

CLINICO-MYCOLOGICAL STUDY OF DERMATOPHYTOSIS IN A COASTAL AREA

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Summary

Clinico-mycological features of one hundred patients suffering from tinea cruris are reported. Ninety-two per cent are males and 79% are in the age group of 11-39 years. Involvement of axillae is seen in four and penile involvement in five patients. Twenty-eight patients have tinea corporis and nine tinea versicolor also. Seventy-seven patients show isolation of dermatophytes by culture. The commonest species of dermatophytes is *Trichophyton rubrum* (57.1%) followed by *T. mentagrophytes* (31.2%), *Epidermophyton floccosum* (6.5%), *T. violaceum* (3.9%) and *T. verrucosum* (1.3%). The findings are discussed.

KEY WORDS : *Tinea cruris*, *Trichophyton rubrum*, *Trichophyton mentagrophytes*, *Epidermophyton floccosum*.

Introduction

Tinea cruris is found in all parts of the world but it is more common in tropical and sub-tropical regions. Among dermatophytoses, tinea cruris is either the commonest¹⁻⁵ or second common type^{6,7}. *Trichophyton rubrum* is the commonest species isolated in all reports from India and abroad except from South Africa⁶, Spain⁹, New Zealand¹⁰ and Calicut¹¹, where *Epidermophyton floccosum* was the commonest species. Most of the reports about

tinea cruris from India include other dermatophytoses also except that from Chandigarh¹². In the present report, clinical and mycological features of tinea cruris as seen in this part of India are described and discussed.

Materials and Methods

One hundred untreated patients diagnosed clinically as tinea cruris were included in the study. A detailed history was taken and a complete clinical examination done.

Collection of specimen

The skin lesion was cleaned with 70% alcohol and the scales from active margin of the lesion were scraped with a sterile scalpel and collected in a sterile petridish. If vesicles were present in the lesion, their domes were snipped off.

Direct microscopic examination

The collected specimen was examined under low and high magnification

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of microscope after mounting in 10% KOH. In doubtful cases, the specimen was stained with lactophenol blue for examination.

Culture examination

The specimen was inoculated into two Sabouraud's dextrose agar (SDA) slopes and incubated at 25°C. The inoculated slopes were examined once in three days for three weeks and growth was studied. The genera and species of the dermatophyte were identified by characteristics of colonies, pigment produced and morphology of macro- and micro- conidia¹³.

Observations

Incidence

The total number of new patients who attended the Skin OPD during the period of study was 13,806. The number of cases of dermatophytoses was 1,092, of which cases of tinea cruris were 577, i.e., 52.1% of all dermatophytosis cases and 4.2% of the total new patients of the Skin OPD.

Thirty – six patients with tinea cruris belonged to urban area and 64 patients to rural areas.

Age and sex distribution

The age and sex distribution of the patients is shown in Table 1. Seventy-nine patients belonged to the second and third decades of life. Ninety-two patients were males and only eight females. The lowest age was two years.

TABLE 1
Age and sex distribution

Age group	Male	Female	Total
0-10	3	0	3
11-20	42	2	44
21-30	33	2	35
31-40	7	2	9
41-50	2	1	3
51-60	5	0	5
61-70	0	1	1
Total	92	8	100

The oldest patient was a 62-year-old female.

Occupation

All the eight female patients were house-wives. Among the 92 male patients, 38 were agricultural labourers, 24 doing miscellaneous jobs, 16 students, 11 educated unemployed and three children below the age of five.

Socio – economic status

Fifty-two patients belonged to lower middle class and 48 to low socio – economic group.

Clothing habits

All the eight female patients were using loose petticoats. Of the 92 males, 77 were wearing tight briefs while 15 were wearing loose undergarments.

Duration of disease

The duration of the disease varied from 7 days to 15 years. It was less than three months in 72 patients, 3 months to one year in 25 patients and over one year in three patients.

Family history

Family history of dermatophytosis was present in two cases. An intra-familial instance of a 40-year-old mother and a 3-year-old son was observed.

Symptoms and signs

Itching was present in all the patients.

Fifty-three patients showed non-inflammatory disease while 47 patients had inflammatory disease.

Ninety-five patients had bilateral lesions while the remaining five patients showed unilateral involvement.

Involvement of axillae was seen in four patients. Five male patients showed involvement of penile skin.

Twenty-eight patients had tinea corporis also, while nine cases had tinea versicolor. No diabetes was detected by routine urine examination.

Mycological findings

All the 100 patients showed fungus on direct microscopy in KOH mount. By culture, the specimens from 77 patients were positive for dermatophytes. Fifteen cultures showed contaminants while eight cultures did not show any growth. The distribution of the species of the dermatophytes is shown in Table 2. *T. rubrum* was the commonest species (57.1%) followed by *T. mentagrophytes* (31.2%), *E. floccosum* (6.5%), *T. violaceum* (3.9%) and *T. verrucosum* (1.3%). *Microsporon* was not grown from any patient.

All the cultures except that of *T. verrucosum* showed growth in 4 to 9 days. The growth of *T. verrucosum* was seen on 11th day. Of the 15 contaminants, six were *Aspergillus flavus*, four *Aspergillus niger*, one *Penicillium* and four *Staphylococci*. The growth of con-

taminants was noted within four days of inoculation.

TABLE 2
Species of dermatophytes isolated

Species	Number	%
<i>T. rubrum</i>	44	57.1
<i>T. mentagrophytes</i>	24	31.2
<i>T. violaceum</i>	3	3.9
<i>T. verrucosum</i>	1	1.3
<i>E. floccosum</i>	5	6.5
Total	77	100.0

Discussion

Tinea cruris was the commonest type of dermatophytosis in the present study which is in agreement with a number of reports¹⁻⁵, while differing from others^{6,7}, in which tinea corporis was the commonest dermatophytosis.

The majority of the patients were males (92%) in the age group of 11-39 years (79%), which observation is in agreement with other studies.

Five male patients (5%) showed involvement of penile skin while Pandey

TABLE 3
Main species of dermatophytes isolated in tinea cruris by different workers

Author	Place	Culture +ve cases	<i>T. rubrum</i> %	<i>T. mentagrophytes</i> %	<i>T. violaceum</i> %	<i>E. floccosum</i> %
Verma et al, 1970	Baroda	19	94.7	5.3	—	—
Sobhanadri et al, 1970	Guntur	70	60.0	—	4.3	34.3
Verma et al, 1972	Rohtak	21	76.2	—	—	23.8
Sehgal et al, 1973	Varanasi	32	87.4	—	3.1	9.5
Phadke et al, 1973	Jabalpur	88	95.4	—	—	4.6
Dasgupta et al, 1973	Pondicherry	6	83.0	17.0	—	—
Nagarkatti et al, 1975	Karnataka	20	95.0	5.0	—	—
Kamalam et al, 1976	Madras	14	35.7	21.4	7.2	35.7
Mehrotra et al, 1978	Allahabad	45	64.4	8.9	4.4	2.2
Bridger, 1979	New Zealand	1054	1.3	37.6	—	49.6
Velasco et al, 1979	Spain	67	27.5	—	—	72.5
Sharma et al, 1980	Chandigarh	100	84.0	2.0	2.0	11.0
Poria et al, 1981	Jamnagar	45	73.3	13.2	—	4.4
Pandey et al, 1981	Varanasi	195	78.5	15.3	—	3.0
Khosa et al, 1981	Varanasi	85	56.2	16.4	—	22.2
Maheshwariamma et al, 1982	Kerala	157	36.3	15.3	—	42.0
Present study	Pondicherry	100	57.1	31.2	3.9	6.5

et al¹⁹ found penile involvement in 19.5% cases among 261 patients of tinea cruris.

Species of dermatophytes isolated from patients with tinea cruris by different workers are shown in Table 3. In our study, *T. rubrum* is the commonest species (57%) as in most other studies from India and some studies from abroad. *T. rubrum* was the second common species in studies from South Africa⁸, Spain⁹, New Zealand¹⁰ and Calicut¹¹.

T. mentagrophytes was the second common species of dermatophytes (31.2%) in the present study which is comparable to the studies from Baroda¹, North Karnataka⁴, New Zealand, Chandigarh¹², Rohtak¹⁶, Pondicherry¹⁶, Madras¹⁷, Allahabad¹⁸ and Jamnagar¹⁹, *T. mentagrophytes* was the third common species in studies from Guntur¹⁴ and Varanasi²⁰, while it was not isolated at all in studies from Kerala¹¹ and Varanasi²¹.

F. floccosum was the third common species of dermatophytes isolated in the present study, which is comparable with the studies from Jamnagar¹⁹ and Varanasi²⁰. *E. floccosum* was the second common species in studies from Varanasi², Jabalpur³, Chandigarh¹², Guntur¹⁴ and Rohtak¹⁶, while it was the commonest species in studies from South Africa⁸, Spain⁹, New Zealand¹⁰ and Kerala¹¹.

References

1. Verma BS, Vaishnav VP and Bhatt RP : A study of dermatophytosis. Indian J Dermatol Venereol, 1970; 36 : 182-184.
2. Seghal VN and Shome SK : Dermatophytosis in Varanasi. A clinical and mycological study. Indian J Dermatol, 1973; 18 : 25-29.
3. Phadke SN, Gupta DK and Aggarwal S : Dermatophytosis in Jabalpur (Madhya Pradesh). Indian J Pathol Microbiol, 1973; 17 : 42-48.
4. Nagarkatti PS, D'Souza M and Ramachandraiah U : Dermatophytosis in North Karnataka. Indian J Pathol Microbiol, 1975; 18 : 26-31.
5. Singh R, Kumari S and Jerath VP : Mycology of *T. corporis* and *T. cruris* in Delhi. Indian J Dermatol Venereol Leprol, 1980; 46 : 218-220.
6. Pankajalakshmi VV and Subramanian S : Mycosis in Madras (Superficial): Indian J Dermatol Venereol, 1974; 40 : 228-235.
7. Prasad VB and Prakash APS : Dermatophytic profile of Chotanagpur. Indian J Dermatol Venereol Leprol, 1979; 45 : 103-110.
8. Scott DB and Scott FP : Dermatophytosis in South Africa. Sabouraudia, 1973; 11 : 279-282.
9. Velasco Benito JA, Martin Paswal A and Perez AG : Epidemiologic study of dermatophytosis in Salamanca (Spain). Sabouraudia, 1979; 17 : 113-124.
10. Bridger RC : Superficial mycosis in Southern New Zealand district. Sabouraudia, 1979; 7 : 107-112.
11. Maheshwariamamma S, Paniker CKJ and Gopinathan T : Studies on dermatomycosis in Calicut (Kerala). Indian J Pathol Microbiol, 1982; 25 : 11-17.
12. Sharma SC, Talwar P, Kumar B et al : Tinea cruris in Chandigarh. Indian J Dermatol Venereol Leprol, 1980; 46 : 216-217.
13. Emmon CW, Binford CH, Utz JP, Kwonchung KJ : Medical Mycology (3rd Ed). Lea and Febiger, Philadelphia, 1977, pp. 134.
14. Sobhanadri C, Rao TD and Babu KS : Clinical and mycological study of Superficial fungal infections at General Hospital, Guntur. Indian J Dermatol Venereol Leprol, 1970; 36 : 209-214.
15. Verma KC and Singh K : Dermatophytosis in Rohtak. Indian J Dermatol Venereol Leprol, 1972; 38 : 238-242.

16. Dasgupta LR, Sharma KB and Fernandez D: Superficial mycoses in Pondicherry. *Indian J Pathol Microbiol*, 1973; 16 : 41-46.
17. Kamalam A and Thambiah AS: Study of 3891 cases of dermatomycoses in tropics. *Sabouraudia*, 1976; 14 : 129-148.
18. Mehrotra HK, Bajaj AK, Gupta SC et al: A study of dermatophytes at Allahabad. *Indian J Pathol Microbiol*, 1978; 21 : 131-139.
19. Poria VC, Samuel A, Acharya KM and Tilak SS: Dermatophytoses in and around Jamnagar. *Indian J Dermatol Venereol Leprol*, 1981; 42 : 84-87
20. Pandey SS, Chandra S, Guha PK et al: Dermatophytic infection of the penis. Association with a particular undergarment. *Internat J Dermatol*, 1981; 20 : 112-114.
21. Khosa RK; Girgla HS, Hajini GH et al: Study of dermatomycoses. *Internat J Dermatol*, 1981; 20 : 130-132.