

Avaliação do conhecimento populacional sobre a esporotricose em área endêmica no Sul do Brasil

Population knowledge on sporotrichosis in an endemic area in Southern Brazil

RESUMO | Introdução:

Nas últimas décadas a transmissão zoonótica da esporotricose tem aumentado no Brasil. Considerando que medidas preventivas são necessárias para evitar a disseminação da doença em áreas endêmicas, este estudo objetivou avaliar o conhecimento de proprietários de felinos com esporotricose sobre a doença e sua prevenção, assim como atuar na prática educacional promovendo o empoderamento da população local no Sul do Brasil. Métodos: O estudo foi conduzido de abril de 2015 a outubro de 2016 no município de Rio Grande, Rio Grande do Sul/Brasil. Foi aplicado questionário semiestruturado, contendo 21 perguntas, a cinquenta proprietários de felinos com esporotricose, a fim de coletar dados epidemiológicos e dados sobre medidas preventivas da doença. Ao final da entrevista todos os participantes receberam folder informativo sobre a esporotricose.

Resultados: A maioria dos participantes (64%) relatou não conhecer esporotricose previamente ao diagnóstico dessa doença em seu gato. Em adição, houve uma alta porcentagem de proprietários de felinos que não adotavam medidas preventivas como uso de luvas para manipulação do felino enfermo (71%) e isolamento do animal (74%). **Conclusão:** A esporotricose é uma doença comum no Sul do Brasil, no entanto, o presente estudo demonstrou a falta de conhecimento da população sobre medidas importantes de prevenção desta doença no município de Rio Grande. Portanto, existe uma urgência na proposta de ações no âmbito da educação em saúde, para esta população, salientando o manejo adequado dos felinos e a importância da posse responsável a fim de evitar a transmissão e disseminação da doença.

Palavras-chave | Doenças negligenciadas; Zoonose; Epidemiologia; Sporothrix.

ABSTRACT | Introduction: The zoonotic transmission of sporotrichosis has been highlighted in Brazil in the last decades. Therefore, preventive measures are necessary to avoid disease dissemination in endemic areas. The aim of the present study is to evaluate the knowledge of owners of cat with sporotrichosis about the disease and about its prevention, as well as to develop education practices to empower the local population in Southern Brazil. **Methods:** The study was conducted from April 2015 to October 2016 in Rio Grande City, Rio Grande do Sul State - Brazil. In total, 50 cat owners answered a semi-structured questionnaire with 21 questions. The questionnaire was the tool used to collect data about the epidemiological and preventive aspects of sporotrichosis. All participants received an informative folder about the disease at the end of the interview. **Results:** Most participants (64%) had never heard about the disease before their cats developed the infection. A high percentage of cat owners are not adopting preventive measures such as taking care of the animal without gloves (71%) and isolating the ill animal (74%). **Conclusion:** Sporotrichosis is a common disease in Southern Brazil; however, the population is not aware of important measures to prevent this disease in Rio Grande City. Thus, there is the urgent need to propose health education action to the population. These actions must focus on the adequate handling of ill cats and on the importance of responsible ownership to avoid disease transmission and dissemination.

Keywords | Neglected diseases; Zoonosis; Epidemiology; *Sporothrix*.

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INTRODUCTION |

Sporotrichosis, which is the main subcutaneous mycoses in Brazil, is caused by the traumatic inoculation of fungus belonging to the *Sporothrix* complex. It is a sapronotic disease associated with traumas caused by plant and soil debris. It becomes a zoonosis when the disease is acquired through scratch or bites from infected animals, mainly from domestic cats^{1,2}.

Felines, instead of humans and other animals, usually develop severe sporotrichosis lesions caused by many infecting yeasts, even in the absence of immunosuppressive factors. Cats can quickly disseminate the disease to inter and intra-species due to their life habits. These factors contribute to high density of infected animals and to progressive increase in the number of human sporotrichosis cases in endemic areas^{1,3,4}.

In fact, studies conducted in Rio de Janeiro, Brazil - where sporotrichosis has epidemic status -, show that the zoonotic transmission is associated with most human cases⁵⁻⁸. The disease mainly occurs in Southern Rio Grande do Sul State (RS); hundreds of cases were described in the last few years⁹⁻¹¹. Despite such scenario, sporotrichosis remains an unknown and/or neglected disease¹².

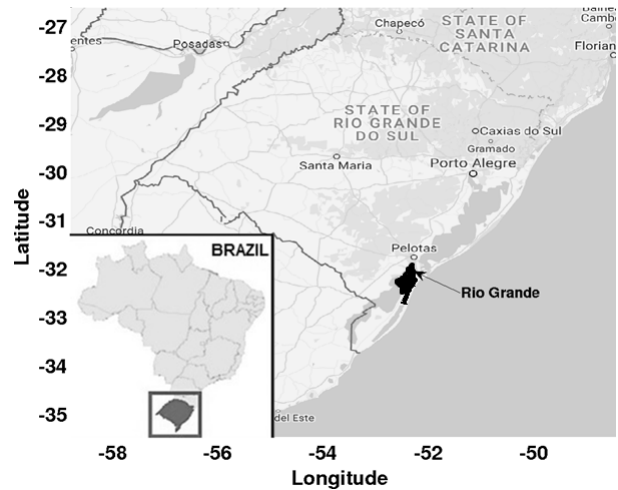
It is necessary to implement preventive and control measures, given the high incidence of feline sporotrichosis in Rio Grande City, RS, Brazil¹⁰, and its association with the increasing number of cases in humans - which can result in a public health issue¹³. Therefore, health professionals and the general population must be aware of these measures and of their importance. Thus, the aim of the present study was to evaluate the knowledge of owners of cats with sporotrichosis about the disease and about its prevention, as well as to develop education practices to empower the local population in Southern Brazil.

METHODS |

The study was carried out between April 2015 and October 2016 in Rio Grande City (Figure 1), Southern Coast of Rio Grande do Sul State, Brazil. The county's territory covers 2,709.522 km²; the county has the longest beach in the world (Cassino beach) - approximately 250 km of Atlantic coastline. Its population comprises 208,641 inhabitants,

based on estimates by the Brazilian Institute of Geography and Statistics (IBGE), who live in 66,554 houses (estimated data in the 2010 census)¹⁴. According to IBGE, 59% of the residences in Southern Brazil have a dog and 19%, a cat¹⁴.

Figure 1 – Study Site: Rio Grande City, Southern Rio Grande do Sul, Brazil



All owners of cats diagnosed with sporotrichosis in the Mycology Laboratory of Federal University of Rio Grande (FURG) during the period of the study were included. Active search through phone contact was performed to schedule the interviews with the participants. Owners who did not answer to the phone contact (after 3 attempts) and the ones who did not accept to participate in the research were excluded from the experiment.

All participants signed the informed consent form and answered a semi-structured questionnaire with 21 questions, to collected data concerned the epidemiological and preventive aspects of sporotrichosis. Data included demographic information such as sex and district of residence. Questions about etiology and transmission, as well as about hosts susceptible to the disease were answered by the participants, as well as about caregiving and about how to treat ill cats, for instance, wearing gloves, avoiding contact with the animal's lesions and animal apartness. Participants' answers were evaluated through frequency analysis conducted in the Statistical Software SPSS 20.0.

At the end of the interview, all participants received an informative folder (Figure 2) with the main aspects related to the etiology, transmission and prophylaxis measures to

be taken against sporotrichosis. This procedure aimed at empowering the local community. This study was approved by the Ethics Committee of the University (CEPAS – FURG; 146/2016).

RESULTS

In total, 59 feline sporotrichosis cases were diagnosed during the assessed period. One of the owners refused to participate in the experiment, the owners of other eight infected animals did not answer to the researchers' contact; thus, the sample encompassed 50 participants. Most (90%; 45/50) participants were women who lived in houses distributed in 19 districts: Cassino Beach (20%), Buchholz (12%) and Miguel de Castro Moreira (10%). Most of the assessed houses (76%) had dogs and cats. There were four animals per house, on average, the number ranged from 1

to 23. There were more than 3 cats in 38% of the houses – the number ranged from 1 to 23 (median=2).

Based on data collected through the semi-structured questionnaire, most participants (64%) had never heard about the disease before their cats had developed the infection. In addition, a significant percentage of cat owners still do not adopt preventive measures to avoid disease transmission and dissemination (Table 1).

The informative folder made available after questionnaire-answering had explanations about some doubts and on how to correct some wrong concepts about sporotrichosis. These misconceptions were described by the participants during the interviews. The importance of responsible ownership to achieve disease control was also highlighted in the informative.

Figure 2 – Informative folder about sporotrichosis handed out to the participants

ESPOROTRICOSE: Doença Ocupacional e Zoonótica

O que é?
A esporotricose é uma micose provocada por fungos do complexo *Sporothrix schenckii*. A doença atinge principalmente a pele, o tecido subcutâneo e os vasos linfáticos mas pode afetar também órgãos internos.
O fungo causador da esporotricose habita a natureza (solo, palha, vegetais, madeira) e a doença ocorre após ferimentos com vegetal contaminado, como farras ou espinhos de plantas. No entanto, animais infectados, principalmente **gatos domésticos**, também podem transmitir a esporotricose, caracterizando quadros zoonóticos da doença.

Diagnóstico
O diagnóstico da doença é confirmado por **exames laboratoriais**, onde a partir do **cultivo micológico** o fungo é isolado. *Sporothrix* spp. possui velocidade de crescimento moderada, sendo que em 5 a 15 dias já pode ser identificado através da avaliação macro e micromorfológica das colônias (Fig.1).

Fig.1: Cultivo micológico e "aspecto de margarida" evidenciado na micromorfologia do fungo *Sporothrix* spp. Incubado a 25°C.

Fig.2: felino com esporotricose apresentando lesões ulceradas e crostosas (feridas) causadas pelo fungo.

Esporotricose em gatos domésticos
Os felinos se infectam através de **brigas** na rua com outros gatos doentes. As lesões se localizam principalmente na cabeça, focinho, narina, pavilhão auricular e patas (Fig.2), podendo ter também envolvimento pulmonar levando a dificuldade respiratória.

CUIDADO → os gatos com esporotricose tem grande quantidade de fungo nas unhas, podendo facilmente **transmitir** a doença para as pessoas ou para outros animais através da **arranhadura**.

PORÉM, LEMBRE-SE:

Não abandone seu gato com esporotricose!! A doença tem cura!! Procure atendimento veterinário!!

A eficácia do tratamento depende do diagnóstico precoce e correto!!

Esporotricose em humanos
A doença em humanos se caracteriza por lesões principalmente nos braços, mãos, pernas e na face. Surgem em média 5 a 10 dias após a inoculação do fungo na pele, seja por trauma com vegetais ou por arranhadura/mordedura de gatos. As lesões podem ser:

- Pústulas
- Nódulos
- Úlceras
- Crostas
- Linfangite

A doença tem cura porém deve ser diferenciada de outras enfermidades e infecções cutâneas, por isso em caso de surgimento de lesão após arranhadura de gato...

FIQUE ATENTO
Procure seu dermatologista ou a UBS da sua região!!

Table 1 – Answers about some aspects of sporotrichosis given by the owners (n = 50) of cats with the disease - data collected through the semi-structured questionnaire

Questions	% (N/Total)
What is the causative agent of sporotrichosis	
Fungi	73 (32/44)
Viruses	0 (0/44)
Bacteria	7 (3/44)
Unknown	20 (9/44)
Missing	12 (6/50)
Do you know how can you acquire the disease	
Yes	79 (34/43)
No	21 (9/43)
Missing	14 (7/50)
Cats can transmit it	
Yes	84 (36/43)
No	14 (6/43)
Unknown	2 (1/43)
Missing	14 (7/50)
The disease can occur in humans	
Yes	79 (34/43)
No	16 (7/43)
Unknown	5 (2/43)
Missing	14 (7/50)
How do you handle the ill cat	
Without gloves	71 (32/45)
Missing	10 (5/50)
Apartness	26 (12/46)
Missing	8 (4/50)
Epidemiological data	
Sough another ill cats in the neighborhood	48 (23/48)
Had a previous case of feline sporotrichosis	27 (13/48)
Missing	4 (2/50)
Had zoonotic transmission in family	4 (2/47)
Missing	6 (3/50)
Source of information about the disease	
Veterinarian	50 (18/36)
Friend	14 (5/36)
Internet	11 (4/36)
Folder / poster	11 (4/36)
Others	10 (5/36)
Missing	28 (14/50)
When did you acquire knowledge about sporotrichosis	
At the diagnostic of a feline case	64 (28/44)
Previously from diagnoses	36 (16/44)
Missing	12 (6/50)

DISCUSSION |

Sporotrichosis has been described in Southern RS, Brazil^{9,15,16} for decades, but it records high endemicity^{10,11,13} in Rio Grande City, which issued a recent report of outbreak¹⁰. However, based on the present study, the population is not familiar with the disease, and this finding points out that sporotrichosis remains a neglected mycosis by local public health policy-makers.

This is a worrisome finding, since sporotrichosis is an emergent disease in distinct parts of the country¹⁷⁻¹⁹. Disease outspread results from lack of actions by the population and by local authorities to control its incidence in felines. Feline sporotrichosis can outspread fast and this feature is associated with the increasing number of cases in humans due to zoonotic transmission^{20,21}. Similar to Rio de Janeiro State^{5,22}, zoonotic sporotrichosis got to alarming proportions in RS: more than 5,000 cases recorded in the last 17 years⁷, fact that resulted in its insertion in the state's list of grievance notifications²². According to the last epidemiologic bulletin of Rio de Janeiro State, more than 3,300 human cases of sporotrichosis were notified between 2013 and 2016 - median of 782 cases/year²³.

Studies have shown that most zoonotic cases of sporotrichosis (60 to 70%) occur in women^{5,6,23}. Such high prevalence in female hosts is explained by the fact that women are more prone to own cats than men, since *Sporothrix* spp. pathogenesis is not related to the hosts' sex. Such statement corroborates the results in the current study, in which 90% of the participants were women, and only 10% were men. Nevertheless, sapronotic cases of the disease mainly occur in men²⁴; thus, the risk of acquiring the disease is attributed to higher exposure to the source of the infection - animal *versus* environment.

More than half of the participants in the present study take inappropriate actions towards their ill cat. There is the risk of getting infected due to the contact with cats' lesions, even when owners are not exposed to scratching or to bites^{6,25}. It is necessary wearing gloves to handle sick animals. However, the simplest prevention measures were not adopted by 71% of the interviewed owners. In addition, it is essential isolating the sick cats in order to control intra-species fungus dissemination – thus, these animals will not have the opportunity to fight with other animals for territory or for the females, and to inoculate the fungus in other animals through scratches or bites^{1,10,26}.

Although owners were aware of the importance of this control measure, 74% of them declared to do not keep their cats confined.

The herein described data are more worrisome, because all participants had at least one cat with sporotrichosis in their houses, and 27% of them declared to have had another ill cat before; so, they had already been informed by vets about some aspects of the disease in the past. The present study did not include people who did not have any contact with sporotrichosis cases; therefore, it is possible saying that these failures in control measures are worse, since there are lots of people who are not aware of the existence of this disease.

Almost half of the participants (48%) declared to have already sighted another cat with similar lesions in the neighborhood, but they were mostly wandering cats. These animals' condition does not allow veterinarians to access them; consequently, they do not have an ultimate diagnosis of the disease. This scenario has significant influence on the sporotrichosis dissemination, since these cats have free access to the streets and have contact with other animals before they are subjected to the correct treatment to rule out the disease^{4,5}.

Feline sporotrichosis and zoonotic cases have been described in Rio Grande City since the 1990's¹⁵; however, only 36% of the interviewees had heard about the disease before their animals were diagnosed with it. Most of them received information by the veterinarians about it. The collected data show failure in the local public health system, which still did not adopt educational measures to control the disease and to spread information about it. These are essential measure to control and prevent this mycoses^{5,12,18,23,27}.

CONCLUSION |

Sporotrichosis is a public health issue in Rio Grande City, RS. However, the population in the city is not aware of the important measures to be taken to prevent this disease. It is urgent proposing health education actions to be followed by the population about the adequate handling of ill cats and about the importance of the responsible ownership.

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