

Study of clinical profile of dermatophytosis in a tertiary care center as per ECTODERM guidelines



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Submission: 08-06-2021

Revision: 12-09-2021

Publication: 01-10-2021

ABSTRACT

Background: Dermatophytic infections are one of the most common skin infections encountered by dermatologists. A recent increase in incidence has been seen over the last few years with substantial change in the clinical profile of patients. Recently a group of dermatology experts published Expert Consensus on The Management of Dermatophytosis in India (ECTODERM India). The group agreed upon various definitions with respect to current dermatophytosis epidemic as well as gave recommendations for investigations and management. Clinical profile of dermatophytosis was done in present study on the basis of definitions agreed upon by ECTODERM consensus group. **Aims and Objective:** To assess the clinical profile, prevalence and severity of dermatophytic infection in study population. **Materials and Methods:** Cross-sectional observational study was conducted at out-patient department of Dermatology in, Sharda hospital, Greater Noida. A total of 317 patients presenting with clinical diagnosis of dermatophytosis were included in the study. **Results:** A total of 317 patients were recruited in the study, out of which 213 were males (67.2%). The most common age group presenting with superficial dermatophytosis was 21-30 years. Majority of the patient presented with chronic dermatophytosis with duration more than 6 months (76.6%) while more than 3 lesions of tinea were observed in 76.6% cases. 191 patients (60%) had moderate to severe involvement with more than 3% of BSA involved. Family members presenting with similar complaints were seen in 39% cases. Majority of patients (76 %) studies had received previous treatment topical, systemic or both. 62 patients presented with recurrence of disease within 6 weeks of complete antifungal treatment (19.6%). **Conclusion:** Our study concludes that dermatophytosis still remain a challenging issue for dermatologists. Chronicity of infection, moderate to severe BSA involvement and involvement of family members in a good proportion of our study cases were the main findings of our study.

Key words: Dermatophytosis; ECTODERM India guidelines

INTRODUCTION

Dermatophytes are filamentous fungi in the genera *Trichophyton*, *Microsporum* and *Epidermophyton*. Dermatophytic infections are common worldwide and they are prevailing causes of infection of the skin, hair, and nails.¹ These infections lead to a variety of clinical manifestations, such as tinea pedis, tinea corporis, tinea cruris, tinea capitis, and tinea unguium. A diagnosis of

a cutaneous dermatophyte infection is primarily clinical. However, if in doubt testing to confirm the diagnosis is recommended because a variety of cutaneous disorders may present with similar features.

There has been an increasing trend of dermatophytosis over the last few years in different parts of India. A change in trend is seen, in which cases presenting are more chronic, unresponsive to treatment and increased rate of recurrence.²

Access this article online

Website:

<http://nepjol.info/index.php/AJMS>

DOI: 10.3126/ajms.v12i10.37653

E-ISSN: 2091-0576

P-ISSN: 2467-9100

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Currently, dermatologists across India are inundated with cases of dermatophytosis presenting with unusual large lesions, ring within ring lesions, multiple site lesions (tinea cruris et corporis), and corticosteroid modified lesions, making diagnosis a difficult bet. This changed face of dermatophytosis has created a real panic among dermatologists.³

As per various studies prevalence of dermatophytosis in India ranges from 36.6–78.4 %.⁴ Recently a group of dermatology experts published Expert Consensus on The Management of Dermatophytosis in India (ECTODERM India).⁵ The group agreed upon various definitions with respect to current dermatophytosis epidemic as well as gave recommendations for investigations and management. Various agreed upon definitions are as under-

- a) **Dermatophytosis:** Dermatophytosis (ringworm or tinea) is an infection of the skin or skin derivatives, caused by fungi known as dermatophytes leading to erythema, small papules, plaques, vesicles, fissures, and scaling having ring-like morphology.
- b) **Chronic Dermatophytosis:** Dermatophytosis is considered to be chronic when the patients who have suffered from the disease for more than 6 months to 1 year, with or without recurrence, in spite of being adequately treated.
- c) **Recurrent Dermatophytosis:** Dermatophytosis is considered to be recurrent when there is re-occurrence of the disease (lesions) within few weeks (< 6 weeks) after completion of the treatment.
- d) **Relapse:** Relapse denotes the occurrence of dermatophytosis (lesions), after a longer period of infection-free interval (6–8 weeks) in a patient who has been cured clinically.
- e) **BSA (Body Surface Area):** The area of outstretched palm from the wrist to the tip of the fingers can be considered roughly 1% of the body surface area. Less than 3% can be counted mild, 3–10% as moderate, and more than 10% as severe, in terms of the extent of involvement.

MATERIALS AND METHODS

Ethical clearance was obtained by Institutional Ethics Committee before starting the study, Ref. No. SU/SMS&R/76-A/2020/29. This cross-sectional observational study was conducted at out-patient department of Dermatology in a tertiary Care teaching hospital of northern India. Total of 317 patients presenting with clinical diagnosis of dermatophytosis, who were willing to participate in the study were enrolled between June 2020 to October 2020. Informed consent was taken from all the patients.

INCLUSION CRITERIA

- Patients with age group between 18 to 60 years.
- Patients presenting for the first time to our OPD, having clear clinical diagnosis of dermatophytosis as per ECTODERM guideline were selected.
- Patients who gave written and informed consent for participation in the study.

EXCLUSION CRITERIA

- Patients having onychomycosis, candidial intertrigo, pityriasis versicolor were not included.
- Doubtful cases like tinea incognito were not included.
- Pregnant/lactating women.
- Immuno-compromised state like HIV, Diabetes.

Study method

As per the various definitions of ECTODERM Guidelines, detailed history was taken in all the patients with respect to total duration, treatment taken, duration of disease clearance after completing the treatment in past, family history of similar disease etc. Detailed examination was done to note down number of lesions and body sites involved. Body Surface Area was calculated considering area of outstretched palm from the wrist to tip of fingers constituting roughly 1%.

RATIONALE OF STUDY

- Our study was based on Expert Consensus guidelines (ECTODERM)
- The study will help us to understand and classify clinical profile of dermatophytosis in present scenario and also standardize care, provide guidance on the management, and assist in clinical decision-making.

AIM AND OBJECTIVE

- The aim of the study was to assess the clinical profile of dermatophytic infection as per ECTODERM India guidelines.
- To identify the prevalence of infection among different age groups.
- To find out the extent of dermatophytic infection among family members.
- To grade the severity of dermatophytic infection in study population.

Statistical analysis

All the data obtained was analyzed statistically using Microsoft excel 2007, SPSS. Student t-test (unpaired and

paired) and chi-square tests were used where appropriate to test the significance of data.

RESULTS

Our study assessed burden of Dermatophytosis in a tertiary care hospital with respect of ECTODERM India guidelines. A total of 317 patients were recruited in our study, out of which majority were male patients 213 (67.2%) and female patients were 104 (32.8%) (Table 1). Most of the patients were from a rural background. The most common age group presenting with superficial dermatophytosis belongs to age group of 21- 30 years followed by age group 41-50 years (19.2%) (Table 2). Majority of the patient presented with chronic disease with duration more than 6 months (243; 76.6%) (Table 3) and with more than 3 lesions seen in 243 (76.6%) cases (Table 4). Multiple areas were involved mainly being groin, abdomen and buttocks. Up to 191 patients (60%)

had moderate to severe involvement with more than 3% of BSA involved (Table 5). Family members presenting with similar complaints were seen in 124 (39%) cases (Table 6). Majority of patients 243 (76 %) had history of some form of previous treatment either topical or systemic or both (Table 7). History of recurrence of symptoms within 6 weeks was seen in 62 (19.6%) patients (Table 8).

DISCUSSION

Superficial mycoses form a large fraction of ailments in patients attending the Skin outpatient department at any center. It is an indisputable fact that there is an increase in the prevalence of dermatophytosis over the past 4–5 years across the country. The present study is based on the “Expert Consensus on The Management of Dermatophytosis in India (ECTODERM India)” study⁵ where eleven experts

Table 1: Age and sex frequency

Gender	No of Patients	Percent	Valid Percent	Cumulative Percent
Female	104	32.8	32.8	32.8
Male	213	67.2	67.2	100.0
Total	317	100.0	100.0	

Table 2: Number of patient age group wise

Age Group	No of Patients	Percent	Valid Percent	Cumulative Percent
11-20	43	13.6	13.6	13.6
21-30	127	40.1	40.1	53.6
31-40	52	16.4	16.4	70.0
41-50	61	19.2	19.2	89.3
51-60	18	5.7	5.7	95.0
61-70	16	5.0	5.0	100.0
Total	317	100.0	100.0	

Table 3: Duration of disease

Duration	No of Patients	Percent	Valid Percent	Cumulative Percent
< 6 months	74	23.3	23.3	23.3
> 1 year	81	25.6	25.6	48.9
6 months – 1 years	162	51.1	51.1	100.0
Total	317	100.0	100.0	

Table 4: Number of lesions

Lesions	No of Patients	Percent	Valid Percent	Cumulative Percent
< 3	61	19.2	19.2	19.2
> 5	98	30.9	30.9	50.2
3 - 5	158	49.8	49.8	100.0
Total	317	100.0	100.0	

Table 5: Body surface area involved

BSA	No of Patients	Percent	Valid Percent	Cumulative Percent
< 3	126	39.7	39.7	39.7
> 10	51	16.1	16.1	55.8
3 -10	140	44.2	44.2	100.0
Total	317	100.0	100.0	

Table 6: Number of family members involved

Family	No of Patients	Percent	Valid Percent	Cumulative Percent
< 3	113	35.6	35.6	35.6
0.	193	60.9	60.9	96.5
3 - 5	11	3.5	3.5	100.0
Total	317	100.0	100.0	

Table 7: Number of patients taken previous treatment

Previous treatment taken	No of Patients	Percent	Valid Percent	Cumulative Percent
Topical	117	36.9	36.9	100.0
Oral	42	13.2	13.2	63.1
Both	84	26.5	26.5	26.5
None	74	23.3	23.3	49.8
Total	317	100.0	100.0	

Table 8: Number of patients with recurrence

Recurrence	No of Patients	Percent	Valid Percent	Cumulative Percent
< 6 Weeks	62	19.6	19.6	19.6
> 6 Weeks	15	4.7	4.7	24.3
Not Applicable	240	75.7	75.7	100.0
Total	317	100.0	100.0	

in the field of clinical dermatology and mycology participated in the modified Delphi process consisting of two workshops and five rounds of questionnaires, elaborating definitions, diagnosis and management. The expert panel achieved consensus on the definitions for the various terminologies like dermatophytosis, naive infection, chronic infection, recurrent infection or relapse of infection.

In this study of profile of dermatophytosis in a tertiary care center,⁶ authors have found that chronic dermatophytosis was seen in 68% cases; tinea corporis was the most common presentation.

There was a high prevalence among males in this study with Male to female ratio of 2.04:1. High incidence of superficial mycoses in males has been reported by Grover and Roy⁷ (81%), Singh S *et al.*,⁸ (61.1%), Oliveira *et al.*,⁹ (64.45%), and Vasu *et al.*,¹⁰ (72.4%). Philpot suggested that males may be more vulnerable to infection than females probably due to higher exposure to infection in the army, in the schools, in the greater use of public bath and sporting activities; and the type of shoes and socks they use.¹³ Majority of the patients (40%) were in age group 21-30 years. This was in concordance with other studies where most common age group affected was in second decade.^{11,12} Tinea corporis was the most common type observed in the study as observed with few other Indian studies.^{12,14} However in a north eastern⁷ study tinea pedis was the most common infection.

In the present study majority of the patients (50%) had chronic disease and recurrence of symptoms. This aspect can be related to the injudicious over the counter use of topical steroids. The cutaneous inflammatory response that the skin mounts to resist and limit the fungal infection is majorly suppressed with use of steroids. This temporary suppression of the host-induced inflammation leads to ineffective elimination of the dermatophyte, and the process becomes chronic and also widespread. This substantial change in the clinical profile of patients with an increase in the number of chronic, recurrent, or recalcitrant dermatophytosis in India is alarming, and the paucity of evidence is disheartening.

LIMITATIONS OF THE STUDY

The present study has the following limitations. Diagnostic test was not done to confirm the diagnosis. The significant morbidity, mortality and healthcare-related costs due to fungal infections deserve detailed epidemiological data. However, we believe that the present estimates

are important and will hopefully lead to well-designed epidemiological studies in future.

CONCLUSION

Comparison of studies done on superficial fungal infections in different studies done during different time frames have revealed an increasing trend of dermatophytosis. We however, need larger epidemiological studies to further bolster our nationwide observation of the alarming increase in its incidence as well as the prevalence.

ACKNOWLEDGEMENT

The authors appreciate the support of Dr Khushboo Arora, former Senior Resident at Department of Dermatology, Sharda Hospital for her valuable inputs.

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Author's Contribution:

SG-Concept and design of the study; manuscript preparation and enrolled patients; **S**- Interpreted the results, enrolled patients and reviewed the literature; **AFC**- Statistical analyses, enrolled patients and revision of the manuscript.

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Source of Funding: None, **Conflict of Interest:** None.