

## CYTOLOGIC DIAGNOSIS AND TREATMENT OF FELINE SPOROTRICHOSIS: CASE REPORT

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### ABSTRACT

Sporotrichosis is a mycotic disease of humans and animals caused by a dimorphic fungus called *Sporothrix schenckii*. Domestic animals, particularly cats, play an important role for human infections. The diagnosis of sporotrichosis can be made by using cytologic and histopathologic examination, culturing the fungus, immunofluorescence or molecular methods. This paper describes the cytologic diagnosis by fine-needle aspiration and treatment of a case of feline sporotrichosis.

**Keywords:** sporotrichosis, *Sporothrix schenckii*, fine-needle aspiration cytology, feline, zoonosis.

## DIAGNÓSTICO CITOLÓGICO E TRATAMENTO DA ESPOROTRICOSE FELINA: RELATO DE CASO

### RESUMO

A esporotricose é uma micose de humanos e animais, causada por um fungo dimórfico chamado *Sporothrix schenckii*. Os animais domésticos, particularmente os gatos, são importantes fontes de infecção para humanos. O diagnóstico da esporotricose pode ser realizado com o uso de exames citológicos e histopatológicos, isolamento fúngico, imunofluorescência ou por métodos moleculares. O presente trabalho relata o diagnóstico citológico com agulha fina e o tratamento de esporotricose em um felino.

**Palavras-chave:** esporotricose, *Sporothrix schenckii*, citologia aspirativa por agulha fina, felinos, zoonose.

## DIAGNÓSTICO CITOLÓGICO Y TRATAMIENTO DE LA ESPOROTRICOSE FELINA: CASO CLÍNICO

### RESUMEN

La esporotricosis es una enfermedad micótica que afecta a los humanos y a los animales provocada por el hongo dimórfico *Sporothrix schenckii*. La infección es usualmente

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provocada por la inoculación traumática con tierra, plantas y materia orgánica contaminada por el hongo. Los animales domésticos, en particular los gatos, son fuentes importantes de transmisión para el hombre. El diagnóstico de esporotricosis puede ser realizado mediante el examen citológico y histopatológico, aislamiento del hongo, inmunofluorescencia y métodos moleculares. En este trabajo, se reporta el diagnóstico por medio de citología por aspiración con aguja fina así como el tratamiento de un caso de la esporotricosis felina.

**Palabras clave:** esporotricosis, *Sporothrix schenckii*, citología por aspiración con aguja fina, felino, zoonosis.

## INTRODUCTION

Sporotrichosis is a chronic, primary skin and subcutaneous tissue disease caused by the dimorphic fungus, *Sporothrix schenckii*. The microorganism is a saprophyte which is found in soil and decomposing organic matter (1). Other *Sporothrix* species, however, have been reported as agents of sporotrichosis (2). In general, infections are due to contamination of puncture wounds, however they may also occur, rarely, through inhalation of the agent (1). Feline sporotrichosis has been reported in the literature because of its continuing importance as a source of infections for humans, particularly for veterinarians and animal owners. In cats, sporotrichosis causes ulcerative lesions in the head, face, ears, nails, forelimbs and hindlimbs (3). Ascending lymphangitis may arise from the primary wound site but rarely spreads to other organs (1).

Outbreaks in USA and Australia have been linked to contact with plant material (4). The largest outbreak of human sporotrichosis by zoonotic transmission was described in Rio de Janeiro (5). Between 1998 and 2004, at the Institute of Clinical Research Evandro Chagas, Fiocruz, 1503 cats, 64 dogs and 759 humans were diagnosed with sporotrichosis through isolation of the microorganism in culture (6, 7).

Clinical signs in dogs and cats with sporotrichosis are similar to those found in deep bacterial skin infections and in other fungal skin infections. The clinician should suspect sporotrichosis or another fungal infection if antibiotic therapy for cellulitis or deep pyoderma results in minimal or partial improvement (8). The diagnosis using fine needle aspirate cytology and treatment of a case of feline sporotrichosis is described in this paper.

## CASE REPORT

A 2-year-old, male, neutered, domestic short hair cat from (Poços de Caldas/MG) without others contactants at home, but with free access to the street, was examined in cooperation by Pontifícia Universidade Católica de Minas Gerais and School of Veterinary Medicine and Animal Science (Unesp/Botucatu). At the time of examination, the animal was presenting an ulcerative, erythematous lesion, with serosanguineous exudate, measuring four centimeters in diameter in the right periocular region (Figure 1). The lesion evolved over 15 days and the owner did not report previous injury or pruritus. Physical examination did not evidence any systemic alterations, except reported hyporexia. Complete blood count, biochemical profile and urinalysis were within normal limits and serum was not tested for viral diseases. Samples were collected by fine-needle aspiration, placed on a slide and stained with Giemsa (Romanowsky). Cytopathologic examination revealed large amounts of oval to elongate, occasionally cigar-shaped, yeast cells, measuring 3 to 5  $\mu\text{m}$ , inside or outside macrophages, which were consistent with *Sporothrix schenckii* (Figure 2). It was also observed an inflammatory process composed by neutrophils, lymphocytes, plasma cells and macrophages. After the diagnosis, treatment with itraconazol (10 mg/kg SID) was initiated and the animal was monitored through return visits at 13 and 30 days into treatment.

Progressive improvement of dermatological features was observed and therapy was discontinued 30 days after complete remission of clinical signs (Figure 3), which in this case occurred after six months of treatment.



Figure 1. Presence of an ulcerative, erythematous lesion, with serosanguineous exudate in the right periocular region.

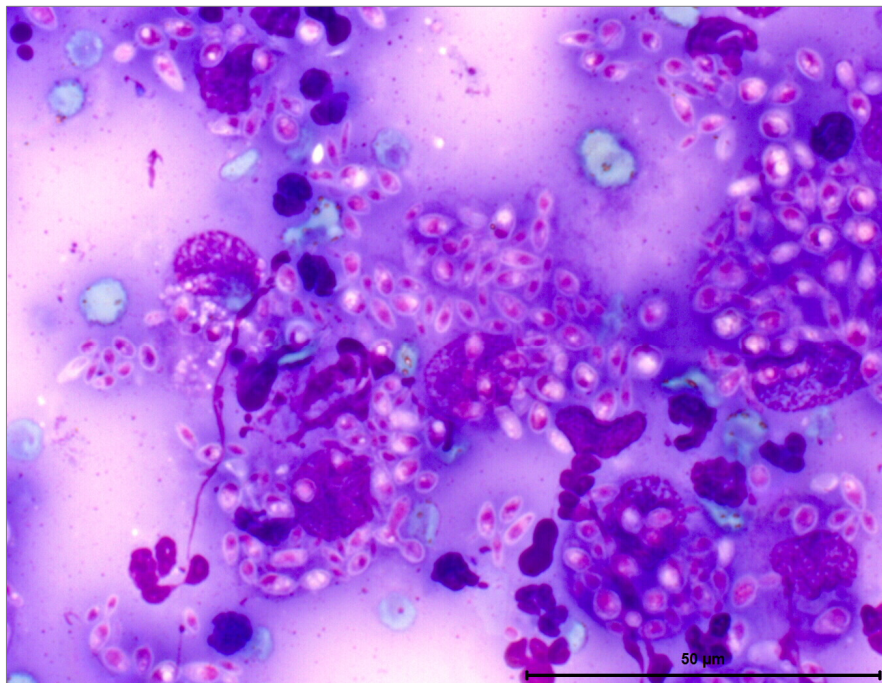


Figure 2. Large amounts of oval to elongate microorganisms, occasionally cigar-shaped, mainly within macrophages, consistent with *Sporothrix schenckii* (Giemsa staining, 100x).



Figure 3. Clinical improvement of the periocular lesion 30 days after the beginning of treatment with itraconazole.

## DISCUSSION AND CONCLUSION

Cytopathologic examination of skin lesions has been an excellent diagnostic tool, not only because of its low cost, but also because it is less invasive, safer and produces accurate results equal to or greater than histopathology for the identification of microorganisms and certain neoplasias (3, 9). Its effectiveness was proven in some studies by comparing this technique with histopathologic diagnosis of neoplasia where they found a diagnostic correlation of 86.6% of cases (10).

The finding of a great number of yeasts in lesions and exudates is a markedly feature in feline sporotrichosis, while in other species it has been observed few numbers of organism. Due to the distinct cytological features of *S. schenkii*, feline sporotrichosis may also be diagnosed through cytological evaluation of samples aspirated and swab imprinting of lesions (11).

Feline sporotrichosis has been described as an important source for human infection, specially veterinarians and owners (12). Veterinarians should advise owners for the zoonotic potential of cutaneous sporotrichosis and they should take care when handling cats with cutaneous lesions (13). Besides, veterinarians should also be aware that health cats may play important role on sporotrichosis epidemiology, since the fungus can be recovered from nails, nasal and oral mucosa of health cats, mainly those who have free access to environment (14).

Cats are susceptible to side effects of iodides and ketoconazole and it represents a major challenge for treatment of feline sporotrichosis (15). In dogs, the treatment of choice is oral administration of a supersaturated solution of potassium iodide at a dose of 20 mg/kg SID or BID, with food, continuing until 30 days after clinical recovery (8). Ketoconazole or itraconazole should be used in those animals that do not tolerate, like cats, or do not respond to iodides (9). In this report itraconazole was used and recovery occurred within six months.

In conclusion, the technique of fine-needle aspiration herein employed is consistent with previous ones described in literature and represents a non-invasive, quick and low cost approach to diagnose feline sporotrichosis. Since the diagnosis was performed, the animal

started treatment and remission of clinical signs were observed after six months, other feature that confirms the etiology of this case.

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