

“Clinicomycological Study of Dermatophytosis in A Tertiary Care Hospital”

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Abstract:

Background: Dermatophytosis refers to superficial fungal infection of keratinized tissues caused by dermatophytes. Dermatophytes colonize only the cornfield layer of epidermis or suprafollicular portions of hair and do not penetrate into deeper anatomical sites. Although Dermatophytosis is not debilitating or life threatening, it can be persistent, troublesome and are often confused with other skin disorders. So, laboratory investigations are essential for correct diagnosis, management and to minimize cost.

Objectives of Study: To isolate & speciate the dermatophytes & to analyze clinico-mycological profile of Dermatophytosis at a tertiary care centre.

Material and Methods: Samples like skin scrapings, nail clippings, hair & hair stub were processed for 50 clinically suspected Dermatophytosis cases. All the samples were subjected for KOH mount & culture on to SDA.

Results: Majority of the patients were male 35(70%) compared to female 15(30%). Most commonly affected age group 21-30 years (36%). Infection was most commonly seen in students(32%) and agriculture workers(16%). Tinea corporis was the predominant type comprising 18(36%), followed by Tinea cruris 16(32%), Tinea capitis 6(12%), T.pedis (10%). T.corporis showed growth of T.mentagraphytes (22.22%), T.rubrum(16.66%), T.verucossum (5.5%) and M.manum, T.cruris showed growth of T.rubrum(31.5%), T.mentagraphytes (12.5%), T.verucossum(6.5%) and E.flocossum(6.5%). T.capitis showed growth of T.mentagraphytes 4 (66.66%). T.pedis showed growth of T.rubrum(20%) T.mentagraphytes(20%).

Conclusion: Dermatophyte infections are very common in our setup, where hot and humid climate along with the poor hygienic conditions favor the growth of these fungi. There is varying difference in isolation of different species across the different parts of India. The predominant species was the Trichophyton rubrum followed by Trichophyton mentagraphytes,

Key Words: Dermatophytosis, Trichophyton rubrum, Tinea corporis, Microsporium spp...

Introduction

Dermatophytosis refers to superficial fungal infection of keratinized tissues caused by dermatophytes... These are divided into three main genera depending on their Morphological characteristics into Trichophyton, Epidermophyton and Microsporium. [1] Dermatophytosis is generally called ‘Tinea’; it is contagious, as host to host transmissible infection of humans and animals. Although Dermatophytosis is not debilitating or life threatening, it can be persistent, troublesome and are often confused with other skin disorders. So, laboratory investigations are essential for correct diagnosis, management and to minimize cost. [1, 2] Species distribution & prevalence varies with the geographical area & during the course of time and is governed by environmental conditions, personal hygiene and individual’s susceptibility. The epidemiology of most of the clinically significant dermatophytes has substantially changed over last few years. [3]

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Though there are many studies across the country, there is very little data about Dermatophytosis in our region. Hence this study is conducted to understand the clinico-mycological details of Dermatophytosis.

Material and Methods

This prospective study was conducted in the Department of Microbiology and Dermatology on 50 clinically suspected cases of Dermatophytosis who attended the OPD of our skin and Venereal department of our hospital. Detailed history of the patients regarding age, sex, site of lesion, occupation and associated illness was taken and patients are examined clinically for the type and site of lesion. Before collection of sample, patient was explained about the procedure. The site was cleaned with cotton swab soaked in normal saline. Sterile nail clippers, forceps for epilating of hair, sterile scalpel blades were used to collect clinical specimens like nail, infected hair and skin scrapings respectively. Direct microscopy: The hair and skin specimens were examined by 10% KOH mount after one hour incubation at room temperature. The nail clippings were examined by 40% KOH mount after 4-5 hours of incubation at room temperature. All the clinical specimens were examined for retractile, hyaline fungal filaments. The clinical material was

inoculated into two sets of Sabouraud’s dextrose agar (SDA) with cyclohexamide and chloramphenicol. One of the inoculated agar slants was incubated at room temperature and other at 37°C. They were observed for 4 weeks for growth after which it was considered negative and discarded. Identification of the growth on SDA done by tease mounts technique and slide culture technique. [4]

Results

Majority of the patients were male 35(70%) compared to female 15(30%) as shown in Table:1 Most commonly affected age group 21-30 years(36%) as shown in Table:2 Infection was most commonly seen in students(32%) and agriculture workers(16%)as shown in Table:3. Out of 50 clinically diagnosed, 29 (58%) cases were positive for KOH &/or culture. as shown in Table: 4. Tinea corporis was the predominant type comprising 18(36%), followed by Tinea cruris 16(32%), Tinea capitis 6(12%),T.pedis (10%).T.corporis showed growth of T.mentagraphytes (22.22%), T.rubrum (16.66%), T.verucosum (5.5%) and M.manum, T.cruris showed growth of T.rubrum(31.5%), T.mentagraphytes (12.5%), T.verucosum (6.5%) and E.flocossum (6.5%). T.capitis showed growth of T.mentagraphytes 4 (66.66%). T.pedis showed growth of T.rubrum (20%), T.mentagraphytes (20%) as shown in Table: 5

Table 1: Gender wise distribution of Dermatophytes

Gender	N=50	Percentage
Male	35	70%
Female	15	30%

Table 2: Age- wise distribution of Dermatophytes

Age	N=50	Percentage
<=10	10	20%
11-20	8	16%
21-30	18	36%
31-40	8	16%
41-50	1	2%
>50	4	8%

Table 3: Distribution of Dermatophytes according to occupation

Occupation	N=50	Percentage
Student	16	32%
House wife	6	12%
Teacher	2	4%
Agriculture	8	16%
Others	14	28%

Table 5: Distribution of Dermatophytes according to KOH mount

KOH	N=50	Percentage
Positive	29	58%
Negative	21	42%

Table 5: Distribution of Dermatophytes according to clinical types

	T.violaceum	T.mentagraphyte var mentagraphyte	T.rubrum,	T.verocosum	E.flocossum	M.audonii	M.manam
T.capitis (6)	(4)66.66%	0	0	0	0	0	0
T.corporis (18)	0	(4)22.22%	(3)16.66%	(1)5.5%	0	0	(1)5.5%
T. cruris(16)	0	(2)12.5%	(5)31.25%	(1)6.25%	(1)6.25%	0	0
T. fasceii(2)	0	0	0	0	0	0	0
T. corporis +T. barbae(2)	0	0	(1)50%	0	0	0	0
T. pedis (5)	1(20%)	0	(1)20%	0	0	0	0
T.cruris+ T.corporis(2)	0	0	(2)100%	0	0	0	0

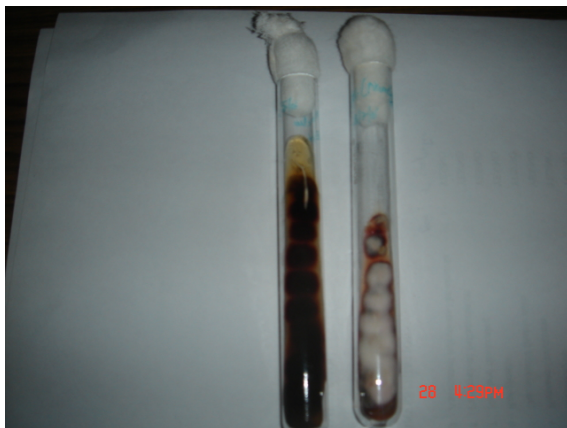


Figure: 1 shows growth of *T.rubrum*

Discussion

The epidemiology of superficial fungal infections has changed significantly in the last century and reflects changes in socioeconomic conditions, lifestyles and migration pattern & sweating. The higher incidence of Dermatophytosis could be attributed to environmental conditions. [7]. Dermatophytosis was found to be commonest in the age group 21-30 years which is in accordance with Sumathi S et al.[8] Higher incidence was noted amongst the male 70% than females 30% which is well with the most of the others. The higher incidence in males may be attributed to their outdoor physical activities, trauma, hormonal pattern & sweating [8] Tinea corporis was the commonest clinical type in the present study comprising 18(36%), followed by Tinea cruris 16(32%), Tinea capitis 6(12%) and this finding was in accordance with Santhosh Krishna H et al[7] Out of 50 clinical samples, 29(58%) cases were positive for KOH &/or culture.. This finding was in accordance to with Thongam Singh et al [3]T.corporis showed growth of *T.mentagraphytes*(22.22%), *T.rubrum* (16.66%),*T.verucossum* (5.5%) and *M.manum*, *T.cruris* showed growth of *T.rubrum* (31.5%),*T. mentagraphytes* (12.5%), *T.verucossum* (6.5%) and *E.flocossum* (6.5%). *T.capitis* showed growth of *T.mentagraphytes* 4 (66.66%). *T.pedis* showed growth of *T.rubrum* (20%) *T.mentagraphytes* (20%). Many authors like Thongam Singh et al [3].Santhosh Krishna H et al [7], have also shown the similar results. But Grover Sanjiv et al [9] have reported *Trichophyton tansurans* as the predominant fungal isolate. *Trichophyton rubrum* was the commonest fungal isolate due to its better adaptation, more virulence and easily colonization on hard keratin.

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