

DERMATOPHYTOSES IN A DESERT DISTRICT OF WESTERN RAJASTHAN

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Clinico-mycological study of 250 cases of dermatophytoses was undertaken in a desert district of Western Rajasthan. Incidence of dermatophytoses in this area was 8.60% with tinea cruris (34.4%) as the major clinical type followed by tinea corporis (24.0%). Incidence of tinea capitis was 16.8% and 90% of those affected were in the age group of 0-10 years. Male preponderance was observed (M:F=2:1). There were 15 cases of tinea faciei (6%), majority belonging to 0-10 years age group. *Trichophyton violaceum* was isolated in majority (55.76%) from all clinical types followed by *Trichophyton rubrum* (42.3%).

Key Words: Dermatophytoses, Tinea, *T violaceum*, *T rubrum*

Introduction

Dermatophytoses is still one of the major skin diseases prevalent all over the world and its prevalence varies in India. Most Indian studies indicate that it is more prevalent in Southern and Eastern regions¹⁻³ than Northern regions⁴⁻⁶ of the country. However, no study on dermatophytoses is available from Western Rajasthan. Therefore, present study was undertaken in the city of Jodhpur which is situated in the Thar desert of Rajasthan, to study the incidence, clinical presentation and causative agents of dermatophytoses in this district.

Material and Methods

The study was conducted on 250 clinically diagnosed cases of dermatophytoses attending Skin, STD and Leprosy OPD of Mathuradas Mathur Hospital attached to Dr S N Medical College, Jodhpur during the period of July to September, when a total of 9955 patients attended the OPD for various skin ailments. Mycological study conducted on each case included:

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1. Direct KOH preparation of specimen obtained by scraping, epilated hair and nail clippings where needed, for demonstration of fungal elements.

2. Culture of specimen on Sabouraud's agar with chloramphenicol and actidione. The isolated fungi were identified by their Colony characters and microscopic morphology of elements in the lesion-macroconidia, microconidia and hyphae.⁷ When needed sub-cultures were done on cornmeal agar and the colony characters were studied as described above.

Results

Cases of dermatophytoses constituted 8.06% of the total dermatological cases. The distribution of cases according to age and sex are shown in the Table I.

Table I. Age and sex distribution of 250 cases of dermatophytoses.

Age (years)	Male	Female	Total	Percentage
0-10	42	29	71	28.4
11-20	32	13	45	18.0
21-30	41	21	62	24.8
31-40	25	06	31	12.4
41-50	14	08	22	8.8
51-60	07	04	11	4.4
Above-60	03	05	08	3.2
Total	164	86	250	

Fungal elements (hyphae and/or arthrospores) could be demonstrated in scrapings from 215 out of 250 cases. Dermatophytes, however, were isolated from 104 cases only. Taking the two tests together fungus was demonstrated/isolated from 221 cases (88.4). The species of dermatophytes isolated from various clinical sites are shown in the Table II.

manuum (3.2%) tinea unguium (2.8%) and tinea pedis (2.0%). Tinea cruris associated with tinea corporis was found in 10.4% cases.

Discussion

In the present study dermatophytoses was found in 8.06% of skin patients. This low incidence could be due to several factors

Table II. Identification and isolation of fungus by KOH mount and culture.

Total No. Scraping	KOH (+)	KOH (-)	KOH (+) and culture (+)	KOH (-) and culture (+)	Total culture positivity
250 (86%)	215 (14%)	35 (39.2%)	98 (2.4%)	06 (41.6%)	104

From cases of t. capitis the fungus was isolated from 59.5% of cases and in all of them the isolated fungus was *T. violaceum*.

More than 70% of the cases were in the age group 0-30 years. Highest number of cases (28.4%) were encountered in age group 0-10 years. The ratio of male cases to female cases was 2:1. The distribution of cases according to site of lesion i.e., clinical types is shown in the Table III. Tinea cruris (34.8%) was the major clinical type found; followed by tinea corporis (24.0%); tinea capitis (16.8%); tinea faciei (6.0%); tinea

like: the inability of the patients to reach to this hospital from far flung areas; poor patients may prefer home made remedies; and the patients seek advice only for inflammatory type of dermatophyte lesions. The incidence of superficial fungal infections is lower as compared to other studies,^{8,9,11,12}. The dry arid climate of the region may also be responsible for this low incidence.

Most of the dermatophyte infections (64%) were found in the adult age group of 11-50 years, similar to another report.¹² Other studies have found 21-30 years age

Table III. Correlation of Clinical Pattern of Dermatophytoses and the causative species

Clinical pattern of dermatophytoses	Total No. of cases	Total No. of Isolates	Trichophyton violaceum	Trichophyton rubrum	Trichophyton mentgrophyte	Epidermophyton floccosum
Tinea capitis	42	25	25 (100)*	-	-	-
Tinea cruris	87	37	18 (48.6)	18(48.6)	01(2.7)	-
Tinea corporis	60	25	08(32)	17 (68)	-	-
Tinea cruris with tinea corporis	26	10	04(40)	06(60)	-	-
Tinea unguium	7	01	01 (100)	-	-	-
Tinea pedis	5	01	-	-	-	01(100)
Tinea manuum	8	03	01(33.3)	02(66.6)	-	-
Tinea faciei	15	02	01(50)	01(50)	-	-
Total	250	104				

*Figures in parenthesis indicate percentages.

group as the commonest group affected.¹³⁻¹⁵ However, We found a substantially large number of children (28.4%) in our study. Male preponderance (2:1) was observed in our study like others.^{4,14}

Tinea cruris as the main clinical variety in our study is in agreement with several other Indian studies.^{14,16,17} However, many other Indian studies have reported tinea corporis as the commonest clinical variety.^{5,11,12}

One of the unique findings of this study is that children below 10 years constituted the maximum proportion of cases whereas reports of majority of other studies revealed that maximum cases occur in age group 21-30 years.^{13,14,15}

In the present study it was observed that 18% of the cases of dermatophytoses were of t. capitis. Tinea capitis has been reported to be rare entity from Northern India.^{4,6,8} Similar high incidence has been reported from Udaipur region.^{11,18} In the present study we also found 90% of the patients affected with tinea capitis were children of 0-10 years age group with males more commonly affected. The high frequency in males could be due to the custom of regular application of vegetable oils over the scalp of female which has fungistatic properties.¹⁹ Out of 15 cases (6%) of tinea faciei reported in this study, 10 cases (66.6%) belonged to 0-10 years age group. The youngest child was aged 1½ months. 70% cases with tinea faciei had tinea capitis also.

Fungus identification by KOH Mount was positive in 86% cases (Table II); however culture positivity was observed only in 41.6%. *Trichophyton violaceum* was the prime isolate in present study followed by *Trichophyton rubrum*. Most studies from

India however reported *Trichophyton rubrum* as the commonest isolates^{14,20,21} including those from Rajasthan.^{11,12,18} Higher isolation rate (43.3%) of *Trichophyton violaceum* has been reported by Kamlam and Thambiah 1981²² from Tinea capitis cases in Madras and this species is supposed to be endemic in Southern India.^{1,2}

An interesting feature of this study was that *Trichophyton violaceum* was isolated from all the cases of tinea capitis, this is in agreement with other Indian studies, who have either found 100% isolation^{23,24} of *Trichophyton violaceum* or it as predominant isolate.^{22,25} Sharma et al 1983¹² from Jaipur found *Microsporum gypseum*; Dalal et al 1984¹¹ from Udaipur found *Trichophyton mentagrophyte* and Murdia, 1987¹⁸ from Udaipur found *Trichophyton rubrum* as the main causative fungus of tinea capitis.

This difference in isolation pattern of fungus from tinea capitis cases could be explained to some extent on the basis of climatic difference i.e. Jaipur and Udaipur regions are relatively more humid because of better monsoon, where as Western Rajasthan has a hot and dry climate. However, the studies conducted in Middle East with similar climatic conditions yielded *Trichophyton schoenleinei* as the commonest cause of tinea capitis.²⁶

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