Azevedo CM [18]	M/88	30	Brazil	Right leg	<i>Fonsecaea</i> spp.	Poorly differentiated SCC	Healing after surgical resection
Monçale Campos AG [19]	M/79	20	Brazil	Right hand	<i>Rhinochadiella aquaspersa</i>	Well-differentiated SCC	Healing
Pires CAA [20]	M/55	5	Brazil	Right leg	Not reported	Differentiated infiltrating SC	Healing after surgical resection

CBM has diverse clinical aspects, including nodular, verrucous, tumoral, plaque-like, and psoriasiform appearances. Cicatricial atrophy with central

sparing may also be seen. Because of this clinical polymorphism, CBM may be confused in our country with leishmaniasis, verrucous tuberculosis, and tertiary



**Figure 4:** (a) Fumagoid cells on direct examination (scale bar at 10 µm). Colony aspects of a culture (b) of the skin biopsy and (c-d) of the nasal tumor biopsy. (e) Microscopic morphology showing dematiaceous cylindrical septate hyphae and conidiophores (black arrows) making ovoid conidia (white arrows) arranged in short chains, characteristic of *Fonsecaea pedrosoi* (scale bar at 10 µm).

sypilis. A positive diagnosis is usually confirmed by characteristic mycological and histopathological results. When skin biopsies or scrapings are examined under microscopy, pathognomonic muriform cells are seen. These rounded, cigar-colored, and cross-chambered structures are distinctive, and are also known as Medlar bodies, sclerotic bodies, and fumagoid cells [8]. Histologically, CBM typically reveals a dermal granulomatous infiltrate with a predominance of epithelioid cells surrounding fumagoid bodies [7]. A culture allows the isolation and identification of the causal organisms in about fifteen days. Initially, colonies are deep-green, depicting a dark velvet aspect with time. Presumptive species identification may be achieved by mycological morphologic methods, but molecular techniques are suggested for definitive identification.

CBM lesions are usually recalcitrant and extremely difficult to eradicate. If not diagnosed and treated early, CBM has a chronic evolutionary course with numerous complications, such as secondary bacterial infection, lymphoedema, and chronic nonhealing ulcers.

The major risk is malignant transformation mainly into SCC [1]. The risk of malignant transformation is around 1%, as illustrated in a Madagascar study in which neoplasia was reported in 14 out of 1400 cases over a period of fifty years [8]. The first reported case of malignant degeneration was described by Caplan in 1968 in a patient from Nicaragua presenting with verrucous plaque lesions on the legs, left thigh, and right hand, which evolved over a period of approx. eleven years [9]. Subsequently, around 23 cases of tumors derived from CBM were documented worldwide (Table 1) [9-20]. The sex ratio was 19/2. The average disease evolution time was 19.7 years. The main affected site was the lower limbs. Cases of CBM-derived SCC were, in the majority, cured after surgical excision.

## CONCLUSION

Malignancy must be suspected in the case of any suspicious change, such as the development of ulceration, a rapid growth, or a poor response to treatment. Without a doubt, the conditions of the affected tissue, which involve inflammation and chronic reparatory processes, are significant predisposing factors. Our patient had endonasal CBM that had slowly and asymptotically evolved and had recently degenerated.

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## Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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