

Dermatophytosis in and around Ambajogai

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Abstract:

Background: The mycoses caused by dermatophytes are called as dermatophytosis. Dermatophytes are moulds that can invade the stratum corneum of skin and other keratinized tissues such as hair and nails. As various aspects of dermatophytosis are likely to differ markedly in different regions, the present study was undertaken to know the pattern of dermatophytosis in Rural area.

Material and Methods: The present study was carried out in the Department of Microbiology, S. R. T. R. Govt. Medical College, Ambajogai. A total of 160 clinically diagnosed cases of dermatophytosis attending the skin and venereal disease Outpatient department (OPD) were included. Skin, hair, nail specimens were taken from relevant clinical lesion examined by direct microscopy and culture.

Result: Out of 160 cases, most common clinical type was *Tinea corporis* (32.5%) cases. Incidence of all clinical type was maximum in rainy season (44.37%) followed by winter. Out of 160 dermatophytosis cases, 73 dermatophyte isolates were obtained, in which, *Trichophyton rubrum* (41) was the commonest followed by *Trichophyton mentagrophytes* (18).

Conclusion: Dermatophytosis is not frequently documented disease. Because of its contagious nature and chronicity, early diagnosis and treatment should be done in all suspected cases of dermatophytosis.

Keywords: Dermatophytosis, Epidermophyton, Microsporum and Trichophyton.

I. Introduction

The mycoses caused by dermatophytes are called as dermatophytosis. Dermatophytes are moulds that can invade the stratum corneum of skin and other keratinized tissues such as hair and nails.^[1]

Depending upon morphological characteristics, dermatophytes are divided into three main anamorphic genera, *Trichophyton*, *Microsporum* and *Epidermophyton*. The *Trichophyton* species usually infect the skin, hair and nails. The *Microsporum* species infect the skin and hair not the nails. The *Epidermophyton* species infect the skin as well as nails but not the hair.^[2]

Dermatophytes affect all races. Socioeconomic factors which result in overcrowding, poor hygiene, malnutrition plays the important role. The pathology induced in the host initially is an eczemaform response, followed by allergic and inflammatory manifestations.^[3]

Dermatophytosis is still one of the major skin diseases prevalent all over the world and its prevalence varies in India. Dermatophytosis constitutes about 10% of all skin diseases. However, dermatophyte infections are poorly documented in literature, possibly because of relatively low morbidity and no mortality.^[4] As various aspects of dermatophytosis are likely to differ markedly in different regions, the present study was undertaken to know the pattern of dermatophytosis in Rural area.

II. Material And Methods

The present study was carried out in the Department of Microbiology, S. R. T. R. Govt. Medical College, Ambajogai. A total of 160 clinically diagnosed cases of dermatophytosis attending the skin and venereal disease Outpatient department (OPD) were included. Clinical history of patients was taken as age, sex, occupation, socioeconomic status. Details of clinical lesions such as origin, site, size, colour, itching, any treatment received were noted down.

Collection of Specimen:

Specimens were taken such as:

- 1.1. Skin scraping in- *Tinea corporis*, *Tinea cruris*, *Tinea manuum*, *Tinea pedis*, *Tinea faciei*, and *Tinea barbae*
- 1.2. Nail scraping- *Tinea unguium*
- 1.3. Hair- *Tinea capitis*

All the 160 samples from relevant clinical lesions were subjected to direct microscopy by KOH mount (10% KOH for skin and hair, 40% KOH for nail) and culture.

For culture, all the specimens were inoculated in two sets of Sabouraud's Dextrose Agar (SDA) slope and Sabouraud's Dextrose Agar with Chloramphenicol and Cycloheximide.

One set of slopes were incubated at 37°C and other set of slopes at room temperature. For primary isolation of dermatophyte from clinical specimen, Dermatophyte Test Medium (DTM) was also used.

All culture slopes were examined within 3-4 days for rapid growing dermatophyte and there by regularly for three weeks.

Culture slopes showing fungal growth were subjected to Lactophenol cotton blue preparation and for slide culture using SDA agar block. Isolates were identified by their typical morphology and confirmed by different special tests, such as.

2.1. Urease test

2.2. Pigmentation on Potato Dextrose Agar. (PDA)

2.3. Hair perforation test.

III. Result

The present study was carried out in the Department of Microbiology, S. R. T. R. Govt Medical College and Hospital, Ambajogai.

Total 160 clinically diagnosed cases of dermatophytosis were studied.

All the specimens from 160 cases were subjected to mycological investigations and following observations were made.

Table no-1: Age wise distribution of patients included in study

Age group in years	No. of cases	Percentage (%)
0-10	31	19.37
11-20	20	12.5
21-30	47	29.37
31-40	38	23.75
41-50	18	11.25
51-60	3	1.87
More than 61 years	3	1.87
Total	160	100

Incidence was maximum in the age group 21-30 years (29.37%). Least incidence was noted in the age group above 51 years.

Table no-2: Sex wise distribution of patients

	No. of cases	Percentage (%)
Male	92	57.5
Female	68	42.5
Total	160	100

The incidence of dermatophytosis was maximum in male (57.5%), whereas in female, it was low (42.5%). Therefore male to female ratio was 1.35:1.

Table no-3: Distribution of clinical types of patients included in study.

Clinical type	No. of cases	Percentage (%)
Tinea corporis	52	32.5
Tinea unguium	44	27.5
Tinea capitis	36	22.5
Tinea cruris	12	7.5
Tinea pedis	8	5.0
Tinea manuum	5	3.12
Tinea barbae	2	1.25
Tinea faciei	1	0.62
Total	160	100

Most common clinical type in the study was Tinea corporis (32.5%) followed by Tinea unguium (27.5%) and Tinea capitis (22.5%).

Table no-4: Seasonal distribution of cases.

Season	No. of cases	Percentage (%)
Rainy season (June to Sept)	71	44.37
Winter (Oct to Jan)	60	37.5
Summer (Feb to May)	29	18.12
Total	160	100

Maximum incidence of cases was recorded in rainy season (44.37%) followed by winter and least in summer season.

Table no-5: Results of culture inoculation

Result of culture	No of cases	Percentage (%)
Positive	73	45.62
Negative	87	54.37
Total	160	100

Out of 160 cases, 73 (45.62%) cases could be diagnosed by culture.

Table no-6: details of fungal isolation in the present study.

Total no of isolates=73

Species isolated	No. of cases	Percentage
1) Genus Trichophyton	65	89.04
i. T. rubrum	41	56.16
ii. T. mentagrophyte	18	24.65
iii. T. violaceum	06	8.21
2) Genus Microsporum	3	4.1
M. gypseum		
3) Genus Epidermophyton	5	6.84
E. floccosum		
Total	73	100

In the present study, genus Trichophyton was isolated in 65 (89.04%) cases followed by genus Epidermophyton (6.84%) and least was genus Microsporum (4.1%)

IV. Discussion

The present study was undertaken to find out the pattern of dermatophytosis in a rural area. Clinically diagnosed 160 cases of dermatophytosis were included in the study. All age groups and both the sexes were included in the present study.

Highest incidence of dermatophytosis was recorded in age group of 21-30 years (29.37%) followed by age group 31-40 years (23.75%). Parimala Prasad et al, 1987; Sumana V. et al, 2004 and Vignesh D. et al, 2015 reported similar observations.^{[5][6][7]} Shah A.K. et al, 1976, reported the highest incidence in age group of 20-40 years. Lowest incidence in present study was found above 51 years of age.

The incidence of dermatophytosis was higher in males (57.5%) as compared to female (42.5%) in the present study. Urmil Mohan et al, 1997; Peerapur et al, 2004 and Vignesh D. et al, 2015 have reported higher incidence in males.^{[7][8][9]}

Tinea corporis (32.5%) was commonest clinical presentation in the present study, followed by Tinea unguium (27.5%) and Tinea capitis (22.5%).

Tinea corporis as predominant clinical type was reported as (37.7%) by Gupta B. K. et al, 1993, (36.2%) by Urmil Mohan et al, 1997 and (54.6%) by Bindu V et al, 2002.^{[8][10][11]} Our finding is similar to study done by Mehta J.P. et al, 1977 and Vignesh D. et al, 2015.^{[7][12]}

The higher incidence of Tinea unguium (27.5%) in present study could be due to trauma inflicted to nails as a result of hard physical work and habit of walking and working barefooted. Prasad P. V. et al, 2005 reported the incidence of Tinea unguium 28% and major cause of chronic dermatophytosis.^[13]

In the present study, incidence of Tinea capitis was (22.5%) as compared to other workers (25%) by Dasgupta L.R. et al, 1973 and (23.7%) by Sharma L.N. et al, 1983.^{[14][15]}

We observed the maximum cases of dermatophytosis in rainy season (44.37%) followed by winter and least in summer. Similar observations were made by Pramod nath et al, 1971 and Walke H. R. et al 2014.^{[16][17]} However Dhobale et al, 2004, reported maximum incidence in April to August and in March to July reported by Sumana V. et al, 2004.^{[6][18]}

Out of 160 cases, we have isolated 73 dermatophyte isolates and dermatophyte isolation rate was (45.62%) and is comparable with **Walke H. R. et al 2014**, who reported isolation rate as (53.05%).^[17] However, **Khalique A. et al, 1974** reported low culture positivity (11.8%).^[19]

Out of 73 dermatophyte isolates *Trichophyton rubrum* as predominant dermatophyte isolated in 41 cases (56.16%) followed by *Trichophyton mentagrophytes* in 18 cases (24.65%), *Trichophyton violaceum* in 6 cases (8.21%), *Epidermophyton floccosum* in 5 (6.84%) cases and *Microsporum gypseum* in 3 cases (4.1%) only. These observations are comparable with observations **Walke H. R. et al, 2014**, comprising *Trichophyton rubrum* (56.37%) followed by *Trichophyton mentagrophytes* (19.39%) and *Epidermophyton floccosum* (11.52%).^[17]

Trichophyton rubrum as predominant dermatophyte isolate reported to many workers (68.43%) by **Mohanty J. C. et al, 1998** and (60%) by **Sumana V. et al., 2004**.^{[6][20]}

However, *Trichophyton mentagrophyte* (46.8%) as commonest dermatophyte found in **Parimala Prasad et al, 1987** and *Trichophyton violaceum* (55.76%) as commonest isolate found to **Karmarkar et al, 1995**.^{[5][21]}

In the present study, *Epidermophyton floccosum* was isolated as (6.84%) comparable to (7.8%) by **Peerapur et al, 2004**.^[9] But study in Loni, 2013, by **Bose et al, 2013** has shown (2%) isolation of *Epidermophyton floccosum*.^[22]

In the present study, *Microsporum gypseum* was least common isolate (4.21%). **Leela Naidu P. S., 1976** reported (11.11%) and **Bose et al, 2013** reported (1.33%) isolation of *Microsporum gypseum*.^{[22][23]}

V. Conclusion

The present study was carried out in Department of Microbiology S. R. T. R. Govt medical college, Ambajogai. Clinically diagnosed 160 cases of dermatophytosis were studied to know the pattern of dermatophytosis.

Skin, hair, nail specimens were taken from relevant clinical lesion examined by direct microscopy and culture

The age group 21-30 years (29.37%) and 31-40 years (23.75%) were mostly affected. Incidence amongst male (57.5%) was higher than females.

Out of 160 cases, most common clinical type was *Tinea corporis* (32.5%) cases, followed by *Tinea unguium* (27.5%) and *Tinea capitis* (22.5%) cases. Incidence of all clinical type was maximum in rainy season (44.37%) followed by winter and at least in summer.

Out of 160 dermatophytosis cases, 73 dermatophyte isolates were obtained, in which, *Trichophyton rubrum* in 41 cases, *Trichophyton mentagrophytes* in 18 cases, *Trichophyton violaceum* in 6 cases, *Epidermophyton floccosum* in 5 cases and *Microsporum gypseum* in 3 cases.

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