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CATS AND DOGS AS POTENTIAL CARRIERS OF MICROSPORUM CANIS

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SUMMARY

1. The hairs of 113 apparently healthy cats and dogs were examined mycologically for the detection of fungi causing ring worm.
2. Dermatophytes were isolated from 6 animals showing no clinical symptoms, these were *M. canis* (5 cases) 4% and *T. mentagrophytes* (one case) 0.8%.

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From the epidemiological point of view dermatophytes were classified into 3 groups : Anthropophylic ; those dermatophytes confined to man; zoophylic, dermatophytes affecting mainly animals and geophylic fungi which are found in the soil. The anthropophylic fungi are for example *T. rubrum* are rarely isolated from animals (REFAI and MILIGY, 1968), whereas the zoophylic types as *M. canis* and *T. verrucosum* affects also man.

Owners of cats and dogs frequently contract the disease because of continued close contact with children which are more often affected with ring worm acquired from such animals and the opportunity of contact with the fungus is greater because of frequent fondling of the animals.

Therefore, it seems important to eradicate the disease in animals to get rid of the dangerous source of infection to man, this is achieved by early diagnosis of ring worm and treatment of diseased animals. This will be easy in animals showing clinical symptoms, although there is a subclinical

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form of the disease in which infection persists for a period of months or years and may first become clinically obvious when the animals loose badly condition for any reason. This is of course a problem as cats and dogs may harbour the pathogens in their fur although appear healthy (De Abmedia *et al.*, 1950 and Marcelou-Kiniti and Koumoutsopoulos, 1972).

The present study has been undertaken in an attempt to isolate fungal spores from apparently healthy cats and dogs, which under natural conditions can transmit infection to both man and animals.

MATERIALS RND METHODS

The hairs of 113 apparently healthy dogs and cats were examined mycologically for the detection of fungi causing ring worm. The examination was carried out as follows :

Clinical examination :

Cats and dogs were examined clinically for loss of hair, scales and eczema.

Wood's Lamp :

As a preliminary method for detection of microsporosis the animals were examined under Wood's lamp in a dark room to detect any fluorescing hairs. Hairs showing greenish fluorescence were picked up for further investigation.

Microscopical examination :

Hairs from different parts of the body, in addition to hairs showing fluorescence were put on slides and few drops of 15% K OH were added then covered with a cover glass, heated gently. After half an hour, the preparations were examined microscopically. The remaining portions of the samples were inoculated on the spot in Sabouraud-chloramphenicol agar. Inoculated plates were incubated at 30°C for 4 weeks. Isolated fungi were identified according to the macro and microscopical features.

RESULTS

Dermatophytes were isolated from 6 animals showing no clinical symptoms. These were *Microsporum canis* (5 cases) and *Trichophyton mentagrophyte* (one case). Yeasts were recovered from 5 animals and were identified as *Pitrosporum canis*, the other fungi constituting the majority of the isolated strains were saprophytes belonging to the genera : *Scopulariopsis, Aspergellus, Penicillium, Streptomyces, Trichotheium, Alternaria, Mucor and Geotrichum.*

Hairs infected with *M. canis* showed greenish fluorecence under Wood's lamp, while hairs contaminated with other fungal spores presented bluish or reddish fluorescence.

Types of Fungi isolated

Fungi isolated	Number	Per cent
Microsporum canis	5	4.0
Trichophyton mentagrophyte	1	0.8
Scopularasis	13	10.6
Aspergellus species	33	27.0
Penicillium	29	13.0
Streptomyces	16	23 8
Trichothecium	11	9.0
Pitrosporum	5	4.0
Alternaria	4	3.3
Mucor	4	3.3
Geotrichum	1	0.3
Total	122	

DISCUSSION

In Egypt, *Trichophyton violeceum, Trichophyton schoenleini* and *Microsporum canis* are the common cause of *Taenia capitis* in children (Abdel Fattah *et al.*, 1967). Refai and Miligy (1968) reported that in 20 out of 32 children suffering from *Taenia capitis* due to *M. canis*. The infection seemed to be transmitted from cats showing no clinical symptoms though they harboured the pathogen in their hair.

M. canis is the most common cause of ring worm in cats and dogs (La Touche, 1955; Dreisoerner, Refai and Rieth, 1964; Rieth and Refai, 1965 and Refai and Miligy, 1968). It affects also other animals as horses, monkeys, chimpanzees, lions, tigers, swine, sheep, foxes, chinchilla and rabbits (Conant, 1937 ; Jakle, 1949 ; Reiss, 1954 ; Priboth, 1962 ; Bisping and Seeliger, 1962 ; Refai and Bisping, 1964 ; Refai and Rieth, 1965). *M. canis* affects also man and mostly the infection is transmitted from animals (Marples, 1956 ; Ferguson, 1958 ; Strachan and Blant, 1963 and Refai and Miligy, 1968). The opportunity of contracting the infection from infected cats and dogs to man is greater as these animals are commonly in close contact with children. The lesions may be overlooked as the long hairs of such animals act as a dangerous source of infection.

The isolation of *M. canis* from five apparently healthy animals is of great zoonotic importance, as these creatures presenting no skin lesions or even loss of hairs may be looked for as healthy and playful animals, although they transmit infection unrecognized to persons coming in contoct either directly or indirectly. However, the cultural examination of such animals for fungi was difficult to give a good idea, as it was puzzling to define from which location the hair samples were taken for examination, specially the animals showing no clinical symptoms. From these five cases, hairs pulled from different parts of the body were negative in culture and only those that showed greenish fluorescence yielded colonies of *M. canis* on Sabouraud's agar. Unfortunately, this feature of fluorescence is limited only to *M. canis* and *M. audouni*, where other fungi as *T. mentagrophytes* showed no fluorescence. Therefore, it seems that its isolation was a matter of luck.

At the end of this work, we came to the conclusion that it is better to use sterile comb to comb the whole body of the animals so as the fungal spores will be catched on the comb's teeth, after which they are cultured by direct inoculation.

Some Microsporum species as *M. gypseum* and *T. mentagrophytes* could be isolated from Egyptian soil (El-Bahay *et al.*, 1968 and Refai and Rieth, 1964), but regarding *M. canis*, it is not yet proved to exist in the soil. The role of

insects as fleas in transmission of fungi seemed to be overlooked as, Rieth (1970) recorded that fleas can transmit infection both to animals and man. He could isolate *M. canis* from fleas and their larvae collected from infected animals.

In 5 cases yeast could be isolated and identified as Pityrosporum, this type of yeast is known to cause otitis externa in dogs (Manktelow, 1960). In the majority of examined samples different moulds were isolated which are of no significant importance as regard skin diseases. Only Scopulariopsis was reported to cause nail infection in man. As the mould grew rapidly they may cause overgrowth to the slowly growing dermatophytes. If cyclohexamide, which was not available at the time of this investigation, was used to inhibit mould growth, therefore, greater number of dermatophytes would have been obtained.

Control of ring worm relies on early diagnosis of animals, their isolation, treatment and disinfection designed to prevent spread of the infection. Also, the use of Wood's lamp is recommended to detect infected hair with the green fluorescence.

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