

## PATTERN OF DERMATOPHYTOSES IN AND AROUND VARANASI

Ashok Kumar Khare, Gurmohan Singh, Shyam Sunder Pandey,  
Bhuvan Mohan Sharma and Paramjit Kaur

Four hundred cases of dermatophytoses confirmed microscopically, were analysed. It was more common in 11 to 20 years age group and males. Females acquired tinea corporis more commonly. Tinea cruris was more frequent in males. Maximum cases were of tinea cruris followed by tinea cruris et corporis and tinea corporis in that order. The isolation rate on culture was 70.75%. The relative incidence of *Trichophyton rubrum* was maximum and it was found in all clinical entities.

Key words : Dermatophytoses, Pattern.

Dermatophytoses are world-wide in distribution but more prevalent in the areas which are situated in tropical and subtropical belts. As various aspects of dermatophytoses are likely to differ markedly in different regions of a country, the present study was undertaken to monitor the pattern of dermatophytoses in and around Varanasi. The city of Varanasi is situated at an altitude of 80.7 meters and enjoys an average annual rainfall of 112 mm. It is located on the banks of the river Ganga. In our department, a big chunk of attendance is constituted by the patients having dermatophytoses, especially in the summer and rainy season.

### Materials and Methods

Four hundred microscopically confirmed cases of dermatophytoses were selected randomly for this study. Standard methods were followed for specimen collection. Direct microscopy of 10% KOH mounts was followed by inoculation on Sabouraud's dextrose agar slopes. Cultures were incubated under optimal conditions for a minimum of three weeks. Identifi-

cation of fungal culture was made on the basis of macroscopic and microscopic characteristics, and other confirmatory tests.

### Results

The dermatophytoses were less common in 1-10 year age group and more common in 11-20 year age group. Tinea capitis was more frequently seen between 1-10 years of age. Tinea corporis followed by tinea cruris et corporis was more common between 31-40 years of age, while multiple site involvement was more common in 41-50 years of age (Table I). Dermatophytic infection in general, was more common in the males than females. Females acquired tinea corporis infection more commonly and males suffered more with tinea cruris (Table II). The overall success to isolate the dermatophytes was 70.75%. Maximum isolation was achieved in tinea cruris et corporis followed by tinea capitis and tinea faciale. Isolation of dermatophytes was poor from tinea unguium and tinea pedis. Seventy five percent cases of tinea capitis were found to be due to *Trichophyton violaceum*, the species not isolated from any other clinical entity. The commonest cause of dermatophytoses excepting tinea capitis was *T. rubrum*. *Epidermophyton floccosum* caused tinea cruris exclusively (Table III).

---

From the Departments of Dermato-Venerology, Microbiology, and Preventive & Social Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi-221 005, India.

Address correspondence to : Dr. Ashok Kumar Khare, Section of Skin and VD, R.N.T. Medical College, Udaipur-313 001, India.

Table I. Age-wise distribution of dermatophytic patients.

Clinical types	Number of patients in the age group (years)								Total
	<1	1-10	11-20	21-30	31-40	41-50	51-60	>60	
Tinea capitis	—	10	3	2	—	—	—	—	15
Tinea corporis	3	4	22	31	15	4	5	2	86
Tinea cruris	—	—	45	39	10	4	6	2	106
Tinea pedis	—	1	5	1	2	1	2	—	12
Tinea manum	—	—	1	2	3	1	—	—	7
Tinea unguium	—	—	8	7	1	1	1	1	19
Tinea faciale	—	1	2	1	1	—	—	—	5
Tinea cruris et corporis	—	—	37	28	13	5	4	4	91
Multiple sites	—	—	19	16	10	11	2	1	59
Total	3	16	142	127	55	27	20	10	400

Table II. Sex-wise distribution of dermatophytic patients.

Clinical types	Male	Female
Tinea capitis	10	5
Tinea corporis	55	31
Tinea cruris	102	4
Tinea pedis	10	2
Tinea manum	4	3
Tinea unguium	15	4
Tinea faciale	5	—
Tinea cruris et corporis	77	14
Multiple sites	50	9
Total	328	72

Table III. Species of dermatophytes isolated.

Clinical types	Total cases	Culture positive cases	% culture positivity	Trichophyton rubrum	Trichophyton mentagrophytes	Trichophyton violaceum	Epidermophyton floccosum
Tinea capitis	15	12	80.00	1	2	9	—
Tinea corporis	86	60	69.76	53	5	—	2
Tinea cruris	106	73	68.86	52	10	—	11
Tinea pedis	12	5	41.66	3	2	—	—
Tinea manum	7	4	57.14	4	—	—	—
Tinea unguium	19	6	31.57	4	2	—	—
Tinea faciale	5	4	80.00	3	1	—	—
Tinea cruris et corporis	91	74	81.31	62	8	—	4
Multiple sites	59	45	76.27	40	5	—	—
Total	400	283	70.75	222	35	9	17

### Comments

Some workers<sup>1,2</sup> found dermatophytoses to be more common in 11-20 years age, a common age of students, while others<sup>3,4</sup> have reported third decade to be more vulnerable. Our study included 142 and 127 cases in the second and the third decades respectively. Nearly 40% patients were students. Cross infection in the hostels and greater physical activity may be responsible for this. Tinea capitis was seen mostly below 10 years of age as is commonly known.<sup>5-7</sup> The rarity of tinea capitis in adults is attributed to the fungistatic properties of the sebum after puberty or due to immunological events.<sup>8</sup> Males were more commonly affected<sup>9,10</sup> though tinea corporis was more common in females, possibly due to tight clothing on the upper portion of the torso. Tinea cruris was mostly seen in males.<sup>6,9</sup> Relative rarity of tinea cruris in females may be due to loose clothing worn in this region and the particular anatomy of the genitalia. The type of females studied was not sophisticated and most of them were not in the habit of wearing the briefs.

The relative incidence of tinea cruris was the highest as also seen by other workers.<sup>11,12</sup> A few authors<sup>13,14</sup> have reported the incidence of tinea corporis to be more than tinea cruris. The incidence of tinea cruris et corporis and tinea corporis was nearly equal in this study. The relative incidence of tinea pedis (3%) is very low and may be due to the practice of bare-footedness or use of airy foot-wear. Tinea unguium was seen mainly in the finger nails. Tinea cruris et corporis accounted for 22.75% of the cases. Multiple sites were involved in 14.75% cases in this study. The commonest combinations were tinea faciale et corporis, tinea faciale et corporis et cruris and tinea corporis et manum with 7 cases each.

The isolation rate on culture was 70.75%. Culture was most successful in tinea cruris et corporis, followed by tinea capitis and tinea faciale. However, the lowest isolation rate

was seen in tinea unguium. It may be due to inclusion of onychomycoses caused by non-dermatophytes which are indistinguishable from dermatophytes on KOH preparation and not cultured on sabouraud's dextrose agar media containing actidione.<sup>15</sup> The relative incidence of *T. rubrum* (78.44%) compares well with the findings of others.<sup>16,17</sup> *T. violaceum* (relative incidence 3.18%) was isolated from the black-dot variety of tinea capitis only. *T. rubrum* was the most common offender in the nails. This species has a greater ability to infect the nails than any other dermatophyte.<sup>18</sup> *Microsporum* genus was not encountered in this study.

### References

1. Ghosh LM, Panja D and Dey NC : Fungous diseases of the nails and the surrounding tissues, Ind Med Gaz, 1948; 83 : 215-216.
2. Nath P and Agarwal PK : Some observations on mycotic infections in Lucknow, Ind J Med Res, 1971; 59 : 675-682.
3. Maheshwariamma S, Panikar CKJ and Gopinathan T : Studies on dermatomycoses in Calicut (Kerala), Ind J Pathol Microbiol, 1982; 25 : 11-17.
4. Nagarkatti PS, D'souza M and Ramachandraith U : Dermatophytosis in north Karnataka, Ind J Pathol Bacteriol, 1975; 18 : 26-31.
5. Nagabushanam P, Singh N and Patnaik R : Tinea capitis in Hyderabad, Ind J Dermatol Venereol Leprol, 1972; 38 : 56-59.
6. Poria VC, Samuel A, Acharya KM et al : Dermatomycoses in and around Jamnagar, Ind J Dermatol Venereol Leprol, 1981; 42 : 84-87.
7. Saferstein HL, Reid BJ and Blank F : Endothrix ringworm. A new public health problem in Philadelphia, JAMA, 1964; 190 : 851-852.
8. Baxter DL : Superficial and deep mycotic infections, in : Dermatology, Vol 1, Editors, Moschella SL, Pillsbury DM and Hurley HJ : WB Saunders Company, Philadelphia, 1975; p 621-707.
9. Blank F and Mann SJ : *Trichophyton rubrum* infections according to age, anatomical distribution and sex, Brit J Dermatol, 1975; 92 : 171-174.
10. Damle AS, Fulc RP, Kaunderiya DV et al : Mycology of cutaneous fungal infections in Ambajogai; A rural area, Ind J Dermatol Venereol Leprol, 1981; 47 : 266-268.

11. Singh R and Jerath VP : Mycology of tinea corporis and tinea cruris in Delhi, Ind J Dermatol Venereol Leprol, 1980; 46 : 218-220.
12. Sobhanadri C, Tirumalarao D and Saratbabu K : Clinical and mycological study of superficial fungal infections at General Hospital Guntur and their response to treatment with hamycin, dermostatin and dermamycin, Ind J Dermatol Venereol, 1970 : 36 : 209-214.
13. Prasad VB and Prakash APS : Dermatophytic profile of Chotanagpur, Ind J Dermatol Venereol Leprol, 1979; 45 : 103-110.
14. Stephen S and Rao KNA : Superficial mycoses in Manipal, Ind J Dermatol Venereol Leprol, 1975; 41 : 106-110.
15. Zaias N : Onychomycosis, Arch Dermatol, 1972; 105 : 263-274.
16. Kalra SL : Mohapatra LN and Gugnani HC : Etiology of dermatomycoses in Delhi, Ind J Med Res, 1964; 52 : 553-558.
17. Rajarao B and Annapurna E : Dermatophytoses in Vishakhapatnam, Ind J Dermatol Venereol, 1973; 39 : 209-212.
18. Rosmon N : Infections with *Trichophyton rubrum*, Brit J Dermatol, 1966; 78 : 208-212.