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A Clinicomycological Profile of Dermatophytoses In Tertiary Care Hospital In Western U.p

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ABSTRACT

Background: Dermatophytoses are commonly encountered fungal diseases prevalent in most parts of theworld especially in tropical countries. It is a superficial mycotic infection affecting hair, skin and nails.

Aims & objectives:The present study was carried out to determine the incidence of dermatophytoses and their etiological agent in different age groups attending the Dermatology department.Materials & Methods: A total of 178 samples from skin department were processed by direct KOH preparation & fungal culture methods. Identification of the species was doneby Lactophenol Cotton Blue mount from colony.

Results: Our study shows that males 52 (63.41%) are more infected than females30 (36.58%). Tinea corporis was thecommonest clinical type 38 (46.34%).The positivity rate of Potassium Hydroxide preparation is 61.23% and of culture is 46.06%.The commonest fungal isolate isTrichophyton species (51.72%), followed by Microsporum (39.92%) and Epidermophyton species 6(7.31 %)

Conclusion: Male have higher fungal infection rate than females. Trichophyton rubrum is the common isolate inour geographical area. KOH preparation has higher positivity rate than cultue.

KEYWORDS : Dermatophytes, Trichophyton, Tinea corporis, tropical

INTRODUCTION:

Superficial fungal infections are among the world's most common diseases with prevalence of in tropical countries.It has become a significant health problem affecting children, adolescents and adults. Dermatophytosis is a superficial mycotic infection commonly referred to as "ringworm" are group of fungi that infect keratinous tissue, with the skin, hair and nails being the most common sites[1,2]. On the basis of clinical, morphologic & microscopic characteristics three anamorphic genera are known: *Epidermophyton*, Microsporum &*Trichophyton*.[1]In recent years the incidence of infections caused by dermatophytes has increased considerably [2, 3]. This may be due to frequent usage of antibiotics, immunosuppressive drugs and various conditions like organ transplantations, lymphomas, leukemia and human immunodeficiency virus (HIV) infections.[4] Clinically, the different types of dermatophytosis are classified according to body site involvement.[5]Although the clinical signs of dermatophytosis may vary depending on the affected region of the body, pruritis is the most common symptom in humans[6].The clinical presentation, though very typical of ringworm infection, is often confused with other skin disorders that may be due to rampant application of broad-spectrum steroid containing skin ointments and creams leading to further misdiagnosis and mismanagement[7].

The epidemiology of most of the clinically significant dermatophytosis has substantially changed over the last few years. The distribution of the dermatophytosis and their etiological agents varies with geographical location and depends on several factors, such as lifestyle, type of the population, migration of people, climatic conditions, personal hyegiene and individual's susceptibility therefore some species are widely distributed whereas others are geographically restricted. Superficial mycosis is more prevalent in tropical and subtropical countries including India, where heat and moisture play an important role in promoting the growth of these fungi [9].

In thisstudy, we undertook a clinical and mycological approach, correlating various demographic data such as age, sex and occupation with isolation and identification of the fungus using standard mycological techniques.

MATERIAL & METHODS

A retrospective study was done from March 2013 to February 2014. A total of 178 specimens were processed in the Department of Microbiology from clinically suspected cases of superficial mycoses attending the outpatient Department of Skin of our hospital.

A detailed history of the patients regarding name, age, sex, occupation, duration of illness and involvement of the site and clinical presentation were taken.

Specimen collection: The affected area was cleaned with 70% alcohol. The skin scraping was done from active peripheral margin of the lesion without injuring the skin surface[10,11]. The deeper fragments or crusty deposits from the junction of affected nail was collected with the help of sterile scissors or nail clippers[10,11]. A few affected hairs were also epilated and collected with a pair of flame sterilized tweezers.

Direct demonstration:**By KOH wet mount:**10 % and 20% KOH was used for skin/hair and nails respectively. This preparation was kept for 20-30 minutes (for hairs) and overnight (for nails)and observed under microscope for morphological study of fungi.[11]

Mycological Cultures: The specimens were inoculated onto slopes of duplicate sets of tubes containingSabouraud's dextrose agar with chloramphenicol andcycloheximide (HIMEDIA, MUMBAI)and incubated at 37°C and 25°C. The cultures were examined for every two days for a period of one month for the presence of growthwith respect to the colonial appearance like size, surface, color, margin, texture, diffusion of pigmenting the media. The specimen ware also inoculated on the selective medium i.e Dermatophyte Test Media(HIMEDIA, MUMBAI).It indicates growth of dermatophytes with color changes of the medium from yellow to red. The growths were identified byslide culture andlactophenol cotton blue mount. The modified Christensen's urease was used as additional test to identify *Trichophyton mentagrophytes*.

RESULT:

Among 178 clinical samples from suspected cases of dermatophytosis, the dermatophytes have been isolated from 82(46.06%) samples. The culture was positive from 52 (63.41%) samples from men and 30 (36.58%) from females. The direct microscopy was positive for 109 (61.23%) samples. The age of the patients ranged from 7-61 years, the mean age being 36 years. The laboratory confirmed cases of dermatophytoses are more common in males as compared to females. The distribution in males and females are depicted in **Table 1.**The clinically and laboratory confirmed positive cases are depicted in **Ta-**

ble 2.Direct microscopy revealed fungal elements in 61.23% of the cases. The various predisposing factors associated with the infection are depicted in Table 3.

Table 4. shows that *Trichophyton species* (59.75%) was the main etiological agent of different clinical types of tinea. The most common clinical type wereTinea corporis [38 (46.34%)] and Tinea cruris [24 (29.26%)]

Table 1: Distribution of culture confirmed positive cases among males and females of different age group:

Age group	Males	Females
0-10 Years	03	02
11-20 Years	13	07
21-40 Years	28	16
>40 Years	08	05
Total	52	30

Table 2: Frequency of Dermatophytoses among males and females.

	Clinically suspected cases	Direct Microscopy positive	Culture positive
Males	98	70	52
Females	80	39	30
Total	178	109	82

Table 3: Risk factors associated with Dermatophytoses.

Sl.no	Risk Factors like occupation	Number of suspected cases
1.	Farmers	64
2.	Daily waged workers (Laborers)	41
3.	Students	39
4.	Housewives	25
5.	Atheletes	05
6.	Barbers/Masseurs	04
	TOTAL	178

Table 4:Different genus of Dermatophytes isolated from different clinical types.

CLINICAL TYPES	TRICHOPHYTON SPECIES	MICROSPORUM SPECIES	EPIDERMATOPHYTON SPECIES	TOTAL
Tinea corporis	21	13	04	38 (46.34%)
Tinea cruris	14	09	01	24 (29.26%)
Tinea capitis	05	03	-	08 (9.75%)
Tinea pedis	02	01	-	03 (3.65%)
Tinea facei	03	-	-	03 (3.65%)
Tinea barbae	02	01	01	04 (4.87%)
Tinea unguum	02	-	-	02 (2.43%)
TOTAL	49 (59.75%)	27 (39.92%)	06 (7.31%)	82 (100%)

DISCUSSION

"Ring worm" infection is one of the commonest superficial mycoses which affect literally all age groups in countries like India. India bears tropical climate which have temperature and humidity favorable for dermatophytosis.This study shows that 82(46.06%) cases wereculture positive among the178(100%) clinically suspected cases of dermatophytosis which is slightly lower than the study conducted in Nepal from September 2008 to February 2012.[12] This may be due exposure of the patients to conducive occupational and environmental conditions.

The male(63.41%) were more commonly infected than the females(36.58%)which is in line with the various studies[13,14]which are attributed by the fact that they are more exposed to the risk factors while there is increased health awareness among the women and their positive attitude towards treatment and their beauty consciousness. The Preponderance of dermatophytoses among age group 21-40 years in our study is in accordance with past studies.[15,16] Increased incidence in this age group is because they are engaged in farming and other physical labor in hot and humid environment, increased sweating that may facilitate parasitization of fungus. The incidence and prevalence rate may only be representative of the population sampled, which may have associated risk factors fordermatophytoses. Our study showed various risk factors like nature of job (farmers and laborers 58.98%), personnel hygiene that can be considered with all the clinically suspected patients, and the climatic condition. The direct microscopic examination (KOH mount) of the samples revealed overall 57.86% positive for fungus which is quite similar to the findings of a study in 2003[13], while 46.06% cases were culture positive.

Tinea corporis 38 (46.34%)and Tinea cruris 24 (29.26%)were the predominant clinical types diagnosed among the 82 culture positve cases with dermatophytosis. This is also similar with other studies conducted in India, Nepal and Italy.[12,15,16,17]. The other clinical types were Tinea capitis 08 (9.75%), Tinea pedis 03 (3.65%), Tinea facei 03 (3.65%), Tinea barbae 04 (4.87%), Tinea unguum02 (2.43%).Most of the isolates obtained are of Trichophyton 49(51.72%), followed by Microsporum (39.92%) and Epidermophyton 6(7.31 %) which is in conformity with a report from Italy which shows predominant isolate as Trichophyton.[18]

CONCLUSION:

The study highlighted that Tinea corporis and Tinea capitis are the most prevalent clinical types of dermatophytosis among the young age group in western Uttar Pradesh. largely the predominant most common etiological agents belong to genus Trichophyton and Microsporum. The Fungal species causing Dermatophytoses may vary from place to place due to various predisposing factors. Hence fungal cultures helps to improve the diagnosis when prolong treatment is required.

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