DERMATOPHYTOSES IN DAVANGERE

K. SIDDAPPA * AND O. A. MAHIPAL †

Summary

A Clinico-mycological study of 130 cases of dermatophytoses undertaken during a period of 1 year is reported. The age and sex incidence, the clinical varieties and the seasonal variations are analysed. The infection was predominantly seen in the age group of 11-50 years. Men were more commonly affected. Tinea glabrosa (89.24%) was the commonest clinical type encountered, followed by tinea capitis (6.93%). All the cases were positive by direct microscopic examination and the different species of dermatophytes isolated from 66 out of 130 patients by culture, are analysed. *Trichophyton rubrum* was the predominant species (81.82%) isolated and the other species isolated were *E. floccosum* (9.09%), *T. Violaceum* (4.54%), *M. audouini* (3.03%) and *T. mentagrophytes* (1.51%).

KEY WORDS: Dermatophytosis.

Introduction

Dermatophytoses is the commonest group of superficial fungus infections seen in the tropics and affecting the skin and its keratinous appendages[1]. All races are affected and the clinical varieties and prevalence appear to depend mainly on environmental factors. Socio-economic factors, which result in over-crowding, poor hygiene facilities and malnutrition, together with individual susceptibility undoubtedly play an important role[2]. The prevalence of dermatophytes causing dermatophytoses vary from place to place. Various reports on the incidence of dermatophytoses from different parts of India are available in the literature.

The present study was undertaken with a view to find out the prevalence of dermatophytoses along with species prevalence in Davangere, Karnataka State. The study is based on the investigations on a relatively small group of patients who attended the Skin & S. T. D. outpatient department of Chigateri General Hospital, attached to the J. J. M. Medical College, Davangere during the period between March 10, 1977 - March 9, 1978.

Material and Methods

The cases of suspected dermatophytoses were collected at random from the Skin & S. T. D. out-patient department. Cases were examined clinically and data regarding age, sex, nature

* Professor and Head of the Department of Skin & STD,

† Post-graduate in Skin & STD.
(Now Asst. Surgeon in Health & F.W. Dept., Govt. of Karnataka),
Department of Skin & STD,
J.J.M. Medical College, Davangere-577004.

Request for Reprints:
Dr. K. Siddappa,
Professor and Head
Department of Skin & STD,
JJM Medical College, Davangere-577004.

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and duration of the lesions were recorded.

The untreated and suspected cases were subjected to mycological examination. After proper cleaning of the affected areas with 75% alcohol, scrapings from the skin, hairs and nail were collected on sterile paper bits aseptically. A portion of the sample was treated with 20% KOH and warmed for direct examination and the rest of the material was sent to the Department of Microbiology, where the material was inoculated into Sabouraud's dextrose agar containing chloramphenicol and actidion for culture and species identification. The species were identified by colony characters and pigment production.

Results

A total of 130 cases were studied. Various clinical types studied are shown in Table 1. Tinea corporis tops the list (43.62%). Tinea cruris comes next (32.31%), followed by tinea cruris at corporis (22.31%). Tinea capitis, tinea pedis and tinea manuum comprised 6.93%, 1.53% & 1.53% respectively. The case shown in the last column had all types of dermatophytoses except tinea barbae and tinea pedis.

Age distribution in relation to clinical types is shown in Table 2. Except tinea capitis, the highest incidence of dermatophytoses was noted between the ages of 11 and 50 years. All cases of tinea capitis barring one were seen in prepubertal males. Males were more commonly affected than females giving a male to female ratio of 4 : 1. Males were more commonly affected than females in all the clinical types (Table 3).

TABLE 1

Clinical types of Dermatophytoses

Clinical types	No. of cases	%
T. Cruris	42	32.31
T. Corporis	45	34.62
T. Cruris et Corporis	29	22.31
T. Capitis	9	6.93
T. Pedis	2	1.53
T. Manuum	2	1.53
Mixed type	1	0.77

TABLE 3

Sex distribution in relation to clinical types

Clinical types	Male	%	Female	%	Total
T. Cruris	40	95.23	2	4.77	42
T. Corporis	25	55.55	20	44.45	45
T. Cruris et Corporis	26	89.70	3	10.30	29
T. Capitis	9	100	—	—	9
T. Pedis	1	50	1	50	2
T. Manuum	2	100	—	—	2
Mixed Types	1	100	—	—	1
Total	104		26		130

TABLE 2

Age Distribution in Relation to Clinical Types

Clinical Types	0–10 Years	11–20 Years	21–30 Years	31–40 Years	41–50 Years	51– above	Total	%
T. Cruris	—	10	20	5	2	5	42	32.31
T. Corporis	1	8	18	8	5	5	45	34.62
T. Cruris et Corporis	—	5	9	6	6	3	29	22.31
T. Capitis	7	2	—	—	—	—	9	6.93
T. Pedis	—	—	—	1	1	—	2	1.53
T. Manuum	—	—	1	1	—	—	2	1.53
Mixed Types	—	—	—	1	—	—	1	0.77

TABLE 4

Incidence of various clinical types of Dermatophytoses observed by different workers

Author's name	Year	T. Cruris	T. Corporis	T. Capitis	T. Pedis	T. Unguium	T. Manuum	T. Barbae
Vasu	1966	23.64	60.09	0.49	9.35	3.44	—	2.95
Mulay et al	1970	38.02	58.01	0.18	1.04	1.02	0.70	—
Sobhanadri et al	1970	53.75	52.05	—	1.66	—	—	0.41
Verma et al	1970	45.00	42.00	2.00	—	4.00	—	4.00
Verma and Singh	1972	34.00	25.00	6.00	11.00	2.00	—	—
Raja Rao & Annapurna	1973	40.00	44.00	3.00	2.50	4.05	—	1.50
Shah et al	1976	33.23	52.47	8 06	0.42	1.98	0.14	3.67
Naidu et al	1976	11.02	38.04	4.8	29.60	6.40	9.60	—
Present Series	1982	46.16	43.08	6.93	1.53	—	1.53	—

TABLE 5

Distribution of Isolated Strains of Dermatophytes

Species	T. Cruris	T. Corporis	T. Capitis	T. Pedis	T. Unguium	T. Manuum	T. Barbae	Total
T. Rubrum	19	30	2	1	1	1	—	54
T. Violaceum	—	—	3	—	—	—	—	3
T. Mentagrophytes	—	1	—	—	—	—	—	1
E. Floccosum	6	—	—	—	—	—	—	6
M. Audouini	—	—	2	—	—	—	—	2
Total	25	31	7	1	1	1	—	66

Maximum number of cases were seen in the summer season. Hyperhidrosis was a commonly associated feature. Cases of tinea cruris in majority showed bilateral slightly pigmented patches with mild scaling in the crural areas. Tinea corporis lesions were mostly irregular squamous patches with active erythematous borders. Tinea capitis lesions were characterised by scaly patches with partial alopecia on the scalp. Cases of tinea pedis and tinea manuum showed diffuse scaling on the soles and palms respectively.

Comparison of incidence of various clinical types of dermatophytoses observed by different workers in India is shown in Table 4.

Out of 130 cases included in the present study, culture from only 66 patients could be undertaken. The results are shown in Table 5 and 6. As it can be observed from Table 5, *Trichophyton rubrum* is the predominant species isolated from all types of dermatophytoses. *Epidermophyton floccosum* was isolated only from 6 cases of tinea cruris and *Trichophyton violaccum* and *Microsporum audouini* only from cases of tinea capitis. *Trichophyton*

TABLE 6

Incidence of various types of Dermatophytes

Species	Number	%
T. rubrum	54	81.82
T. violaceum	3	4.54
T. mentagrophytes	1	1.51
E. floccosum	6	9.09
M. audouini	2	3.03
Total	66	

TABLE 7

Incidence of Dermatophytes (In Percentage) As Reported from Different Parts of India

Name of Workers	Year	T. Rub	T. Viol	T. Ment	T. Tons	T. Sch	T. Verr	E. Flo	M. Aud	M. Canis	M. Gyp
Desai & Bhat (Bombay)	1961	84.45	8.81	2.32	1.80	—	—	2.32	—	—	0.23
Kalra et al (Delhi)	1964	80.61	3.52	9.91	0.20	—	0.66	3.08	—	—	0.23
Kandhari & Sethi (Delhi)	1964	68.50	1.00	9.50	15.00	0.50	—	2.50	1.00	2.50	0.50
Mankodi et al (Ahmedabad)	1967	84.88	4.34	—	4.34	—	—	4.34	—	—	—
Nagabhushanam et al (Hyderabad)	1969	51.43	14.68	2.78	6.78	—	6.96	4.17	—	—	—
Verma et al (Baroda)	1970	88.90	—	8.30	—	—	—	2.80	—	—	—
Mulay & Garg (Delhi)	1970	88.80	0.40	3.40	1.00	—	—	3.20	—	0.10	—
Verma & Krishnabir Singh (Rohtak)	1972	71.40	9.50	—	1.60	—	—	9.50	—	—	—
Gupta & Shome (Lucknow)	1959	56.70	—	31.70	8.00	—	—	1.90	—	—	—
Amin et al (Ahmedabad)	1971	92.60	4.30	—	2.10	—	—	1.10	—	—	—
Vasu (Warangal)	1966	62 70	4.80	16.90	3.60	—	—	12.00	—	—	—
Raja Rao & Annapurna (Vishakapatnam)	1973	70.00	5.00	3.30	—	—	—	10.00	—	—	1.67
Present Series (Davangere)	1982	81.82	4.54	1.51	—	—	—	9.09	3.03	—	—

mentagrophytes was isolated from one case of tinea corporis only. Thus, in the present series five species of dermatophytes were isolated with *Trichophyton rubrum* forming the major group with 81.82%. The other species isolated were *T. mentagrophytes, T. Violaceum, Epidermophyton floccosum* and *Microsporum audouini.*

Comparison of incidence of dermatophytes reported by various workers in India is shown in Table 7.

Discussion

In the present study 130 clinically suspected cases of dermatophytoses were included. The analysis of these cases showed that the incidence of tinea glabrosa was the highest (89.24%). Vasu[3], Mulay et al[4], Sobhanadri et al[5], Verma et al[6], and other workers in India have also reported similar high incidence of tinea glabrosa from various parts of India. No special reason has been offered by any of these workers. But Amin et al[10] have suggested that the patients with tinea glabrosa because of associated severe pruritus seek medical advise early; hence higher incidence of tinea glabrosa.

Incidence of tinea capitis was low (6.93%) in the present series. Verma & Singh[7], Shah et al[8], and Leela Naidu et al[9] have also reported similar low incidence of tinea capitis. It is generally opined that tinea capitis is rare in India and according to Desai and

Kandhari this may be due to the use of vegetable oils on scalp. Tinea capitis is commonly found in prepubertal age group. In the present series majority of the cases were in the prepubertal age. The low incidence after prepubertal age is believed to be due to the sebum containing free fatty acids which hinder the growth of fungus. Thymus gland and its remnants during childhood may increase the incidence of tinea capitis (Amin et al[10]).

Incidence of tinea pedis was also low (1.53%) in the present series. Our observation is in conformity with the observations of Mulay et al[4], and Sobhanadri et al[5], who have reported the incidence of 1.04% and 1.66% respectively.

We did not come across any case of tinea barbae or isolated tinea unguium. One case of tinea unguium was seen in association with other clinical types.

In the present series the highest incidence of dermatophytoses was noted in the age group of 11-50 years. This observation corresponds to the observations of Gupta et al[11], and Desai et al[12].

Tinea infection was more common in males than in females (4 : 1) in the present series. Similar observations have been made by other workers[4,10] also.

Analysis of culture on 66 cases in which culture was undertaken showed that *Trichophyton rubrum* was the predominant species isolated from 54 cases (81.82%). This dermatophyte was isolated from all the clinical types. Reports from all over India have shown that this species has been the commonest isolated.

In the present series *Epidermophyton floccosum* was isolated from 6 cases (9.09%) and all of these were cases of tinea cruris. Vasu[3] and Raja Rao and Annapurna[17] have reported 12.0% and 10.0% incidence respectively whereas other workers have reported lower percentage of isolation of this species.

Trichophyton violaceum was isolated from 3 cases (4.54%), all of which were cases of tinea capitis. This is in conformity with the reports of Vasu[3], Mankodi et al[13], and Raja Rao and Annapurna[17], whereas the reports of Desai et al[12], Kalra et al[14], and Nagabushanam et al[15] showed 8.81%, 3.52% and 14.68% respectively.

In the present series *Trichophyton mentagrophytes* was isolated from only 1 case (1.51%) but other workers[3,4,6,16,17] were able to isolate this species in higher percentage of cases.

Microsporum audouini was isolated from 2 cases (3.03%) of tinea capitis. Only Kandhari at al[16] isolated this species in 1.00% of their cases.

The present study, though small, gives some idea of clinical types of dermatophytoses and the prevalence of species of dermatophytes in Davangere.

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