Case Report/Relato de Caso

Cutaneous cryptococcosis due to *Cryptococcus gattii* in a patient on chronic corticotherapy

Criptococose cutânea causada por *Cryptococcus gattii* em um paciente sob corticoterapia crônica

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RESUMO

Cryptococcus gattii é agente causador de uma micose endêmica que afeta principalmente os pulmões e o sistema nervoso central de pacientes imunocompetentes em regiões tropicais e subtropicais do globo. Relato de caso. Um paciente de 66 anos, portador de doença pulmonar obstrutiva crônica, não infectado pelo vírus HIV, em corticoterapia sistêmica prolongada, desenvolveu extensa ulceração do antebraço esquerdo, associada a adenomegalia supraclavicular ipsilateral, em conseqüência à infecção por *Cryptococcus gattii*. O paciente foi tratado com fluconazol 400mg/dia durante 8 meses, obtendo resolução completa da lesão. Este caso enfatiza que, ainda que raramente, *C. gattii* pode causar infecção cutâneo-linfática oportunista, em paciente imunocomprometido pelo uso sistêmico de corticosteróides vivendo na região sudeste do Brasil.

Palavras-chaves: Criptococose cutânea. Doença pulmonar obstrutiva crônica. Corticoterapia. *Cryptococcus gattii*.

ABSTRACT

Cryptococcus gattii causes a form of endemic mycosis that most commonly affects the lungs and central nervous system of immunocompetent patients living in tropical and subtropical areas of the world. Case report. A 66-year-old man who had chronic obstructive pulmonary disease without HIV infection and had been on systemic corticotherapy for several years developed extensive ulceration of the left forearm that was associated with ipsilateral supraclavicular adenomegaly, consequent to infection with *Cryptococcus gattii*. The patient was treated with fluconazole 400mg/day for eight months, which led to complete healing of the lesion. This case emphasizes that, although rare, *C. gattii* may cause opportunistic cutaneous-lymphatic infection in patients living in the southeastern region of Brazil who are immunocompromised through chronic corticotherapy.

Key-words: Cutaneous cryptococcosis. Chronic obstructive pulmonary disease. Corticotherapy. *Cryptococcus gattii*.

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INTRODUCTION

Cryptococcosis is a type of mycosis that most commonly affects the lungs and central nervous system (CNS). Two species are most frequently isolated from human infections: *Cryptococcus neoformans* and *Cryptococcus gattii*[1].

While *C. neoformans* has worldwide distribution, can be found in soil and in excretions from many animals, and predominantly affects immunocompromised patients, *C. gattii* has been mostly isolated from decomposing wood in tropical or subtropical areas and appears to be more virulent, affecting immunocompetent patients more frequently[1-3]. Exposure to inhalation of both species is a well-known risk factor for developing cryptococcosis.

CASE REPORT

Here, we present a case report on a 66-year-old man who came to our hospital with a painful ulcerated lesion in his left forearm that he had had for 35 days. He reported that, initially, a small erythematous papule had appeared in the forearm, which became an ulcer and gradually grew until reaching the entire dorsal surface of the forearm (**Figure 1**). He said that he did not have any history of local skin trauma, fever, respiratory symptoms, headache or any other symptoms. Before admission, his personal doctor had prescribed oral ciprofloxacin and clindamycin for a week but the patient had not noticed any improvement of the lesion.

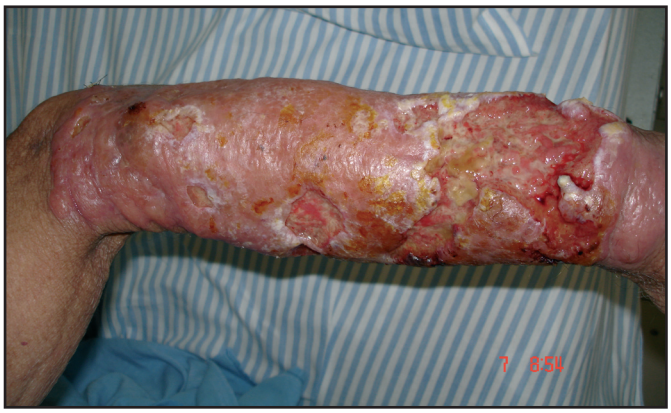

FIGURE 1 - Skin lesion associated with *Cryptococcus gattii* infection on the left forearm of a patient who had been on chronic corticotherapy.

His epidemiological history included tobacco and alcohol consumption for 25 years, but he had quit these habits 30 years ago. He was born and was still living in an urban area of the City of Ribeirão Preto, State of São Paulo, southeastern Brazil. He had worked as an auto mechanic and had been retired for the last six years.

After retirement, he started to go fishing every month on a river surrounded by subtropical forest near the City of Ribeirão Preto and, every morning, he fed hundreds of wild pigeons on a public square near his home.

As a consequence of his history of tobacco consumption, he had developed chronic obstructive pulmonary disease (COPD), and had been using prednisone 20mg/day (0.3mg/kg/day) for the last 20 years.

On physical examination, besides the skin lesion described above, a left supraclavicular lymphatic node enlargement was detected by palpation, of around 3cm in diameter. The rest of the physical examination was unremarkable.

Since the clinical diagnosis was not obvious, we performed a biopsy on the skin lesion and sent the material for culturing of bacteria, mycobacteria and fungi, and also for histopathological analysis. The latter revealed chronic inflammation associated with yeast-like cells, through staining using the Gomori methenamine silver (GMS) method, which was suggestive of *Cryptococcus* sp. Culturing of the skin biopsy in Sabouraud dextrose agar medium revealed growth of *Cryptococcus* sp, which was ultimately identified as *C. gattii* by means of the phenoloxidase and canavanine-glycine-bromothymol blue tests, which were both positive. Following this, a chest computed tomography scan was performed in order to detect any subclinical pulmonary involvement. The findings were consistent with COPD and showed no signs of pulmonary infection. Cerebrospinal fluid was not collected because of the absence of headache or any other signs of CNS involvement. Counter-immune electrophoresis for cryptococcosis antibodies was performed on the patient's serum, with positive results down to the dilution of 1:2. Anti-HIV ELISA showed negative results and serum glucose levels were normal. We did not detect any signs of any other organ involvement, or of any other immunosuppressive diseases.

After the diagnosis, prednisone was replaced by aerosolized formoterol plus budesonide and the patient was also treated with oral fluconazole 400mg/day. He was discharged two weeks after the onset of treatment, with a slight improvement of the lesion. As an outpatient, treatment with fluconazole 400mg/day was continued until the lesion had completely healed, which took eight months to occur. At the end of the treatment, the left supraclavicular lymphatic node was no longer detectable by palpation. The lesion scar led to inability to completely extend the forearm, as a small sequela. So far (two years after the end of treatment), no signs of recurrence have been detected.

DISCUSSION

Cutaneous cryptococcosis may occur as a consequence of hematogenic dissemination of yeasts, after inhalation exposure, or as a local disease, following skin injury, especially when caused by untreated wood[1-8]. In this case, infection apparently became established through inhalation of fungi, as suggested by the presence of the supraclavicular lymph node enlargement and the absence of skin injury history, but no signs of disseminated disease were detected.

Cryptococcus gattii is an endemic pathogen in the northern and northeastern regions of Brazil, but it has rarely been reported in the southeastern region, probably because of the cooler and drier climate[1,2]. It has classically been related to lung and/or CNS infections among immunocompetent patients. Skin involvement in immunocompromised patients, as demonstrated here, is very rare[2].

As stated in the introduction to this paper, *C. gattii* has mostly been isolated from decomposing wood in tropical or subtropical areas. Trees in urban public squares might also be implicated[9]. In our case, the riverbank forest and the public square could both have been the source of the pathogen. The heavy exposure to pigeon feces reported by the patient is intriguing, since this has not been described as a risk factor for *C. gattii* infection, although it has been described as a factor for *C. neoformans* infection. On the other hand, this may have just been a confounding factor in the clinical history.

This case emphasizes that, although rare, *C. gattii* may cause localized skin infection among immunocompromised patients living in the southeastern region of Brazil. It must therefore be borne in mind as a potential diagnosis, when clinically feasible.

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