Identification of *Microsporum canis* in cutaneous lesions of cats from Timis County

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Abstract

Dermatophytosis has a practical and medical importance both in the veterinary and human medicine due to its zoonotic potential causing economic problems worldwide. The aim of this study was to identify the etiological agents involved in the appearance of cutaneous lesions. 43 cats were examined, from eight locations in the Timis County, with or without cutaneous lesions at the age of 1 month to 11 years. 37 cats belonged to the European breed, one Birmanese breed, three were Persian and two were British Shorthairs. Samples of hair, squamae and crusts were collected from every animal and placed in Petri plates. Direct microscopic examination of hairs, squamae and crusts was done using the slide and coverslip method, with lactophenol and it was examined using the x10 objective. The sample were cultivated on Sabouraud agar gel and DTM (Dermatophyte test). Microsporum canis was the only one species indentified in the cutaneous lesions (group 1) in 35% out of examinated cats (7/20). In group 2 (asymptomatic cats), the only species identified was Microsporum canis in one individual (1/23 respectively 4.37%).

Key words: *Microsporum canis, cats, Timiș County*

Introduction

Dermatophytes are among the most common zoonotic agents. Dermatophytosis are considered the third most frequent cause for skin diseases in children younger than 12 years of age and the second most common cause in adults (9).

Bibliographic studies indicate a high prevalence of carnivore dermatophytosis, being the most widespread fungal disease with worldwide distribution. *Microsporum canis* is an agent commonly spread on a global level, most often association between man and his pet (6, 3, 2, 5).

The most common pets are cats and dogs and they can be the source for *Microsporum canis* and *T. mentagrophytes* infections (7).

Dermatophytosis affect 20-25% of the world population and in the past 15-20 years a significant rise in their prevalence has been observed which can be attributed to the change in migration models, in the development of tourism and the modification of socio-economic conditions (1).

Materials and methods

In the period October 2014-September 2016 a number of 43 felines from eight towns in the Timis County: Timișoara, Romanian Sânmihai, German Sânmihai, Pădureni, Variaș, Parța, Sânandrei, Cornești. The cats were aged from one month to 11 years. There were 13 males and 30 females, 37 of them belong to the European breed, one was *Birmanese*, three were *Persian* and two were *British Shorthairs*.

The cats were divided into two groups: one group was formed of 20 cats that presented cutaneous lesions and another group, 23 cats that were asymptomatic.

Samples of hair and squamae were collected from each animal from the two groups. The samples were collected and examined through direct microscopy. They were clarified using

lactophenol and they were cultivated on 43 Sabouraud agar gel and 43 DTM. The development of the colonies was followed on the aspect, colour and shape point of view (2, 4, 5).

Samples were collected from the colonies that grew and they were examined microscopically (with x40 objective). They were clarified with lactophenol and blue lactophenol.

Results and discussions

Clinical examination revealed distinct lesions located on: head (fig. 3), ears (fig. 4), body (fig. 2) and limbs (fig. 1). The lesions were dry and characterized by moderate erythema, squamae, depilation with no pruritus.

Fig. 1. Legs lesion

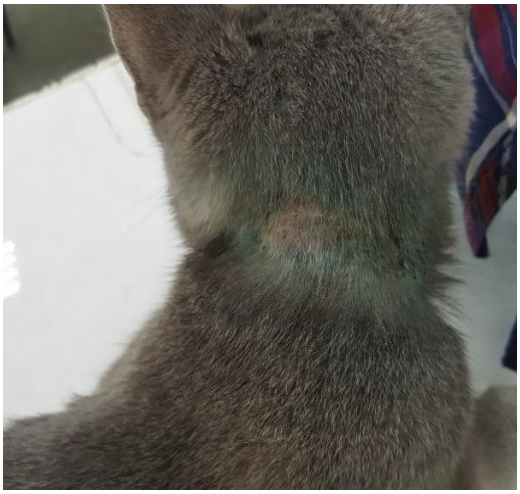

Fig. 2. Dry lesion on the body

Fig. 3. Erythema and depilation

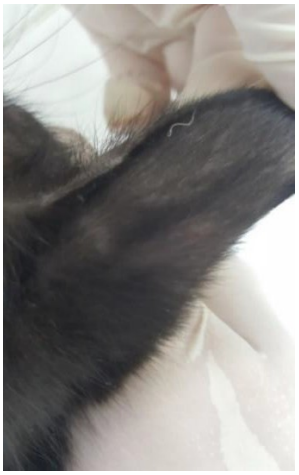

Fig. 4. Lesion on the ear

At the microscopic exam we did not identify characteristic parasitic elements: hife and spores. Ectoparasites were not present.

Macroscopic examination of Sabourad cultures allowed us to identify fluffy colonies and white-yellow pigmentation on 11,62% (5/43) out of the 43 samples examined (fig. 5).

Macroscopic examination of colonies grown on DTM revealed white fluffy colonies with turning color of the medium into red one (fig. 7) on 18,60% (8/43) out of the 43 samples examined.

Microscopic examination of collected samples from colonies grown on culture medium led to the identification of characteristic macroconidia (macroconidias in the form of a spindle with thickened walls, doubled, septal in several compartments) of the species *Microsporum canis* (fig. 6).

This dermatophyte was identified in seven colonies, of which four were both Sabouraud and DTM, and three were DTM only, in group 1 (35%) and in group 2 only in a single colony on DTM (4,34%).

Fig. 5. Sabouraud agar

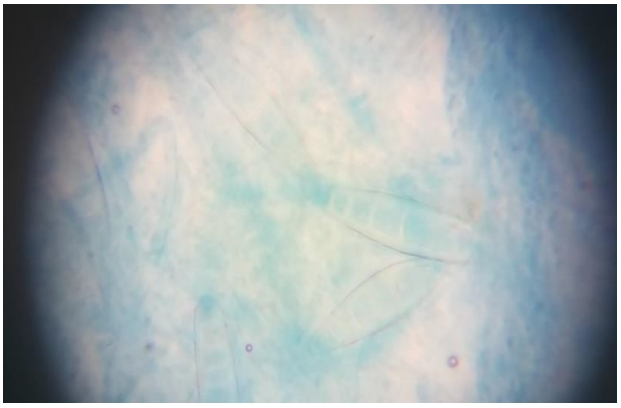

Fig. 6. *Microsporum canis* macroconidia

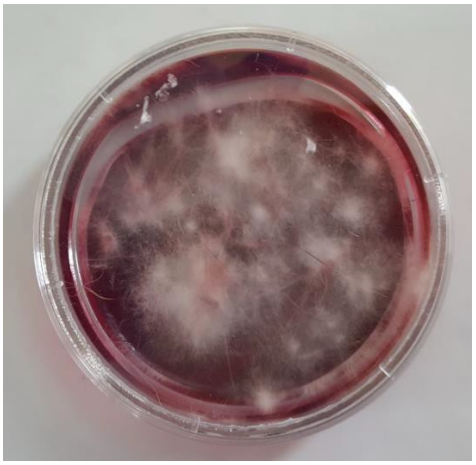

Fig. 7. Dermatophyte test

Dermatophytes are a major problem for public health in several countries and the drivers of distribution and transmission are: direct contact with animals, general hygiene and climatic conditions (7). Segal and Frenkel, 2016 (7) conducted a study stating that 100% of the cats examined in Italy living in the outside were positive for infection with dermatophyts, and in

Germany those living in the apartment, 21% were asymptomatic carriers of *Microsporum canis*, these being a source for animals and humans both.

It has been reported that the prevalence of dermatophytes infection also varies with temperature, humidity, season and geographical area (8). Some studies have indicated that the age of the animals is related to infection with dermatophyts and that animals less than one year old are more prone to these, so animals up to one year showed an isolation rate of 4.1%, and those aged between one and three years of 1.5% (7).

Conclusions

Microsporum canis was the only one species indentified in the skin lesions (group 1) in 35% out of examinated cats (7/20).

In group 2 (asymptomatic cats), the only species identified was *Microsporum canis* in one individual (1/23 respectively 4.37%).

The presence of *Microsporum spp*. in cats with skin lesions and asymptomatic demonstrates that they can be a source of infection for animals and humans both.

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