

A Survey of Dermatophytes Isolated from Cows and Sheep in Iraq

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Summary

A total of 100 animals were examined during the period of beginning of September - 2010 till the end of March 2011 at dept of Microbiology college of Veterinary Medicine Baghdad University Baghdad Iraq. These animals include 50 cow and 50 sheep. Hairs and scales were submitted to direct KOH mount smear and culture on modified Sabouraud's Dextrose agar medium The direct smear was positive in 40 (80%) for both cows and sheep while the growth of dermatophyte was positive in 35 (70%) and 38 (76%) for cows and sheep respectively. Species identification revealed the presence of *Trichophyton rubrum* (19 isolates) *Trichophyton verrucosum* (10 isolates) *Trichophyton mentagrophytes* (5 isolates) and *Microsporum canis* (one isolate) in cow while *Trichophyton rubrum* (22 isolates) *Trichophyton verrucosum* (2 isolates) and *Trichophyton mentagrophytes* (14 isolates) was recorded in sheep.

Keyword: Dermatophytes *Trichophyton verrucosum* , *Trichophyton mentagrophytes*, *Microsporum canis* , *Trichophyton rubrum*.

دراسة بحثية عن الفطريات الجلدية المعزولة من الابقار والاعنام في العراق

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الخلاصة

تم فحص مائة حالة من الابقار والاعنام خلال الفترة من بداية شهر أيلول 2010 الى نهاية شهر آذار 2011 وفحصت النماذج المأخوذة من الجلد والشعر في كلية الطب البيطري / جامعة بغداد. خضعت النماذج المأخوذة للفحص المباشر بأستخدام الشريحة المرطبة بمحلول هيدروكسيد البوتاسيوم (10% KOH) مع الزرع على وسط السابرويد المطور وكانت نتيجة الفحص المباشر 40 (80%) لكل من الابقار بينما كان نمو الفطريات الجلدية موجبة في 35 (70%) و 38 (76%) للابقار والاعنام على التوالي. أظهر فحص تشخيص الانواع ففي الابقار وجود 19 عزلة للنوع *Trichophyton rubrum* 10 عزلات نوع *Trichophyton mentagrophytes* و 5 عزلات للنوع *Trichophyton verrucosum* و عزلة واحدة للنوع *Microsporum canis* بينما في الاعنام شخصت 22 عزلة من النوع *Trichophyton rubrum* و عزلتان من النوع *Trichophyton verrucosum* و 14 عزلة من النوع *Trichophyton mentagrophyte*.

Introduction

Dermatophytes are fungi that require keratin for growth. These fungi can cause superficial infections of the skin hair and nails. They are spread by direct contact from other people (Anthropophilic organisms) animals (Zoophilic organisms) and soil (Geophilic organisms) as well as indirectly from fomites (1). Dermatophytes infection usually refer to as Tinea are caused mostly by the genera Epidermophyton Microsporum and Trichophyton.

Variation in the distribution pattern of dermatophytes infection in many different countries of the world are evident in the studies (2 - 6). This distribution pattern of dermatophytes infections in different parts of the world has been attributed to factors of climate life - style and prevalence of immunodeficiency disease in the community and also the reluctance of patients to seek treatment because of embarrassment or minor nature of disease unless the condition becomes sufficiently serious to effect the quality of life (7).

Materials and Methods

A total of 100 animals were examined during the period of beginning of September 2010 till the end of March 2011 at dept of Microbiology college of Veterinary Medicine Baghdad University Baghdad Iraq. These animals include 50 cows and 50 sheep hairs and scales were submitted to microscopic examinations after immersion in 10% potassium hydroxide solution with gentle heating. Hairs and scales from active outer border of the lesions of all animals were inoculated on modified Sabouraud's Dextrose agar containing chloramphenicol (005 mg/ml) and cycloheximide (05 mg/ml). Culture were incubated at 28 c with daily observation for a period of 4 – 5 weeks before they were considered negative. The identification of dermatophyte species was based on the gross and microscopic cultural characteristics produced on this standard medium according to Emmon *et al* (8) and Rippon (9).

Results

A total of 50 cows were examined. Twenty five (50%) cases were positive by both direct KOH mounts smear and culture. Fifteen (30%) cases were culture negative after six weeks incubation at room temperature (28 c) although the direct KOH mount examination was positive. The remaining 10 (20%) cases gave a positive culture result although the direct KOH mount smear examinations were negative (table1).

A total of 50 sheep were examined. Twenty eight (56%) cases were positive by both directed KOH mount smear and culture Twelve (24%) cases were culture negative after six weeks incubation at room temperature although the direct KOH mount examinations was positive. The remaining 10 (20%) cases gave KOH mount smear examination were negative (table1).

Table (2) shows that the higher incidence of infections was obtained from rural areas (70%) and (64%) in both cows and sheep respectively while lower incidence of infection was recorded from urban areas (30%) and (36%) in both cows and sheep respectively. The frequency of infections in different animals regardless of their localities were shown in (figure 1) Sheep cases revealed the highest percentage of positive cases (38) followed by cows (35). Thirty five isolates were obtained from fifty cases belong to cows They were distributed into the following : 19 isolates (54.3%) were *Trichophyton rubrum* followed by *Trichophyton verrucosum* 10 isolates (28.6%) *Trichophyton mentagrophytes* 5 isolates (14 3%) and *Microsporum canis* was one isolate (28%) these species were identified by the conventional methods (table 3). While 38 isolates were obtained from fifty cases belong to sheep They were distributed into the following : *Trichophyton rubrum* 22 (57 9%) isolates were recorded the highest number followed by *Trichophyton mentagrophytes* 14 (36 8%) isolates and *Trichophyton verrucosum* was 2 (53%) isolates (table 3).

Discussion

In this investigation ringworm infection was diagnosed in domestic animals namely cows and sheep As in other infections disease definitive diagnosis of ringworm infection depends upon the demonstration of the causative agent Diagnosis on the clinical appearance of the lesions is difficult except in the exceptional classical ringed lesions (10) . Out of the positive cases of ringworm in sheep 28 (56%) and cows 25 (50%) were detected by both direct KOH examination and culture respectively .

The higher percentage of negative culture from positive direct examination was mostly due to frequent contamination with saprophytes which over whelmed the medium and prevented the appearance of dermatophyte colonies even in the presence of cycloheximide in the medium . The higher percentage of positive cases in sheep (38%) and cows (35%) was recorded from rural areas in contrast to the urban areas One explanation for this high incidence was the possibility of contagious infection among animals sharing common shelters This possibility was confirmed by isolating the same etiological agents Moreover many of the infected animals

in the urban areas were already under treatment when specimens were taken from them for diagnosis. This led to false negative result. The importance of the dermatophytes of animal origin is clearly demonstrated by the species isolated from animals in the rural region (4). In this study three species of dermatophytes were identified out of 38 positive culture of sheep These species were *Trichophyton rubrum* (22 isolates) *Trichophyton verrucosum* (2 isolates) and *Trichophyton mentagrophytes* (14 isolates) while four species of dermatophytes were identified out of 35 positive culture for cows There species were *Trichophyton rubrum* (19 isolates) *Trichophyton verrucosum* (10 isolates) *Trichophyton mentagrophytes* (5 isolates) and *Microsporum canis* (one isolate). Our results was in agreements with the findings of others (12, 13 and14).

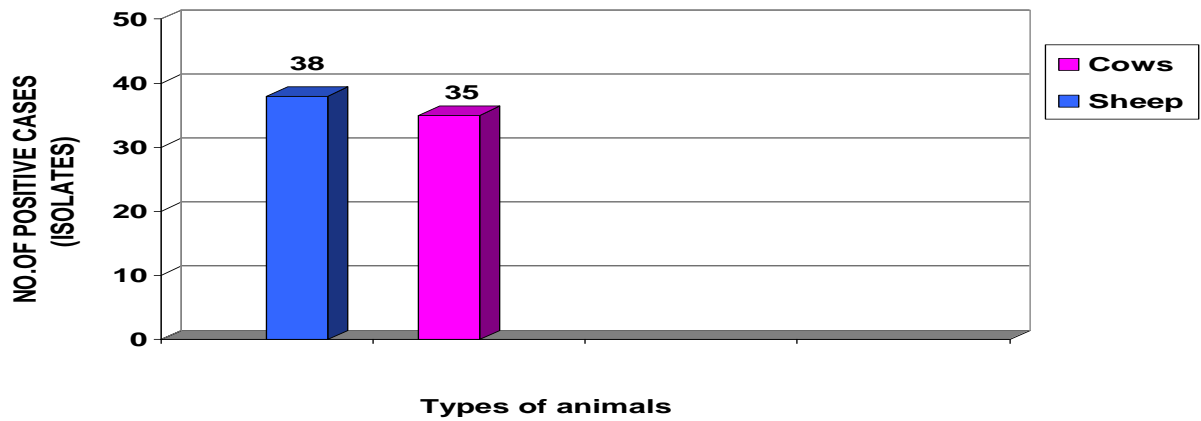


Figure (1): Incidence of dermatophytes infection in different types of animals.

Table (1): Relation between direct KOH mount smear and direct culture of 50 cases of both Cows and sheep.

Type of animal	Cows		Sheep	
	Examined cases	NO.	%	NO.
D + C +	25	50	28	56
D + C -	15	30	12	24
D - C +	10	20	10	20
Total	50	100	50	100

D + = positive direct KOH exam.
D -- = negative direct KOH exam.
C + = positive culture
C - = negative culture

Table(2):The incidence and distribution of dermatophytes infection in Cows and sheep according to their location.

Animals	Urban No.	%	Rural No.	%	Total No.
	Infected/ examined		Infected/ examined		
Cows	15 / 50	30	35 / 50	70	100
Sheep	18 / 50	36	32 / 50	64	100

Table (3): The number and percentage of dermatophytes species isolated from 50 Cows and 50 Sheep.

Species of dermatophytes	Cows		Sheep	
	NO.	%	NO.	%
<i>Trichophyton rubrum</i>	19	54.3	22	57.9
<i>Trichophyton verrucosum</i>	10	28.6	2	5.3
<i>Trichophyton mentagrophytes</i>	5	14.3	14	36.8
<i>Microsporum canis</i>	1	2.8	0	0
Total	35	100	38	100

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