CRYPTOCOCCOSIS IN FELINE – CASE REPORT

Criptococose em felino – relato de caso

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Abstract

The report describes a case of cryptococcosis in a female, unspayed feline treated at the Hospital Veterinário Público Anclivepa-SP. The animal presented with swelling of the nasal plane, accompanied by sneezing and nasal discharge. After taking the medical history and performing a physical examination, clinical worsening was observed following the use of immunosuppressive medication without a prior diagnosis. A sample was collected using a sterile swab for fungal culture, which confirmed the presence of *Cryptococcus neoformans*. Treatment was initiated with itraconazole and potassium iodide for five months, resulting in complete regression of clinical signs, followed by itraconazole alone for an additional two months after the disease was cured, due to the high recurrence rate.

Keywords: Cryptococcosis. Feline. Itraconazole. Potassium iodide. Treatment.

Resumo

O relato aborda um caso de criptococose em um felino, fêmea, não castrado, atendido no Hospital Veterinário Público Anclivepa-SP. Foram observados no animal aumento de volume em plano nasal, acompanhado de espirros e secreção nasal. Após a anamnese e o exame físico, foi constatada a piora clínica do animal depois da utilização de medicação imunossupressora sem diagnóstico prévio. Foi realizada a colheita de material por meio de *swab* estéril para cultivo fúngico, confirmando a presença de *Cryptococcus neoformans*. Instituiu-se terapia com itraconazol e iodeto de potássio durante cinco meses, com regressão total do quadro clínico, e itraconazol isolado por mais dois meses, após a cura da doença, devido ao alto índice de recidivas.

Palavras-chave: Criptococose. Felino. Itraconazol. Iodeto de potássio. Tratamento.

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Introduction

Feline cryptococcosis is a fungal disease caused by organisms of the genus Cryptococcus, which comprises two species: *Cryptococcus neoformans* and *Cryptococcus gattii*. These species are widely distributed worldwide (Queiroz, 2008). These fungi affect felines and other mammals, including humans; however, cats show greater susceptibility to these fungal agents (Nelson; Couto, 2023).

The species *C. neoformans* is cosmopolitan and commonly found in bird droppings, particularly those of urban pigeons. In contrast, *C. gattii* occurs predominantly in tropical and subtropical regions and is associated with different tree species and decaying wood (Jericó, 2023). Infection is believed to occur through inhalation of yeasts present in contaminated environments, although the exact mode of transmission remains unclear (Little, 2015; Rhodes; Werner, 2014). Cats of all ages may be infected; however, younger animals are more frequently affected (Nelson; Couto, 2023). According to Little (2015), the mean age at diagnosis is six years.

Clinically affected cats may present with manifestations ranging from mild cutaneous lesions to more complex conditions, such as pulmonary and neurological involvement. Asymptomatic carriers have also been reported, as demonstrated in cultures and serological studies of healthy animals (Nelson; Couto, 2023). The most common clinical signs include sneezing, unilateral or bilateral nasal discharge (mucopurulent, serous, or hemorrhagic), granulomatous or ulcerative lesions, and the presence of firm to soft swelling over the nasal bridge, popularly known as ''clown nose'' (Jericó, 2023). In general, cryptococcosis is a chronic infection that results in lethargy, weight loss, and facial deformity (Little, 2015). Animals with immunosuppression due to diseases such as FIV and FeLV, corticosteroid therapy, and/or chemotherapy tend to develop more severe forms of the disease (Little, 2015; Damiani *et al*., 2020; Greene, 2015; Queiroz, 2008).

Definitive diagnosis of feline cryptococcosis is based on positive antigen testing, cytological or histopathological demonstration, fungal culture, or PCR assay, in combination with compatible clinical manifestations (Nelson; Couto, 2023). Samples may include exudate swabs, tissue aspirates, cerebrospinal fluid, bronchoalveolar lavage fluid, and biopsy fragments (Jericó, 2023).

Several therapeutic options are recommended for the treatment of cryptococcosis, including itraconazole, ketoconazole, fluconazole, flucytosine, and amphotericin B (Jericó, 2023; Nelson; Couto, 2023). However, itraconazole is considered the antifungal of choice, administered orally at recommended doses of 50 to 100 mg/cat/day when there is no central nervous system involvement (Reis *et al*., 2016). Treatment is prolonged and may last up to 18 months. Regular follow-up is required to ensure complete fungal elimination, and therapy should be maintained for one to two months after clinical cure to prevent relapse (Jericó, 2023).

Overall, the prognosis for feline cryptococcosis is favorable when diagnosis is established before the development of irreversible lesions. However, animals with disseminated or systemic disease, especially immunocompromised individuals, have a guarded prognosis (Jericó, 2023; Little, 2015; Nelson; Couto, 2023; Gnoatto *et al*., 2024).

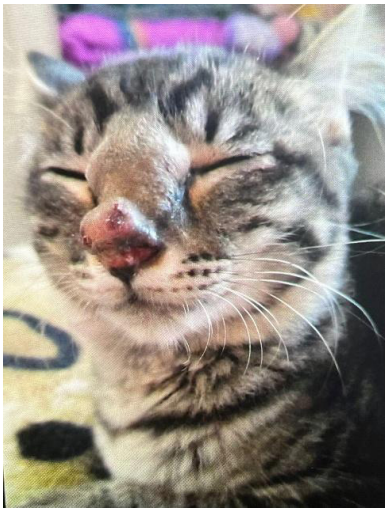
This case report describes a case of cryptococcosis in a domestic cat, given the considerable prevalence of this disease and its rapid dissemination within the animal organism, addressing its clinical aspects, diagnosis, treatment, and disease progression.

Case Report

A female, intact domestic cat, aged one year and 11 months, was treated at the Anclivepa-SP Public Veterinary Hospital, Northern Unit, in the city of São Paulo, São Paulo, Brazil. The owner's main complaint was swelling of the nasal plane, sneezing, and nasal discharge.

According to the owner, for approximately two months the animal had presented with bilateral nasal discharge, sneezing, and a non-ulcerated nodular lesion with progressive growth (Figure 1). At the onset of clinical signs, the cat was taken for veterinary care, during which prednisolone was prescribed at a dose of 1 mg/kg/day for seven days, along with amoxicillin–clavulanate at 22 mg/kg twice daily for 15 days, without prior diagnostic testing.

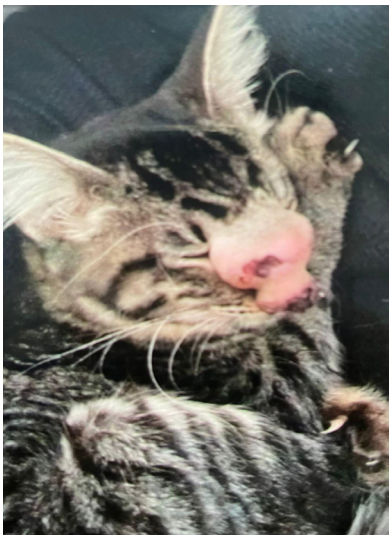
Figure 1 – Onset of the condition in a feline presenting with increased volume on the nasal planum



Source: Vieira (2024).

After the initiation of treatment, there was a significant worsening of the lesion, with increased swelling and ulceration (Figure 2). The animal did not present any other clinical abnormalities.

Figure 2 – Feline with a nasal planum lesion showing worsening after treatment with immunosuppressive medication



Source: Vieira (2024).

Following the worsening of the condition, the owner brought the animal to the Anclivepa-SP Public Veterinary Hospital, Northern Unit, for a second opinion. On physical examination, the animal showed a marked increase in volume of the nasal planum, with the presence of a small ulcerated lesion and nasal discharge causing airway obstruction. Heart rate was 120 beats per minute, respiratory

rate was 40 breaths per minute, capillary refill time was two seconds, mucous membranes were pink, body temperature was 38 °C, hydration status was adequate, and cardiopulmonary auscultation and abdominal palpation revealed no abnormalities.

Based on the anamnesis and clinical findings, treatment with itraconazole at a dose of 100 mg/cat/day was prescribed, and exudate samples were collected using a sterile swab for fungal culture. After 20 days, the owner returned reporting persistence of the progressive increase in swelling, with significant worsening of the lesion. As culture results were still pending and sporotrichosis could not be ruled out, potassium iodide was added to the treatment at a dose of 5 mg/kg/day, and a follow-up visit was scheduled for 30 days later. At the second follow-up, one month and 20 days after the start of treatment, a marked reduction in the lesion was observed, and the culture result was compatible with *Cryptococcus neoformans*.

Definitive diagnosis was established through collection of lesion exudate using a sterile swab, placed in Stuart transport medium, and submission of the sample to the Laboratory of Zoonoses and Vector-Borne Diseases (Labzoo). The sample was inoculated into test tubes containing Sabouraud dextrose agar with chloramphenicol and selective mycobiotic agar, incubated at 37 °C and 25 °C, respectively. Samples were read weekly, and morphological analyses were performed using India ink staining. Suspected colonies grew at 37 °C and showed a smooth, mucoid, shiny, cream-colored appearance. Species confirmation, in this case *Cryptococcus neoformans*, was performed using molecular biology techniques (conventional PCR) (Labzoo).

During treatment, the animal was reassessed monthly, and in the third month laboratory tests, including complete blood count and serum biochemistry (urea, creatinine, alkaline phosphatase, and alanine aminotransferase), were performed for monitoring. Mild leukocytosis was observed, with no other abnormalities. All biochemical parameters remained within reference values. Treatment was maintained for five months, at which point complete resolution of the lesion was observed (Figures 3 and 4). To prevent relapse, itraconazole was continued as monotherapy for an additional two months, totaling seven months of treatment.

Figures 3 and 4 – Feline after five months of treatment for cryptococcosis with itraconazole and potassium iodide

T Source: Polydoro (2024).

Discussion

In the present report, the patient presented with increased volume of the nasal planum, sneezing, and nasal discharge, which are clinical manifestations frequently associated with the sinonasal form of the disease. Jericó (2023) describes granulomatous and ulcerative lesions or proliferative soft tissue masses in the nasal cavity, with possible extension to the nostrils. In addition, clinical findings such as serous to mucopurulent nasal discharge, occasionally with traces of blood, and episodes of sneezing were observed in the patient described herein. However, the discharge was exclusively mucopurulent, reinforcing the correlation between this clinical case and the patterns reported by Nelson and Couto (2023).

During anamnesis, the owner reported that the animal had previously undergone an attempted treatment with amoxicillin and prednisolone and that, after initiation of this therapy, the patient showed significant clinical deterioration. Indeed, Little (2015), Damiani *et al*. (2020), Greene (2015) and Queiroz (2008) report that animals experiencing immunosuppression due to underlying conditions or corticosteroid use tend to develop worsening of the disease.

Diagnosis was established using the diagnostic method available at the time of presentation, which consisted of collecting exudate from the lesions using a sterile swab. Although Pennisi *et al*. (2013) indicate cytology as a faster and more easily performed diagnostic method, fungal culture allows definitive identification of the etiological agent, despite being more time-consuming and requiring specific laboratory conditions. Barr and Bowman (2011) and Coelho *et al*. (2010) report that hematological and biochemical tests generally do not show changes suggestive of cryptococcosis. In the case described, the cat presented only mild leukocytosis, with no relevant abnormalities in the complete blood count or biochemical parameters.

For the patient described, treatment was initiated with itraconazole at a dose of 100 mg/cat/day, as discussed by Reis *et al*. (2016). As sporotrichosis had not yet been ruled out at the onset of the case, potassium iodide (5 mg/kg/day) was added to itraconazole. Even after a positive culture result for cryptococcosis, the treatment proved to be more effective following the combination of both drugs. Riviere and Papich (2018) report that the mechanism of action of iodide compounds against fungal organisms is largely unknown but may involve stimulation of the host immune response or enhanced fungal clearance, which could explain the observed clinical improvement.

Conclusion

The reported clinical case highlights the importance of a careful assessment of clinical signs and the patient's therapeutic history for the accurate diagnosis of cryptococcosis. The manifestations observed in the feline, consistent with the sinonasal form of the disease, as well as the clinical worsening following corticosteroid use, reinforce the need for caution when selecting empirical therapies. Fungal culture enabled confirmation of the etiological agent, thereby allowing more targeted and effective treatment.

The positive clinical response to the combination of itraconazole and potassium iodide, even after confirmation of cryptococcosis, suggests that this association may enhance therapeutic outcomes, possibly through immunomodulatory mechanisms. &

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