Case Report

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A Case Report of Feline Sporotrichosis

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ABSTRACT

The sporotrichosis is a subcutaneous mycosis with subacute and chronic evolution caused by the dimorphic fungus *Sporothrix schenckii*, which affects different animal species and humans, and is considered a zoonosis. Domestic cats play an important epidemiological role in the spread of the disease since they have direct contact with the soil and organic matter. Cats that have access to the street and compete for territory and females are more susceptible to acquiring the disease. This article aims to describe a case of feline sporotrichosis in an uncastrated animal with free access to street that presented an ulcerative and crusted lesion in the snout region. A blood sample was collected to perform a blood count, serum biochemistry, rapid test for FeLV/FIV; chest x-ray and imprint cytology of the lesion stained using the Romanowsky technique. Using the lesion imprint cytology technique, yeast-like structures compatible with *Sporothrix* spp. were observed. Due to the confirmed diagnosis of zoonosis with risk of transmission to family members and the animal's weakened condition, the owner opted to perform euthanasia.

Keywords: Sporotrichosis; Feline; Ringworm; *Sporothrix Schenckii*; Zoonosis

Introduction

The sporotrichosis is a pyogranulomatous subcutaneous mycosis caused by the fungus *Sporothrix schenckii*, which has a wide worldwide distribution, being considered the most prevalent subcutaneous mycosis in Latin America, mainly in tropical areas [1]. The sporotrichosis is considered an important zoonosis that affects humans and a wide variety of animals [2]. The *S. schenckii* is considered a geophilic fungus, which appears in mycelial form, when the temperature is between 25° and 30°C, being present in tree bark and soils rich in organic matter and vegetation, growing mainly in hot and humid places. In the parasitic form, now in an environment with a temperature of 37°C, it changes to a yeast-like form, growing and forming dermal-epidermal, visceral and bone lesions [1]. In humans, sporotrichosis is associated with certain professionals, such as gardeners, fruit and vegetable growers, farmers and animal keepers. Most infections occur from wounds caused by thorns, wood splinters or wire [3]. The highest incidence of sporotrichosis in cats occurs in intact males that have free access to the street, where when they fight with other cats they cause the inoculation of fungus. Contamination can also occur through contact with contaminated wounds, can affect humans [4,5]. In cats, the disease manifests itself in localized cutaneous, lymphatic cutaneous and disseminated cutaneous forms. Lesions are mainly observed in distal region of limbs, head or tail base [6]. Initially, these injuries resemble wounds resulting from fights, with the formation of abscesses with fistulous tracts, and which are not responsive to antibiotic therapy. These wounds over time evolve into ulcerated and crusted lesions with purulent exudates [7]. In more severe cases, systemic dissemination of fungus may occur, leading to lethargy, prostration, anorexia and hyperthermia. Cats affected by sporotrichosis die naturally or are euthanized depending on severity of disease.

Case Report

In January 2024, a six-year-old male cat, mixed breed, vaccinated, dewormed and not neutered, was served in a veterinary clinic in the south zone of São Paulo, capital, due to a wound on the snout and progressive weight loss. According to the owner, the animal had daily access to street, and in the last three weeks it had shown apathy, hyporexia and weight loss. In the clinical evaluation, the presence of an ulcerated, hyperemic and crusted lesion on the snout was observed (Figure 1), pale mucous membranes, weakened body condition, malnutrition and apparent bones on palpation. A complete blood count, serum biochemistry, type I urinalysis, rapid test for feline immunode-

ficiency virus and feline leukemia virus (FIV/FeLV), and chest X-ray were performed. Slides of snouth lesion were prepared and stained for cytological examination. In the blood count, a lower number of erythrocytes (4.8 million/mm^3; normal values=5.0-10.0 million/mm^3), higher number of leukocytes (20,1 thousand/mm^3; normal values=5.5-19,5 0 mil/mm^3), and a normal number of platelets (375 mil/µL; normal values=200-900 mil/µL) was observed. The dosage of alanine aminotransferase (ALT) (95 U/L; normal values=16,0-115,0 U/L), aspartate aminotransferase (AST) (60 U/L; normal values=10,0-80,0 U/L), alkaline phosphatase (ALP) (81,0; normal values=5,0-107 U/L), glucose (101,0 mg/dL; normal=81,0-155,0 mg/dL), creatinine (1,40 mg/dL; normal values=0,70-1,68 mg/dL) and urea (40,4 mg/dL; normal values=15,0-56,0 mg/dL), were considered normal to specie. Type I urinalysis was performed by collecting urine through a cystocentesis, and the biochemical examination showed the absence of glucose, ketone bodies, occult blood. In sedimentoscopy, erythrocytes, leukocytes, cylinders, crystals or bacteria were not observed. The rapid test to FIV/FeLV was not reagente. The chest x-ray demonstrated the presence of bronchopneumonia (Figure 2).

Figure 1: Appearance of lesion on the snout.

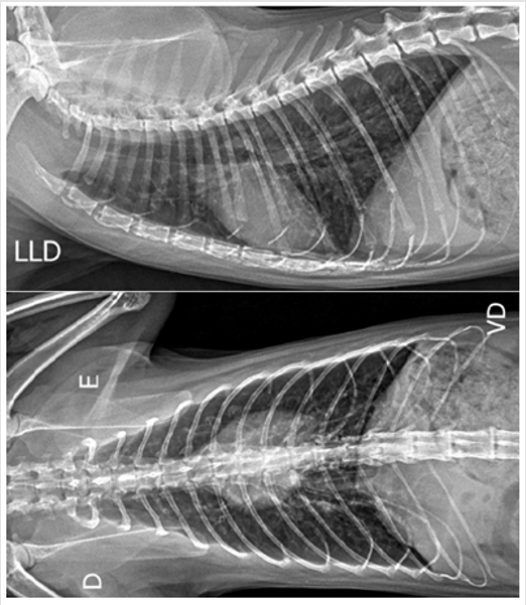

Figure 2: Chest radiographs in right lateral and ventrodorsal projections.

Moderate increase in diffuse bronchointerstitial density throughout the lung fields with moderate evident bronchial and interstitial pattern. The collected material was placed on glass slides and stained using Romanowsky method. The stained slide was analyzed using electron microscopy, and the presence of yeast-like structures compatible with fungi of *Sporothrix* spp. complex was observed (Figure 3). Material stained using the Romanowsky method. Presence of yeast-like structures compatible with fungi from *Sporothrix* spp. complex (100x). After confirming the diagnosis of sporotrichosis, the owners chose to euthanize of animal due because the severity of clinical condition and possibility of infestation of family members.

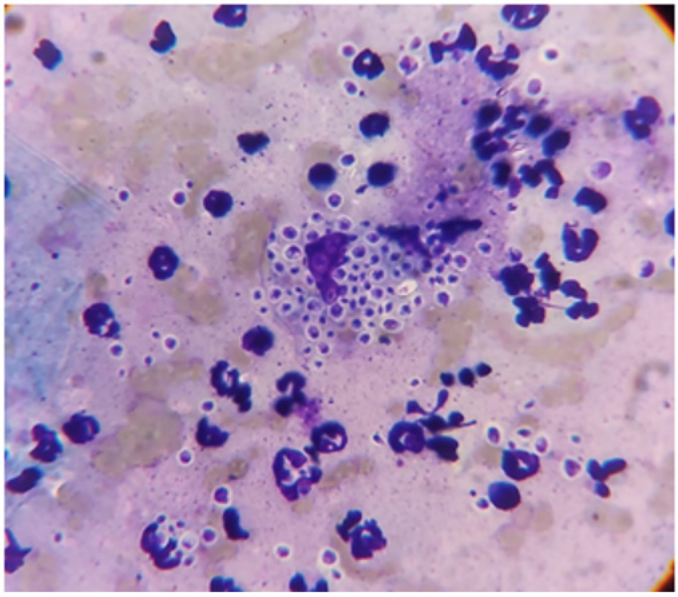

Figure 3: Cytological examination.

Discussion

The sporotrichosis is a mycosis that normally causes an infection limited to the skin and subcutaneous tissue caused by the geophilic and dimorphic fungus *S. schenckii*, which leads to the development of nodular ulcerative or suppurative skin lesions in animals and humans [8]. The cat in this report had a single, ulcerated lesion on its snout. This fungus has a worldwide distribution, being considered the most common subcutaneous mycosis in South America, and endemic in Latin America [9]. In recent years, epidemics in some cities, such as Rio de Janeiro, related to domestic cats, including family outbreaks, have been described more frequently [10]. The classic mode of transmission consists of traumatic inoculation of fungus into the skin, through plant fragments or organic matter from soil contaminated by conidia of *Sporothrix* sp., being classified as an occupational disease [3,8]. Other forms of transmission described in literature are caused by scratching or biting or contact with exudates from lesions of sick cats [4,5]. In the cat described in this report, it is assumed that disease was acquired through fights with other animals, since the cat was not neutered and had free access to the street. The sporotrichosis has a cutaneous, subcutaneous or systemic presentation, and can progress to subacute and chronic forms [11]. Extra-cutaneous forms, such as bone, ocular, meningeal and pulmonary, may occur more rarely. The primary pulmonary form occurs through inhalation of conidia from the environment, and the secondary form through hematogenous dissemination from an extrapulmonary focus [12]. Although the cat's lung x-ray described in this report demonstrated the presence of bronchopneumonia, the radiographic findings were not compatible with fungal pneumonia (mixed heterogeneous interstitial and alveolar pattern with diffuse distribution) [13].

Hematological and biochemical changes in cats with sporotrichosis are nonspecific, with the presence of anemia, leukocytosis and increased serum levels of ALT and AST [14]. In animal of this report, only anemia and leukocytosis were observed. Different biological samples can be collected to perform of mycological examination according to the type and location of the lesion. Exudate from skin lesions or nasal secretion from mucosal lesions can be obtained by sterile swab and subjected to culture, as can fragments of skin or mucosal lesions, aspirates from non-ulcerated abscess, blood and bronchoalveolar lavage [15]. The diagnosis of sporotrichosis is based on anamnesis, clinical examination, staining of aspirated material using Romanowsky method, histopathology, isolation and culture of fungus on Sabouraud-dextrose Agar, Potato-dextrose Agar or mycosel medi-

um at 25oC [16]. In the cat described in this work, the diagnosis was obtained through staining of aspirated material. The therapeutic options available for the treatment of feline sporotrichosis include the use of azoles (ketoconazole, itraconazole), triazoles (posaconazole, fluconazole), sodium and potassium iodides, terbinafine, amphotericin B, surgical removal of lesions, local thermotherapy and cryosurgery [17,18]. However, the recommended therapeutic protocols have low effectiveness and remain limited by the difficulty of administering drugs orally, animal management and reduced number of oral antifungal agents available [19,20]. The long period of treatment and the acquisition of disease by a family member are factors that lead to frequent abandonment and requests for euthanasia by tutor [21]. The euthanasia option was taken into consideration due to the animal's debilitating clinical condition and risk of transmission to family members. Although sporotrichosis is not a compulsorily notifiable condition, it is a public health problem, the occurrence of which has increased in different Brazilian states in recent years.

Conclusion

The sporotrichosis is a subcutaneous mycosis with subacute and chronic evolution caused by dimorphic fungus *S. schenckii*, where domestic cats play an important epidemiological role in spread of disease to humans. Therefore, it is important to keep felines at home, without free access to street. If they have lesions suspected of sporotrichosis, they must be taken to a veterinarian for tests to prevent the spread of this zoonosis.

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