A Survey Of Dermatophytes Isolated From Iraqi Patients In Baghdad City

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الخلاصة

اصابات الامراض الجلدية من المشاكل الشائعة في العالم وخاصة العراق . عدة تقارير نشرت لدراستها وخاصة الانتشار والمسببات والمعالجة . وقد اجريت هذة الدراسة حيث تضمنت خمسون مريضا (31 ذكر مع 19 انثى) المشكوك بأصابتهم بالفطريات .وتراوحت اعمارهم من سنة واحدة الى خمسون سنة. المرضى من مراجعين لمستشفى بغداد التعليمي و شعبة الامراض الجلدية – في مدينة بغداد للفترة من بداية شهر أيلول 2010 وحتى نهاية شهر أذار 2011 .

خضعت النماذج المأخوذة من الشعر والكشطات الجلدية الى الفحص المباشر بمحلول KOH%20 وقد زرعت على وسط السابروید المطور وتحت درجة حرارة 28م ولمدة 4 -5 اسابيع. وقد شخصت الفطريات المسببة للامراض الجلدية بألاعتماد على الشكل المظهري للنمو الفطري والفحص المجهري لها والتفاعلات الكيموحيوية وبالاعتماد على المصادر الفطرية .وسجلت اعلى اصابة في الاطفال دون سن العاشرة من العمر وكانت اصابة الرجال 31 (62%) اعلى من النساء 19 (38%). الاصابة بسعفة الرأس(*Tinea capitis*) والتي كانت سائدة أكثر من بقية الحالات الجلدية الاخرى حيث شكلت نسبة أصابة 47.5%.

اما المسببات الرئيسية للاصابات الفطريات الجلدية في البشر هي: *Trichophyton rubrum* 20 عزلة (%50) ، *Trichophyton menatgrophytes* 13 عزلة (%32.5) ، *4 Microsporum canis* عزلة *(%10)* ، *Trichophyton sudanese* 1 عزلة(%2.5) ، *Trichophyton schoenleinii* 1عزلة (%2.5) and *Epidermophyton floccosum* 1 عزلة (%2.5).

واثبتت الدراسة ان الفطريات المحبة للبشرAnthropophilicهي السائدة.

Abstract

Dermatophytes infection is a common problem worldwide and frequent in Iraq. Several reports and articles were published on prevalence, distribution, causes and treatment of dermatophytosis .

This case study was conducted on fifty patients(31males and 19 females) with suspected dermatophytes were studied . Their ages ranged from one year to fifty years .Patients admitted to Baghdad Teaching Hospital , Dept . of Dermatology , Baghdad during September 2010 to March 2011.Hairs and scales were collected and microscopicall examination using 20% KOH were done. Hair and scales from active outer border of the lesion were inoculated on modified Sabouraud's dextrose agar. Culture was incubated at room temperature(28C°) for 4 - 5 weeks. The identification of dermatophyte species was based on the gross , and microscopical and cultural characteristic according to standard mycological references .

The infection of dermatophyte was much higher in children below 10 years of age. Males 31(62%) were affected more than females 19(38%).*Tinea capitis* 19(47.5%) was the predominant clinical type .The main etiological agents was *Trichophyton rubrum* 20(50%) followed by *Trichophyton mentagrophytes* 13(32.5%).

The predominant anthropophilic dermatophytic species was *Trichophyton rubrum*.

This study was carried out to determine the prevalence, causative agents of dermatophytosis in group of Iraqi patients in Baghdad.

Keywords : Dermatophytes,Iraqi patients

Introduction

The main etiologic agents causing cutaneous fungal infections are dermatophytes (1). Dermatophytes are fungi that require keratin for growth. These fungi can cause superficial infections of the skin, hair and nails. Dermatophytes comprise a group of closely related fungi made up of three genera : *Trichophyton* , *Microsporum* and *Epidermophyton* (2) . Each of the dermatophytes (Anthropophilic , Zoophilic , Geophilic) has its own epidemiological importance not only to people and the animals but also to the environment .Most important to people and animals are the anthropophilic and zoophilic dermatophytes (3) .Dermatophytosis are the most common cutaneous infection all over the world(4 - 7) and vary from country to country and region to region , creating a specific spectrum of the region (8 -12).

Fungal infections in Iraq are the most common infections encountered in dermatological practice (13 .The etiological pattern of dermatophytosis believed to have been changed in the recent years from an etiology dependent on anthropophilic fungi to zoophilic fungi (5 - 14). The incidence and distribution of dermatophytes have been studied in various geographical areas of the world including Iraq (15 , 16), Jordan (17) , Kuwait (18) , Saudi Arabia (19), Europe and Greece (21). So the aim of the present study is to determine the frequency of dermatophyte infection and identify the causative agents in Iraqi patients.

Patients and Methods

Fifty patients (31 male and 19 females) with suspected dermatophytes were studied . Their ages ranged from one year to fifty years. This work was carried out in Baghdad Teaching Hospital ,Department of Dermatology, Baghdad during the period of September 2010 to March 2011 . All patients were carefully assessed clinically. Hair and skin scales were collected by skin scraping to be submitted to direct microscopical examination after immersion in 20% potassium Hydroxide Solution . Hair and scales from active outer border of the lesions of all patients were inoculated on Modified Sabouraud's dextrose agar containing chloramphenicol(0.05 mg / ml) and cycloheximide (0.5 mg / ml) . Cultures were incubated at 28 c with daily observation for a period of 4 – 5 weeks before they were considered negative .Colonies were Subcultured on the same medium and kept at 4 C for farther studies .The identification of the dermatophyte species was based on the gross and microscopic cultural characteristics produced on this standard medium according to Emmon's *et al* (22) and Rippon (23) .

Results

Out of the fifty cases of which clinically diagnosed as dermatophytes 34 (68%) cases were positive in both direct microscopical examination and culture ,10 (20%) cases yield a negative culture although the direct KOH mount examination was positive and the remaining 6 (12%) cases gave a positive culture results while the direct microscopical examination was negative (Table 1) .

The infections with dermatophytes were much higher in children below 10 years of age .Males 31 (62%) were affected more than females 19 (38%) as shown in (Table 2).

In the present work *Tinea capitis* (47:5%) was the predominant clinical variety followed by *Tinea cruris* (32 .

5%) and *Tinea corporis* (20%) (Figure 1) .This study revealed that *Trichophyton rubrum* (50%) and *Trichophyton mentagrophytes* (32. 5%) were the main etiological agents, followed by *Microsporum canis* (10%) , *Trichophyton sudanese* (2.5%), *Trichophyton schoenleinii* (2.5%) and *Epidermophyton floccosum* (2.5%) (Table3).

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

Examined cases	Number	%
D + C+*	34	68
D + C -	10	20
D - C +	6	12
Total	50	100

D + = positive direct KOH examination.
D - = negative direct KOH examination.
C + = positive culture
C – = negative culture

Table (2) : Age and sex distribution of fifty patients with dermatophytes infection.

	Age (years)						
Sex	≤10	11 - 20	21 – 30	31 - 40	41 - 50	Total	%
Males	10	8	9	3	1	31	62
females	9	5	3	1	1	19	38
Total	19	13	12	4	2	50	100
Percentage %	38	26	24	8	4	100	

Table (3): Dermatophyte species isolated in 40 cases of positive culture in patients with dermatophytes .

Dermatophyte species	Number	%
Trichophyton rubrum	20	50
Trichophyton mentagrophytes	13	32.5
Microsporum canis	4	10
Trichophyton sudanese	1	2.5
Trichophyton schoenleinii	1	2.5
Epidermophyton floccosum	1	2.5
TOTAL	40	100

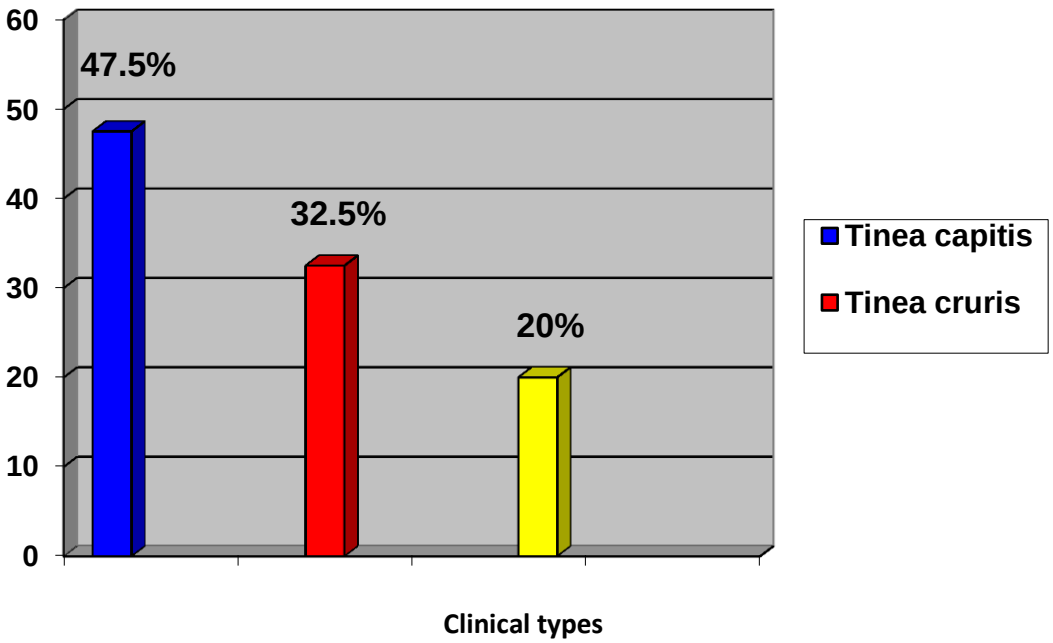

Figure (1) : percentage of infection of clinical types of dermatophytes of (40) cases.

Discussion

Although all dermatophytes are closely related , each species has certain characteristics in its geographical distribution .The changes in distribution of dermatophytes during the Century all over the world are striking and several explanations have been discussed . A true increase of a certain species and altered distribution would be a result of increased exposure to fungi , change in

human habits , change in the pattern of the animal household , a change in pathogenicity , and Intensive use of antimycotics (24) . From the result of this study, majority of the organism isolated belong to the genera *Trichophyton* and *Microsporum* and one Isolate belong to genus *Epidermophyton* .

Furthermore , it was clearly showed from the results of this study (Figure1) that *Tinea capitis* was the commonest form of the dermatophytes infection with (47.5%) incidence. This finding was in agreement with the result obtained from Amehand and Okolo (25) ; Enemuor and Amedue (26) and Kalifa *et .al* in Iraq (16).

In the past *Trichophyton schoenleinii*was the predominant dermatophytes species encountered in patients of tinea capitis (4,13, 27,28).The zoophilic species were more prevalent than anthropophilic species as etiologic agents of tinea capitis in Iraqi (5, 6 , 13, 14).

In the present study the anthropophilic species was more prevalent than zoophilic species as etiologic agents of dermatophytosis . This coincides with the findings of others (29 , 30).

It was previously reported that *Tinea capitis* is the most clinical form of dermatophytosis in both Liberia and the Republic of Chad where *Trichophyton sudanese* was the main etiological agent (31) .

Trichphyton rubrum is cosmopolitan but appears to have had a more restricted distribution in the past, having been transported widely as a result of human migration (the anthropophiles travel with their human hosts (1) .

The incidence of *Trichophyton rubrum* has increased significantly during the past 40 years in Europe and now *Trichophyton rubrum* is the most frequently Isolated dermatophytic species in Europe (30) as well as in Baghdad .

In conclusion the predominant anthropophilic dermatophytic infection was caused by .*Trichophyton rubrum* which is the most frequently isolated species .

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