

## Profile of dermatophyte infections in Baroda

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### ABSTRACT

**Introduction:** This is an attempt to find the species prevalence of various dermatophytes in patients with dermatophytosis in our hospital in Baroda. **Material and Methods:** Two hundred and sixty clinically suspected cases of dermatophytosis were subjected to mycological studies. **Results:** One hundred and fifty seven cases (60.38%) were positive for fungus in direct microscopy while 116 (44.62%) were culture positive. *Tinea corporis* was the most common clinical presentation followed by *tinea cruris*. Young adults in the age group of 16-30 yrs were mainly affected. The male to female ratio was 1.57:1. *Trichophyton rubrum* (73.27%) was the most common isolate, followed by *Trichophyton mentagrophytes* (17.24%), *Epidermophyton floccosum* (7.75%) and *Trichophyton violaceum* (1.72%). **Conclusion:** *Trichophyton rubrum* was the predominant fungus found in this area of Gujarat, followed by *Trichophyton mentagrophytes*, *Epidermophyton floccosum* and *Trichophyton violaceum*.

**KEY WORDS:** Dermatophytes, Species, Prevalence

India is a large subcontinent with remarkably varied topography, situated within the tropical and subtropical belts of the world. Its climate is conducive to the acquisition and maintenance of mycotic infections. Since dermatophytosis occurs most frequently during the monsoon, the present study was planned during this period.<sup>1</sup>

### MATERIAL AND METHODS

Two hundred and sixty clinically suspected cases of dermatophytosis attending the dermatology outpatient department of Shri Sayaji Rao General Hospital, Baroda, during the period 1999-2000 were included in this study. A detailed clinical history, including age, sex, duration and type of lesion or history of family contact, was taken. Patients were examined and grouped in different clinical types depending upon the site of involvement.

Clinical material was collected for microscopy and culture using standard mycological techniques. SDA (Sabourauds Dextrose Agar) and DTM (Dermatophyte Test Media) with cycloheximide and chloramphenicol were used for culture. The media were incubated at 25°C and 37°C for a minimum period of three weeks. Positive cultures were examined both macroscopically and microscopically for species identification. Special tests like hair perforation, urease production or slide culture were performed when required.<sup>2</sup>

### RESULTS

The maximum number of patients was found in the age group of 16-30 years (118/260; 45.38%), followed by 31-45 years (67/260; 25.76%). There were 159 men (61.15%) and 101 women (38.84%), the male to female ratio being 1.57:1.

Out of 260 patients, 157 (60.38%) tested positive by direct microscopy and 116 (44.62%) by culture (Table 1). Ten patients were negative for dermatophytes by direct microscopy but yielded growth on culture; 51 were positive on direct microscopy but negative on culture. Ninety three cases were negative by both techniques. Culture positivity was highest with tinea manuum (56.25%) and lowest with tinea barbae (0%). Being the most common clinical type, tinea corporis contributed the highest number of culture positive cases (71/153).

The isolation rate of dermatophytes was 44.6% (116/260), with four species of dermatophytes being isolated: *T. rubrum* (isolation rate 73.27%), *T. mentagrophytes* (17.24%), *T. violaceum* (1.72%) and *E. floccosum* (7.75%). The clinical and mycological correlation is shown in Table 2.

## DISCUSSION

The commonest clinical types of dermatophytosis that presented to us were tinea corporis (58.84%), followed by tinea cruris (12.3%), which concurs with reports from other parts of India.<sup>3</sup> The incidence of tinea capitis was 6.92% in our study which is comparable with reports

from other workers (0.57%<sup>4</sup> to 10%<sup>5</sup>). Tinea capitis is less common in India than in other countries,<sup>4,6,7</sup> This may be attributable to the use of hair oils (particularly mustard oil) which are customarily used by Indians and have been shown to have an inhibitory effect on dermatophytes in vitro.<sup>8,9</sup> The reported incidence of tinea pedis varies from 26.4% from Pune<sup>10</sup> to 0.4% from Ahmedabad.<sup>11</sup> We found it to be 11.53% in our study. The predominance of tinea pedis in western countries could be because of the regular use of shoes and socks, predisposing to perspiration and maceration.

Dermatophyte infection is more common in adults aged 16-45 years.<sup>3</sup> As universally reported, tinea capitis is an infection of children. The post-pubertal changes in hormones, resulting in acidic sebaceous gland secretions, are responsible for the decrease in incidence with age.<sup>12</sup>

A higher incidence of dermatophytosis in males than in females has been reported both in India and abroad.<sup>3</sup> Philpot suggested that males may be more vulnerable to infection due to higher exposures in the army, schools and sporting activities, and due to the type of shoes and socks they use.<sup>12</sup> This is especially true for tinea cruris. Differences in the incidence of other clinical types were also observed in the present study, e.g. tinea corporis, tinea capitis and tinea manuum were more common in males while tinea pedis and tinea unguium were more common in females.

We found an isolation rate of 44.62% with culture, compared to rates varying from 7% to 49% in other studies.<sup>13,14</sup> *Trichophyton* species were more commonly isolated than *Epidermophyton* and *Microsporum*. *T. rubrum* is the main dermatophyte reported from India and other countries.<sup>3</sup> Many other species of dermatophytes like *T. schoenleinii*, *T. tonsurans*, *T. verrucosum*, *T.*

**Table 1: Incidence of isolation of dermatophytes according to clinical condition**

Clinical disease	Total No. of cases	No. of cases positive by culture	No. of cases positive by KOH smear
Tinea corporis	153	71	91
Tinea cruris	32	16	20
Tinea capitis	18	5	9
Tinea barbae	2	0	1
Tinea pedis	30	12	20
Tinea unguium	5	1	2
Tinea manuum	16	9	13
Tinea faciei	4	2	2
<b>Total</b>	<b>260</b>	<b>116</b>	<b>157</b>

**Table 2: Correlation between clinical and mycological findings**

Clinical type	<i>T. rubrum</i>	<i>T. mentagrophytes</i>	<i>T. violaceum</i>	<i>E. floccosum</i>	Total isolates
Tinea corporis	59	10	-	2	71
Tinea cruris	8	2	-	6	16
Tinea pedis	10	2	-	-	12
Tinea capitis	-	3	2	-	5
Tinea manuum	6	2	-	1	9
Tinea barbae	-	-	-	-	0
Tinea unguium	1	-	-	-	1
Tinea faciei	1	1	-	-	2
<b>Total</b>	<b>85 (73.27%)</b>	<b>20 (17.24%)</b>	<b>2 (1.72%)</b>	<b>9 (7.75%)</b>	

*ferrugineum*, *T. concentricum* and *M. audouinii* have been isolated by other workers, but we could isolate only *T. rubrum*, *T. mentagrophytes*, *T. violaceum* and *E. floccosum*.<sup>5,15-17</sup> *T. rubrum* has been found to be the main causative agent of tinea corporis, whereas tinea cruris is mainly caused by *E. floccosum* and tinea capitis by *T. violaceum*.<sup>3</sup>

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