PREVALENCE OF TINEA CAPITIS IN A TERTIARY CARE HOSPITAL,NORTH INDIA

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ABSTRACT

Fungal infections are common in humans worldwide. Hot and humid weather conditions in the tropical countries like India make humans very susceptible to fungal infections. Tinea capitis (TC) is the superficial fungal infection of the scalp and hair. The true incidence of Tinea capitis is unknown. although infection can occur at any age.Tinea capitis is one of the most common infectious conditions in children worldwide.A total of 100 subjects were enrolled in study who were attending Dermatology Out Patient Department (OPD) in a tertiary care hospital.Hair sample was taken and culture was done on Sabouraud's Dextrose Agar(SDA).Species identification was done by slide culture.*T.tonsurans* was most common isolate.

Keyword: Tinea capitis, Fungal infections, SDA, Slide culture

INTRODUCTION-

Tinea capitis (TC) is a fungal infection of the scalp, hair follicles and hair shafts, especially common in the pediatric population and under tropical conditions. The highest incidence is seen in children 3-7 years of age. The presence of symptoms like hyperkeratosis of scalp, seborrhea-like symptoms, excoriation secondary to pruritus, alopecia, broken hair or "black dot" appearance, cervical lymphadenopathy, pustules, or indurated or boggy plaques in a child should alert the dermatologist toward the possibility of Tinea Capitis (TC) is caused by various dermatophytes.

Depending on the body site affected, dermatophytosis may result in different clinical syndromes such as tinea capitis (hair shaft and scalp), tinea corporis (body), tinea cruris (groin), tinea pedis (foot), and tinea unguium (hand). Tinea capitis is an infection of the scalp and hair shaft caused by several species of *Trichophyton* and *Microsporum* .It is the most common dermatophytosis in children aged between six months and prepubertal age [8–11)

The prevalence of various causative fungi varies according to the geographical area being studied. TC can present as noninflammatory or inflammatory morphological variants.

Fungal infections are common in humans worldwide. The prevalence of various types of fungal infections varies according to the geographical situations of the habitat and a number of host factors. Hot and humid weather conditions in the tropical countries like India make humans very susceptible to fungal infections.Tinea capitis (TC) is the superficial fungal infection of the scalp and hair. The true incidence of Tinea capitis is unknown. although infection can occur at any age, Tinea capitis is one of the most common infectious conditions in children worldwide. Tinea capitis is a common superficial fungal infection of the scalp and hair. This an exogenous infection that is characterized by invasion of dermatophytes into hair follicles and keratinized layer of hairy skin leading to hair loss, scaling, kerion, agminate folliculitis, favus, black dot, grey patch type, erythema or impetigo-like lesions

Tinea capitis is contagious and there may be outbreaks of this disease, especially in overcrowded set-ups .It may be caused by any pathogenic dermatophyte except *Epidermophyton floccosum* and *Trichophyton concentricum* Tinea capitis is contagious and there may be outbreaks of this disease, especially in overcrowded set-ups. The source of infection are close contact with patients or asymptomatic carriers, fomites like hair brush and scissors used in hair parlors, and sometimes pet animals. Scarring alopecia, scaling and inflammatory swelling give rise to an unsightly look, for which the child may be ridiculed by peers. Hence it is a cause of morbidity and loss of school days for the affected children[9]. Tinea capitis is a common infection

in south India. Though there is a wide variation of the common causative organisms in different parts of the world, though recently a change in this distribution has been observed. New species have been detected in countries like UK, USA, Latin America, Australia and Japan, probably because of promotion of worldwide travel and immigration. Tinea capitis is caused by a number of *Trichophyton,Microsporum* species . Worldwide, tinea infections are among the most common infectious agents in humans . Its prevalence has continued to have a dramatic increase in the last decades with more than 20–25% of the world's population being affected [10]

There are few mycological studies on Tinea capitis conducted in south India in the recent past, which will be a parameter whether such a change in the epidemiology has occurred in this region. As this study aims to isolate the causative species of dermatophyte, it may help in identifying any yet unrecognized changing trend in this aspect of the disease. It can also provide information regarding the predominant clinical pattern and the common epidemiological factors influencing the occurrence of this disease in this part of India. This knowledge will help in implementing better preventive measures for elimination of this common fungal infection. Recent studies have revealed a high incidence of carrier state rather that overt clinical manifestations. Therefore ,this study has been taken in view of changing trend in the causative agents as well as the various host factors and the relationship of fungi with clinical manifestation.

MATERIAL AND METHOD This is an observational study which includes 100 subjects with clinical sign and symptoms of tinea capitis after taking informed written consent from them.Study population was patients attending OPD of department of Dermatology,ELMCH from Jan 2016 to DEC 2016 ie.1year duration.

Inclusion Criteria All patients attending OPD of Dermatology, Era's Lucknow Medical College & Hospital, Lucknow suspected of fungal infection of scalp on the basis of clinical presentation were enrolled.

Exclusion Criteria Patients unwilling to participate in the study.Critically ill children.Children receiving antifungal therapy.

Methodology A detailed history regarding the age, sex, occupation,treatment history,history recurrence ,past history, onset, duration, seasonal variations, family history, personal habits and course of the disease was taken. A detailed clinical examination was done noting the appearance of lesions, distribution of the lesions, colour of the lesions, presence of scales and other associated conditions.

Hair sample was collected along with roots and hair follicle in dept.of Microbiology .KOH wet mount was prepared and culture was done on Sabouraud's Dextrose Agar (SDA) with actidione.Lactophenol Cotton Blue(LCB) mount was prepared and species identification was done by slide culture technique.

RESULT-The result are summarized as follows:
Table-1 - (Relation of specimen collection and month)

Month/year	No. of Specimen
Jan-16	2
Feb-16	3
Mar-16	4
Apr-16	7
May-16	9
Jun-16	15
Jul-16	17
Aug-16	14
Sep-16	11
Oct-16	7
Nov-16	6
Dec-16	5
TOTAL	**100**

According to table-1 maximum number of specimen were collected in July (17) followed by June (15) & August (14). Minimum specimens were collected in month of January (02) & February (03)

Table 2: Distribution of cases according to age group

Age (years)	Case	Capitis	
	n=	M	F
0-10	17	09	08
11-20	19	10	09
21-30	21	11	10
31-40	11	07	04
41-50	15	06	09
51-60	09	05	04
61-70	05	02	03
71-80	03	0	03
Total	n=100	50	50
	100%	100	

According to table-02 male: female ratio was 1:1 i.e. both sexes equally involved. More number of cases belong to age group 21-30 years i.e. 21 in which males dominated females followed by age group 11-20 years (19) and then age group 0-10 years i.e. 17 cases were involved. Least number of specimens were collected from age group 71-80 years (03) and 61-70 years (05).

Table -3 : Distribution of cases according to level of Education

T.capitis	Clinical Presentation
100	Cases
16	No Education
48	Primary education
16	High School
2	Intermediate
14	Graduate
4	Post graduate

According to this table maximum number of patients were primarily educated (48) , least were intermediated passed (02)

Table-4: KOH POSITIVITY AND CULTURE CORELATION

	Culture Done	
	CULTURE POSITIVE	CULTURE NEGATIVE
KOH Positive – 88	74	14
KOH Negative – 12	4	8
Total – 100	78	22

According to this table total culture positives were 78 & culture negative were 22. KOH positive and culture positive were 88 and KOH negative and culture negative were 08

Table- 5: Prevalence of Fungal isolates from T. capitis

Fungal isolates	T. capitis
T. mentagrophytes	10
T. tonsurans	22
T. rubrum	4
T. soudanense	7
T. schoenleinii	4
T. verrucosum	9
M. ferrugineum	10
M. audouinii	7
E. floccosum	0
C. albicans	1
C. non albicans	1
Nondermatophytes	0
TOTAL	78

According to this table maximum number of isolates were *Trichophyton tonsurans* (22) followed by *Trichophyton mentagrophytes* (10) & *Microsporum ferrugineum* (10). *Candida* sps.(1) was least isolated

DISCUSSION

The present study was conducted in the Dept of Microbiology, ELMCH, Lucknow in collaboration with the Dept. of Dermatology and Venereal Diseases, ELMCH, Lucknow from Jan 16 to Dec 16. This study was conducted to study prevelance of Tinea capitis in a tertiary care hospital in North India.. The spectrum of various fungi causing superficial mycosis has not been recently documented from our region and treatment is empirical. Therefore, the present study was undertaken to describe the prevailing spectrum and frequency of various fungal isolates causing Tinea capitis.

TC is a common fungal infection, particularly among children in urban regions. More often than not, it presents with mild scaling and little hair loss, which is reversible. However, in a few cases, it may be characterized by intense inflammation and subsequent cicatricial alopecia, which causes permanent cosmetic disfigurement. Also, the infection is highly contagious and, hence, needs to be recognized and treated early to prevent transmission to siblings and co students.[11]

The present study included 100 patients attending the Dermatology OPD at our institution who were clinically suspected to have Tinea capitis. These patients were referred to our department for detection of fungal elements in the hair specimens. In T. capitis male:female ratio was 1:1.

Various conflicting views exist regarding the sexual predominance of TC. Some authorities believe that TC may be common in boys due to shorter hair, allowing easy access for circulating spores, while others believe that it may be more common in girls due to tight hair braiding. An almost equal number of males and females were affected in our series, similar to previous study by Singal *et al*. from North India.(12,13,14)

This clinical presentation was most common in the age group of 0-10 years followed by 21-30 years. . Prevalence of T.capitis as a clinical syndrome is uniformly high in Africa (10-30%) in primary schools . Protein deficiency, malnutrition along with vitamin A deficiency have been seen to be associated as a predisposing factor to develop infection **.** Mustard oil which is used in North and North East India for hair dressing was found to have an inhibitory effect on fungi in T. capitis but coconut oil has no such effect .Most commonly isolated sps was *T.tonsurans*.

Our study has revealed a strikingly different local dermatophytic flora in our region compared to the rest of the country. This signifies the importance of epidemiological studies to be conducted at regular intervals.

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