Tinea capitis in a dermatology center in the city of TIKRIT

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Abstract

Tinea Capitis is a worldwide problem fungal infection of the scalp, it is epidemic in many African American communities and tinea capitis constitutes an important public health problem because of high prevalence; Tinea capitis usually occurs mostly in children and results in scaling and patchy hair loss; an exception may be a kerion; this is a very inflammatory tinea of the scalp and looks like a boil or abscess. The aim of the study is to clarify the prevalence, clinical forms, risk factors, and prevention of tinea capitis in a dermatology center in the city of Tikrit. One hundred patients with tinea capitis attending Department of Dermatology at Tikrit Teaching were enrolled in this study in the period January 2010 through to January 2011 their age range from one year to thirty one years old and the mean age was 11 years. There were 32 females and 68 males. All patients were diagnosed clinically with laboratory investigations (KOH and culture), and detailed tinea capitis questionnaire was completed for each of them. From 100 patients having tinea capitis, the following clinical types are recognized, ectothirx 26%, kerion 33%, endothirx 30%, and favus 11%. The correlation of tinea capitis and residence were 62% in urban area and 38% in rural area. Direct KOH were positive in 75%, while, the culture was positive in 80%. All risk factor were in high percentage, except associated diseases were only 6 patients positive. The present study concludes that Scalp ringworm can affect people of all ages, but this condition is more likely to affect kids under the age of 10. From our study we conclude that the best way to prevent a tinea capitis is to use common sense. Don't share things with someone outside your family, and don't touch other children who have a rash on their scalp or animals with a rash anywhere. When tinea capitis is diagnosed, it is important that all family members be examined for signs of infection

Key words: Tinea capitis, direct KOH, Kerionm Tikrit.

Introduction

Tinea capitis is an infection of the scalp. It is caused by a type of fungus called a dermatophyte. It occurs most often in children. It is very rare in adults (1).

Of the 3775 cases of tinea capitis reported to the European Confederation of Medical Mycology, 37.9% were M.canis, 23.1% T.tonsurans, 10.8% M.audouinii, 10.4% Trichophyton soudanense, and 9.7% Trichophyton violaceum (2). Hair invasion by dermatophyte is ectothrex in Microsporon, T. Mmentagrophyte and T. Verrucosum, while it is endothrix in T. Tonsurans and T. Violaceum (3). The causative organism varies from country to country (4).

Tinea capitis occurs mainly in children, although it may be seen at all ages. Boys have tinea capitis more frequently than girls; however, in epidemics caused by T. tonsurans there is often equal frequency in the sexes (5).

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The clinical appearance of ringworm of the scalp is most variable. It is useful to recognize several basic clinical pictures, as described below (6).

Small-spored ectothirx type. In M. audouinii and M. ferrugineum infections, the basic lesions are patches of partial alopecia, but showing numerous broken-off hairs, dull grey from their coating of arthrospores.

Kerion. The most severe pattern is known as a kerion. It is painful, inflammatory mass in which such hairs as remain are loose. Although this violent reaction is usually caused by one of the zoophilic species, typically T. Verrucosum or T. mentagrophytes var. mentagrophytes, occasionally a geophilic organism will be isolated.

Endothrix infections. In T. tonsurans and T. violaceum infections, a relatively non-inflammatory type of patchy baldness occurs. Formation of black dots (swollen hair shafts) as the affected hair breaks at the surface of the scalp is classical in this condition. Favus. Infection with T. schoenleinii is now seen rarely and sporadically in a variety of countries. The classical picture caused by this organism is characterized by the presence of yellowish cup-shaped crusts (scutula).

Methods of transmission:

Ringworm is contagious and can spread in the following ways: Human to human, Object to human and animal to human (7)

Laboratory Examination: Wood lamp: T .tonsurans, the most common cause in the USA, does not fluoresce. M.canis and M. audouinii, which previously were the most common cause, could be diagnosed by wood lamp. Direct microscopy: ectothirx (arthrospores can be seen surrounding the hair shaft in cuticle). Endothirx (spores within hair shaft). Favus (loss of chains of arthrospores and airspaces in hair shaft). Fungal culture: growth of dermatophytes usually seen in 10 to 14 days (8).

Patients and methods

One hundred patients with tinea capitis attending Department of Dermatology at Tikrit Teaching were enrolled in this study in the period January 2010 through to January 2011 their age range from one year to thirty one years old and the mean age was 11 years. There were 32 females and 68 males.

All patients were diagnosed clinically with laboratory investigations (KOH and culture), and detailed tinea capitis questionnaire was completed for each of them.

Three loose hairs are removed with epilating forceps from suspected area. The hairs are placed on a slide and covered with a drop of a 20% KOH solution and 36% Dimethyl sulfoxide (DMSO). They are compressed through the cover slip and examined first with a lower objective and then with a higher-power objective for detail.

Fungal culture was used to identify species of organism, Sabouraud Dextoxe Agar containing chloramphenicol, cycloheximide was used. Examination of colonies was done every 2-3 days.

Results

One hundred patients with tinea capitis were enrolled in this study their age range from one year to thirty one years old and the mean age was 11 years. There were 32 females and 68 males (table1).

Different clinical forms were revealed from 100 patients, ectothirx 26%, kerion 33%, endothirx 30%, and favus 11% (table 2).

The correlation of tinea capitis and residence were 62% in urban area and 38% in rural area (table 3).

The correlation of tinea capitis and laboratory examination were KOH 75% and culture 80% (table 4). The risk factors for tinea capitis were included in the table 5.

Discussion

Scalp ringworm can affect people of all ages, but this condition is more likely to affect kids under the age of 10. According to the American Academy of Dermatology, "There is currently an epidemic of Tinea. tonsurans tinea capitis, with African-American children being at highest risk for acquiring the infection "(9). Occurrence of the disease is no longer registered by public health agencies; therefore, true incidence is unknown. In the United States and other regions of the world, the incidence of tinea capitis is increasing (10).

The study results revealed that tinea capitis is primarily a disease in young children where adults are rarely infected this is believed to be due to the higher content of fatty acid in the sebum after puberty (11). 68% of males are more infected than females 32%. This may be due to shortness of the hair, which facilitates easy reach of the fungal spores to the scalp. In correlations between age group and clinical forms the age group 0-10 years had the highest incidence equal to 73%, then the age group 11-20 years had 21%, then the age group 21-30 years had 6%. The kerion was the highest form 33% which means that increase risk for tinea capitis by the presence of animals, because kerions is usually caused by one of the zoophilic species (12). Because Tikrit Teaching Hospital drains patients from urban area in addition to the rural area the high percentage of patients were in the urban area (62%) than the rural area (38%). The KOH was positive in 75% and culture was positive in 80%. All risk factor were in high percentage, except associated diseases were only 6 patients positive. Because the fungi that cause tinea capitis produce spores that are shed into the infected patient's clothing, brushes or combs, and even into the air around the patient. These spores can survive for months on objects. The common source of spores is classmates or adults who carry the spores on their skin or scalp without being infected (13). Contact alone with one of these carriers may not be enough to cause an infection. However, coupled with minor trauma to the scalp, spores can enter though the stratum corneum (14).

The present study concludes that the best way to prevent a tinea capitis is to use common sense. Don't share combs, brushes, or hats with someone outside your family, and don't touch other children who have a rash on their scalp or animals with a rash anywhere. When tinea capitis is diagnosed, it is important that all family members be examined for signs of infection and to see if they are asymptomatic carriers.

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Table 1: distribution of tinea capitis according to the age and sex.

Age (years)	0-10	11-20	21-30	Total
Female	25 (34.24%)	5 (23.8%)	2 (33.33%)	32 (32%)
Male	48 (65.75%)	16 (76.19%)	4 (66.66%)	68 (68%)
Total	73 (100%)	21 (100%)	6 (100%)	100 (100%)

Table 2: correlation between age group and clinical form.

Age (years)	Ectothirx	Kerion	Endothirx	Favus	Total
0-10	18(69.23%)	25 (75.76%)	21 (70%)	9 (81.82%)	73 (73%)
11-20	5 (19.23%)	8 (24.24%)	6(20%)	2 (18.18%)	21 (21%)
21-30	3 (11.54%)		3 (10%)		6 (6%)
Total	26 (100%)	33(100%)	30 (100%)	11 (100%)	100 (100%)

Table 3: correlation between clinical forms of tinea capitis and residence.

Clinical forms	Urban	Rural	Total
Ectothirx	16 (25.81%)	10 (26.32%)	26 (26%)
Kerion	14 (22.58%)	19 (50%)	33 (33%)
Endothirx	23 (37.1%)	7 (18.42%)	30 (30%)
Favus	9 (14.52%)	2 (5.26%)	11 (11%)
Total	62 (100%)	38 (100%)	100 (100%)

Table 4: correlation of tinea capitis and laboratory examinations.

Test	Positive	Negative	Total
KOH	75 (75%)	25 (25%)	100 (100%)
Culture	80 (80%)	20 (20%)	100 (100%)

Table 5: correlation of tinea capitis with risk factors.

Risk factor	Positive	Negative	Total
Large family	70	30	100
Exposure to pets	80	20	100
Low socioeconomic	75	25	100
Crowded	60	40	100
Poor hygiene	65	35	100
Associated diseases	6	94	100