

Clinicomycological Study of Dermatmycoses in and around Datia

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Abstract

Objective- To find the prevalence of dermatophytes and non-dermatophytes in cases of clinically diagnosed cases of superficial mycoses.

Material and methods- The study was conducted on the patients attending OPD of Skin and Venereology department for various dermatological complaints. It is an observational study. A total of 200 samples of skin, hair and nail were taken from patients clinically diagnosed as superficial mycoses.

Results- There were 200 clinically diagnosed cases of superficial mycoses of which male were 138 (69%) and female were 62(31%). Commonest age group affected was 21-30 years (51%) followed by 31-40 years (18.75%). Among 200 cases, 20(10%) patients were diabetic.

Conclusion- Our study emphasizes the need of knowing the prevalence of various fungal species causing superficial mycoses in an area so as to choose treatment accordingly and to study the role of non-dermatophytes along with dermatophytes in the pathogenesis of superficial mycoses and not merely discarding them as contaminants.

INTRODUCTION

The cutaneous mycoses are superficial fungal infections of the skin, hair or nails. Dermatophytes are the most common cause of cutaneous fungal infections along with *Candida* and non-dermatophytes such as *Malassezia furfur*, *Tinea nigra*. These organisms, which attack the keratinized tissue of living hosts are classified into three genera of Epidermophyton, Trichophyton and Microsporum.[1]

Some dermatophyte species appear to be homogeneously distributed worldwide whereas others showed a geographic restriction.[2]

The heterogeneity in the distribution pattern of dermatophytes in different parts of the world has been attributed to factors of climate, life style, prevalence of immunodeficiency diseases in the community and also the reluctance of patient to seek treatment because of embarrassment or minor nature of disease unless the condition becomes sufficiently serious to affect the quality of life.[3]

According to the World Health Organization (WHO), these fungi affect about 25% of the world population. It is estimated that up to 70% of adults are asymptomatic hosts of these pathogens and that the incidence of the disease increases with age. High prevalence of non-dermatophytic mold onychomycoses has been reported from India (22%) [4,5]. Generally, these fungi exhibit a cosmopolitan profile, that is,

they are found in different regions of the world with variations in the frequency, as climatic factors, social practices, migration and individual characteristics like nutrition, hygienic habits and individual susceptibility may influence the epidemiology of dermatomycoses [4,6]. Although dermatomycoses does not produce mortality, it does cause morbidity and poses a major public health problem, especially in tropical countries like India due to the hot and humid climate. [4,5] Over the last decades, an increasing number of non dermatophyte filamentous fungi have been recognized as agents of skin and nail infections in humans, producing lesions clinically similar to those caused by dermatophytes. [7,8]. Though commonly considered as contaminants, they have been reported to colonize damaged tissues and cause secondary tissue destruction [9,10].

There have been numerous studies on dermatomycoses, but very few on dermatomycoses.

Present study was done with the view to find out the prevalence of dermatomycoses and its various causative agents in and around Datia.

AIMS AND OBJECTIVE

- To find the prevalence of dermatomycoses in and around Datia.
- To find the correlation of underlying infection and prevalence of dermatomycoses.
- To find the correlation between different age, sex, occupation and site of lesion of dermatomycoses.

MATERIALS AND METHODS

This study included the patients coming to dermatology OPD of the District Hospital, Datia. This was observational, non-randomised, prospective type of study. The study was done from August 2018 to July 2019.

Total no. of patients included in the study was 200.

Following records of patients was maintained namely:

- Name
- Age
- Sex
- Address
- Occupation
- H/O exposure to animal pets
- Site of the lesion
- Duration of illness
- H/O underlying disease
- Clinical diagnosis
- Date of collection of sample

Inclusion Criteria: Patients presenting with complaint of dermatomycoses and associated with diabetes, chronic illness, history of exposure to animals were included in the study.

Exclusion Criteria: Patients suffering from other diseases like leprosy, scabies, bacterial infection, previous medication for other diseases were excluded from the study.

Samples were collected after taking informed consent from patient:

A] Depending on region affected scraping from skin, nails and hair was collected. Specimen was processed for microscopy and culture. Species identification was done by standard techniques.

B] Non Dermatophytes, Dermatophytes and Candida and their various species identification was done by standard techniques such as-

- Microscopy with 10% KOH
- Wet mount
- Lactophenol cotton blue mount
- Culture with Sabourauds dextrose agar with and without chloramphenicol
- Dermatophyte test media

C] Other special tests like-

- Hair penetration technique
- Nutritional test
- Urease test

D] Tests for identification of Candida [2,4]

STATISTICAL ANALYSIS

- Various studies have reported prevalence of dermatomycosis between 12 and 31% considering overall prevalence of 20% in general population at $\alpha=0.01$ and 80% power of test, estimated sample size is 164. Considering the lack of follow up, sample size of 200 was taken.
- The study population consists of all the patients who are presenting with symptoms of dermatomycoses in dermatology OPD of Government Medical College and group of hospital, Datia. The consecutive patients who all meet the criteria will be included in the study after taking their consent.

RESULTS

Table 1 Distribution of dermatophytes and non dermatophytes according to culture positivity.

Total culture positive	Dermatophytes	Non dermatophytes
96	65	31

Table 2 Clinical types of dermatomycosis

Clinical site	No. of cases	(%)
T. cruris	21	22
T.corporis	25	26.5
T.pedis	14	14.5
T.capitis	10	10
T.barbae	6	6
T.mannum	11	11
P.versicolor	9	10
Total	96	100

Table 3 Dermatomycosis in relation to age

Clinical site	0-10	11-20	21-30	31-40	41-50	51-60	61-70	Total
T. cruris	-	2	10	4	1	2	1	21(22%)
T.corporis	-	1	12	6	4	1	1	25(26.5%)
T.Pedis	-	2	7	2	1	1	1	14(14.5%)
T.capitis	5	1	2	1	1	-	-	10(10%)

T.barbae	-	-	5	-	-	1	-	6(6%)
T.mannum	-	-	9	2	-	-	-	11(11%)
P.versicolor	-	2	4	3	-	-	-	9(9%)
Total	5(5.2%)	8(8.33%)	49(51%)	18(18.75%)	7(7.29%)	5(5.2%)	3(3.12%)	96(100%)

Table 4 Dermatophytosis in relation to sex

Clinical site	Male	Female	Total
T. cruris	15	6	21(21.87%)
T.corporis	14	11	25(26.04%)
T.Pedis	8	6	14(14.58%)
T.capitis	8	2	10(10.41%)
T.barbae	6	0	6(6.25%)
T.mannum	5	7	11(11.45%)
P.versicolor	7	2	9(9.37%)
Total	66(66.6%)	33(33.3%)	96(100%)

DISCUSSION:

In the present study, dermatomycoses was found in around 15% of the patients attending the skin OPD for various dermatological complaints which is similar to other study by M Mishra et al (1998) in which it was (16.2%) of all patients attending dermatology OPD.[8] This low incidence could be due to several factors like less severity of infection and reluctance to come to OPD.(9,10,11,12).The rate of isolation of different species varies in different setup because of-1)Geographical variation, 2)sample size, 3)Various treatment taken by the patient before coming to OPD .

Out of 200 samples, skin samples were 145(72.5%), hair were 36(18%) and nail were 19(9.5%) of total i.e. in accordance with study conducted by (Parul Patel et al 2010) in which skin sample were (79.80%), hair were(11.11%) and nail were (9.09%).[7]

Among 200 cases, 20(10%) patients were diabetic similar to study from (Sweta R Prabhu et al 2013) (12, 14) in which diabetics were 18.67%.

In Table -1 Among total positive 96 isolates, 65(67.7%) were dermatophytes and 31(32.29%) were non dermatophytes which was in accordance with (Pradeep Nawal et al 2012)[14] in which dermatophytes were 68.4% and non dermatophytes 31.6%,(Parul Patel et al 2010) found dermatophytes to be 66.66% and non dermatophytes to be 33.34% respectively.

In table 2- Among 200 clinically diagnosed superficial mycoses cases, most common clinical presentation was Tinea corporis (26.5%) followed by Tinea cruris (22%) which is favoured by study from (Vikesh kumar Bhatia et al 2014) (13), in which it was 39.1% and 27% respectively,. Unlike this present study, (Sweta R Prabhu et al 2013) found most common clinical presentation as Pityriasis versicolor (31.30%) followed by Candidiasis (18.75%) and 3rd most common being Tinea cruris(13.5%). This can be explained by geographical variation and individual susceptibility to various fungal species as their study is from coastal region of Karnataka.[14]

According to Table 3- Out of 200 cases, the Most common age group involved was 21-30 yrs(51%) followed by 31-40yrs(18.75%) in accordance with (Grover et al 2003)(in which it was 39.6% and 29.7% respectively, whereas in study by (Parul Patel et al 2010)(6) most common was 21-30 yrs(29.30%) followed by 11-20 yrs(20.71%) and according to (Sweta R Prabhu et al 2013) [14] most common age group involved is 30-45 yrs(34.37%).

As per Table 4-Male:Female ratio was 2.23:1 which is in accordance with (Vyomachudasama et al 2014)[16] ratio is 2.17:1

CONCLUSION

Our study emphasizes the need of knowing the prevalence of various fungal species causing superficial mycoses in an area so as to choose treatment accordingly and to study the role of non dermatophytes along with dermatophytes in the pathogenesis of superficial mycoses and not merely discarding them as contaminants.

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