

Recurrence of sporotrichosis in cats with zoonotic involvement

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Summary

The aim of this work is to describe the prevalence of the disease in the same category after three years, and to report a case of human sporotrichosis following a cat scratch. In May 1997, four felines presenting a cachexy state and ulcerous lesions on the head, nose and limbs were examined in a veterinary clinic in the town of Rio Grande (RS – Brazil). Exudate and crusts were collected for microbiological diagnosis. The cat's owner returned to the clinic reporting that another eleven felines presented similar lesions. She had ulcerous lesions on her hand and ascending lymphangitis. She was conducted to medical examination where exudate and crusts from the lesions were collected and after the culture *Sporothrix schenckii* was isolated. After three years the same person sought veterinary assistance for seven more cats with similar lesions to the five previously described. Microbiological tests resulted again in isolation of *S. schenckii*. Treatment with potassium iodine was effective for the cure of human sporotrichosis, whereas for the felines it showed toxic effect. Only one showed regression of the disease while all the others presented progression of the lesions or even death. The authors call attention to the possible persistence of *S. schenckii* in cat populations.

Key words

Sporothrix schenckii, Sporotrichosis, Cats

Recurrencia de esporotricosis en gatos con implicaciones zoonóticas

Resumen

Este trabajo tuvo como objetivo describir la presencia de esporotricosis en una población de gatos y en su propietaria. En mayo de 1997 fueron atendidos en una clínica veterinaria de la ciudad de Rio Grande (Estado de Rio Grande do Sul, Brasil), cuatro felinos que presentaban un estado caquéctico y lesiones ulcerativas en cabeza, nariz y miembros. Fueron recolectados exudados y costras para el diagnóstico microbiológico. La propietaria volvió a la clínica informando que otros 11 felinos presentaban lesiones semejantes a las anteriores y ella misma presentaba una lesión ulcerada en la mano y linfangitis ascendente, siendo recomendada su atención médica y la toma de secreciones y costras de las lesiones. Las muestras recolectadas fueron cultivadas y se aisló *Sporothrix schenckii*. Tres años después, la misma propietaria buscó atención veterinaria para otros siete gatos con lesiones similares a las descritas anteriormente, siendo de nuevo comprobada la presencia de *S. schenckii*. El tratamiento con yoduro de potasio fue efectivo para la cura de la esporotricosis humana, mientras que en los felinos el tratamiento fue efectivo solamente en un animal, teniendo efecto tóxico en los demás, los cuales sufrieron una progresión de la enfermedad o murieron. Se destaca la posibilidad de mantenimiento del hongo *S. schenckii* en poblaciones de gatos por largos períodos de tiempo.

Palabras clave

Sporothrix schenckii, Esporotricosis, Gatos

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Sporotrichosis is a mycosis caused by a dimorphic fungus, *Sporothrix schenckii*, which causes disease in humans and in a great variety of animals such as dogs, cats, horses, cattle, camels, dolphins, goats, mules, pigs, rats, chimpanzees and birds [1,2]. The first description of this mycosis in animals (rats) in Brazil dates from 1907 [3,4].

In Brazil, the disease in carnivorous domestic animals was first described in cats in 1956 [5] and in dogs in 1957 [6]. In the State of Rio Grande do Sul (RS) the first cases were reported in two dogs in 1964 [7].

S. schenckii grows in mycelial form at temperature from 25 to 30°C and as a yeast at 37°C. It is considered a saprobic of soil rich in organic matter, growing in plants, tree barks and mosses, mainly in humid and hot places [2,8]. Direct transmission of sporotrichosis is usually associated to perforating wounds and exposure to the infectious organism present in the environment, and through scratches or bites of animals such as cats for example [9,10]. In Brazil, the first reported case of zoonotic contamination from a cat was in 1955 [11].

Although in the international literature reports of sporotrichosis as a zoonosis involving felines and humans, in areas of tropical, subtropical and temperate climate, are frequent, in Brazil there are few reports [10,12-13a], especially with the epidemiological characteristics here described.

CASES REPORT

In May 1997, four cats in malnourished state and with generalized skin lesions were examined in a veterinary clinic in the town of Rio Grande (RS). The cats were from the same cattery where more than 100 animals were kept unrestrained, with free access to the neighborhood. In this place the animals were maintained in an area with soil, bushes and trees, with young and adult, sick and healthy cats living together (Figures 1 and 2).

The first feline examined at the clinic was a male, approximately five years old, of undefined breed, in shock, showing cachexia, hypothermia, ulcers in the face, deformation of the nose, and lesions on the ears, neck and distal part of the forefeet and hindfeet, and on the base of the tail. A brown reddish exudate was draining from the lesions. The animal died while it was been examined.

The other three felines were adult males, between two and five years old, showing low body weight, lack of appetite, alopecia and ulcerations on several parts of the body, mainly on the head, leading to a presumptive diagnosis of feline sporotrichosis. The samples collected for microbial diagnosis were crusts and exudates from the lesions. The initial treatment recommended was ketoconazole at 10 mg/kg/day, with recommendation for isolation and hygienic sanitary measures when handling the animals.

The owner returned to the clinic ten days after the first visit showing ulcerous lesions on her hands which had spread following the lymphatic chain. She also reported that others 11 cats showed lesions similar to the ones previously described, and that the three animals initially treated with ketoconazole showed lack of appetite, therefore the medication was discontinued. The owner was sent to the "Hospital da Fundação Universitária de Rio Grande" (FURG), where after local asepsis, exudates and crusts were collected.

The samples collected, both from the felines and from the owner, were inoculated in Mycobiotic agar (Difco, USA) and incubated at 25°C and at 37°C. After five days white-yellowish colonies appeared, which became dark with time. The mycologic examination revealed



Figure 1. Young and adult cats (A), sick and healthy cats (B) were living together.



Figure 2. The cats were maintained in an area with soil, bushes and trees (A). Tree scratched by cats (B).

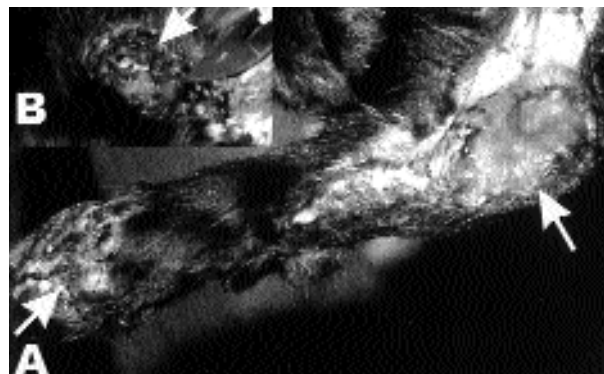


Figure 3. Alopecia, ulcerations and brown-reddish exudate was drained from the lesions in leg and foot (A), and the back (B) of cats with sporotrichosis.

the presence of thin septate hyphae, with abundant sessile conidia along the hyphae and rare conidia arranged at the tip of the conidiophores in the shape of a “daisy”, in the culture kept at 25 °C, whereas the culture incubated at 37 °C showed yeast like colonies with typical cigar-shaped cells.

The owner was treated, following medical prescription, with a saturated solution of potassium iodide. The treatment of the cats with ketoconazole was changed to potassium iodide following the owner’s decision. She was informed about the risk of intoxication of the felines by the potassium iodide. The human lesions started to regress after seven days of treatment, with a good recovery after 15 days. The felines treated with potassium iodide showed progression of the disease, aggravated by diarrhea and lack of appetite, which evolved to anorexia and death of the all 14 animals treated.

In March and April 2000 the owner returned to the veterinary clinic with seven cats, four males and three females. The age ranged from one year and a half to five years old. The animals showed cachexia, lesions similar to the ones described for the previous cases, showing alopecia, lesions draining a brown reddish exudate (Figure 3) and also respiratory symptoms such as sneeze and running nose. Crusts and exudate were collected and sent to the Mycology Laboratory of the “Faculdade de Veterinária – Universidade Federal de Pelotas” (UFPeL).

The diagnosis of sporotrichosis was again confirmed by the isolation of *S. schenckii*. For confirmation of the results the isolate was inoculated in the left testicle of an adult rat (*Ratus ratus*). The animal developed unilateral orchitis five days after inoculation, which evolved to bilateral orchitis and was sacrificed. The testicles were cultured and examined by the PAS (Periodic acid-schiff) histopathological staining method. The diagnosis of sporotrichosis was confirmed by the isolation of *S. schenckii* and by the presence of a large quantity of yeast-like budding cells, some of which were typically cigar-shaped in the histopathological examination.

The owner decided to treat the animals using potassium iodide, discontinuing the treatment when the first signs of lack of appetite and diarrhea were observed, and restarting it after the toxicity signs disappeared. At the time of this report, among the seven cats followed: two had died, four showed a great improvement of the clinical signs, and one is in the way of recovery.

DISCUSSION

The crust and ulcerous lesions on the head, limbs and tail, as well as the brown reddish exudate showed by the felines affected in this outbreak, are similar to the ones described by the majority of authors [10,14,15]. The clinical status evolved to death due to severity of the lesions and general condition or to euthanasia, like other’s reports of sporotrichosis [14,16-18].

These findings confirm the importance of the cat in the dissemination of this disease, probably due to the large quantity of infecting organisms present in the lesions of diseased animal, caused by scratches and bites [10,13,17,19-21]. The habit of scratching, a common act of felines, combined with the big increase in the number of cats raised as pets in the last few years, might be responsible for more cases of sporotrichosis are being documented as anthroozoonosis. A study with sporotrichin was carried out with animals of the São Paulo Zoo, Brazil, where 30,21% were positive [22], demonstrating possible involvement of other species in the sporotrichosis epidemiological chain.

Reviewing the literature [10,13,17,19-21] it was observed that there is a lack of epidemiological follow-up studies of the disease in the same cattery after the onset of sporotrichosis. This report demonstrates for the first time the persistence of the infectious agent in the same area, for a period of three years. In both outbreaks a large number of animals were affected, i.e., 15 and seven cats in the first and second outbreak, respectively. Other authors have reported a maximum of five animals affected by the disease in a single outbreak [1,10,14,16-19,23,24]. The small number of people involved in this report is due to the fact that there are only two residents living in the house where the animals are kept, and only the woman, who was previously contaminated, had close contact with them.

The treatment prescribed for the human patient was potassium iodide, which is normally recommended for human sporotrichosis [17,19]. The felines are very susceptible to potassium iodide, so the animals treated with this compound showed signs of iodism, such as lack of appetite, anorexia and diarrhea [15,25]. Beside this side effect, the literature mentions cases of low efficacy of iodide preparations in the treatment of feline sporotrichosis [14,24,26], even thorough other authors had claimed success with this treatment [23]. The use of itraconazole was suggested as an alternative for the treatment of cats with sporotrichosis [27].

In order to improve the knowledge about factors of the epidemiological chain that favors the persistence of sporotrichosis in the feline population, studies should be directed to search for the presence of the fungus on plants, trees and grounds where the animals have access. Also, felines must be tested for the concomitant presence of predisposing factors such as co-infections by feline retrovirus.

The authors alert professionals who work with animal and human health about the presence and possible persistence of *S. schenckii* in cat populations, taking into account the fact that cats have been each more adopted as pets.

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