

Dermatophytes isolated from dogs suspected of dermatophytosis in Baghdad  
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### Abstract

*Microsporum canis* and *Trichophyton mentagrophytes* var. *granulare* are the two most common species of dermatophytes causing ringworm of dogs in Baghdad together accounting for ( 83.33%) of the isolates. The other isolates are the geophilic dermatophytes *Microsporum gypseum* (11.9%) and *Cladosporium* spp.(4.7%).Two of the dog isolates were connected with human dermatophytosis, there are skin lesions among members of three owner families suffering from the same infections as their pets.

**Keywords:** Dermatophytes , dogs , dermatophytosis .

### Introduction

Dermatophytes are one of the most frequent skin diseases of pets and livestock. Contagiousness among animal communities, high cost of treatment , difficulty of control measures and public health consequences of animal ringworm explain their great important (1).

*Microsporum* and *Trichophyton* species are responsible for infections in animals and *Microsporum canis* is the most commonly isolated dermatophyte from dogs (2, 3, 4) .The present study was aimed to assess the incidence of dermatophytes of dogs in Baghdad province and their relation to human dermatophytosis.

### Material and Methods

Fifty dogs were collected from the city of Baghdad and the suburban areas around the city during the period May 2012 till December 2012 and examined for the presence of dermatophytes . These dogs were killed by shooting, or car accident with the help of General Veterinary Hospital in Baghdad .

All parts of the body of each dog was carefully examined for evidence of ringworm infection. Samples were taken from suspected dermatophytosis affected dogs. The skin – scale samples were taken by scraping of the margin of the affected area using a sterile forceps and a scalpel. Hair samples were collected by removing dull broken hairs from the margin of the lesion using sterile tweezers .In direct smear , several hair and skin samples were examined microscopically using 10% KOH. The samples were cultured on Sabouraud's dextrose agar plates containing 50mg /L Chloramphenical and 500mg /L Cyclohexamide and incubated at 28 °C for up to four weeks. The slide culture technique was used to demonstrate the mode in which conidia are formed . When culture yielded colonies suggestive of a dermatophyte, the species were identified by colony morphology, color, shape, growth characteristic and microscopical morphology of the hyphae , macroconidia and microconidia (5).

### Result

Out of 50 dogs examined, 18 were found infected by both direct and culture examinations , yielded an infection rate of 36 % ( Table -1). The most common lesions were circular, diffuse, scaling areas of alopecia mostly located on the head ,extremities and trunk. Kerion lesions were found in some cases.

The infection with dermatophytes was found in stray dogs (40 %) higher than that in house – hold dogs (30 %). It is interesting to note that all the specimens showing fungal elements in smear, pathogenic fungi were isolated in culture. The various species of dermatophytes isolated from these dogs are shown in (Table – 2). *Microsporum canis* was the species most frequently found which constitute (52.38 %) of the isolates. The zoophilic dermatophyte

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(*Trichophyton mentagrophytes* var. *granulare*) was isolated in 13 (30.95%) of the dogs examined. The geophilic dermatophyte *Microsporum gypseum* was infrequent and seen in 5 cases (11.90%). Among the non – dermatophyte pathogens isolated. *Cladosporium* spp. accounted for only two cases (4.76%) of the stray dogs.

### Discussion

The present study was prompted by lack or rare data available on the prevalence of dermatophytes of dogs in Iraq ,in addition it serves to focus attention on the occurrence of dermatophytes in these animals as a source of human infection. It is apparent from the present isolation of *Microsporum canis* and *Trichophyton mentagrophytes* var. *granulare* from the animals investigated that these animals are carriers of these dermatophytes and as such are likely to play an important role in the transmission of ringworm to man in this country . The role of dogs in human infection may be related to the large number of spores shed in the environment by infected dogs. Human infections due to these two species of dermatophytes are common in both urban and rural communities in Baghdad (6,7,8) , and there is little doubts that most cases are of animal origin . These two fungi were found the most common cause of ringworm among the dogs surveyed. In the present study, it is interesting to mention that three children sons of the owners of the infected dogs were found infected with same species of the fungus isolated from their dogs and their infections are easily traced to direct contact with ringworm – infected dogs. In one house, two brothers were found infected with *Trichophyton mentagrophytes* var. *granulare* causing supportive kerion type lesions in their scalp . The other child in another house having *Tinea capitis* in which *Microsporum canis* could be isolated from the child and his dog . In investigating the way by which these children became infected, the two brothers infected with *Trichophyton mentagrophytes* var. *granulare* declared that the infected dog usually sleep with them in their bed , and the bed may be contaminated by spores of infected hairs shed by this animal. From these observations it can be said that, the intimate association of dogs with man play an important role in the transmission of *Microsporum canis* and *Trichophyton mentagrophytes* var. *granulare* infection to man (9,10,11).

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On the other hand, *Cladosporium* is the rarest fungus isolated in our study (4.76 %) . In Barcelona, Cabanes *et. al.* (12) isolated this fungus in 84.9 % of infection in 944 dogs examined . While other worker in India isolated this fungus in 1.5 % of 205 dogs examined (13). This infection can be attributed to contamination from soil(14).

In conclusion, this investigation have shown that ringworm in dogs is a common dermatological condition with definite public health importance .

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**Table (1): Source of animals examined and percentage of infection with dermatophytes.**

Source of animals	No. dog examined	No. infected dog	%
<b>Stray dogs</b>	<b>30</b>	<b>12</b>	<b>40</b>
<b>House – hold dogs</b>	<b>20</b>	<b>6</b>	<b>30</b>
<b>Total</b>	<b>50</b>	<b>18</b>	<b>36</b>

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Table (2): Dermatophytes species isolated from dogs suspected with dermatophytosis

Species of fungi	Stray dogs(32)	House – hold dogs (10)	Total	(%)
<i>Microsporum canis</i>	18	4	22	52.38
<i>Microsporum gypseum</i>	4	1	5	11.90
<i>Trichophyton mentagrophytes</i>	8	5	13	30.95
<i>Cladosporium spp.</i>	2	0	2	4.76
<b>Total culture positive</b>	<b>32</b>	<b>10</b>	<b>42</b>	<b>100</b>

## الفطريات الجلدية المعزولة من الكلاب المصابة بالفطريات الجلدية من مدينة بغداد

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الخلاصة

ان نوعي الفطريات *Microsporium canis*, *Trichophyton mentagrophytes var. granulare* من اغلب الانواع المسبب للقوباء الجلدية للكلاب في بغداد اذ كان مجموعها بنسبة 83.33%. اما الانواع الاخرى فكانت من الفطريات الترابية *Microsporium gypseum* بنسبة 11.9% و *Cladosporium spp.* بنسبة 4.7%. وقد وجد بأن ثلاثة افراد من مالكي الكلاب مصابين بنفس الفطريات المعزولة من حيواناتهم.

مفتاح الكلمات: الفطريات الخيطية, الكلاب, الفطريات الجلدية.