

Clinicomycological Study of Dermatophytosis in Tertiary Care Hospital

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Dermatophytosis refers to superficial fungal infection of keratinized tissue caused by Dermatophytes. Although common, its severity should not be underestimated as it can cause great disability and disfigurement. The present study was undertaken with clinico-mycological profile of dermatophytic infection, prevalence of various species, co-relation between site of involvement and causative agent and to compare KOH smear positivity with culture positivity. A total of 200 clinically diagnosed cases of dermatophytosis were subjected to microscopy with 10%KOH, fungal culture and further identification. Out of 200 cases, *Tinea corporis* 89 cases (44.5%) was the commonest clinical presentation followed by *Tinea cruris*. Common species isolated was *Trichophyton rubrum* 86(65.2%) followed by *Trichophyton mentagrophytes* 28(21.2%)

Key words: Dermatophytosis, Cutaneous, fungal infection, *Tinea corporis*,
Tinea cruris, *Trichophyton rubrum*, *Trichophyton mentagrophytes*.

The cutaneous infection in man include wide variety of diseases in which the integument and its appendages, the hair and nail are involved. Infection is generally restricted to non living cornified layers but a variety of pathological changes occur in host because of presence of infectious agents and their metabolic products. The majority of infections are caused by homogenous group of keratophilic fungi called the dermatophytes¹. Dermatophytosis constitute group of superficial fungal infection of keratinized

tissue i.e the epidermis, hair and nail². Dermatophytosis constitute 16 to 75% of all mycological infections. It is more prevalent in tropical and subtropical countries including India where heat and moisture play an important role in promoting growth of these fungi.³

Dermatophytosis though not life threatening, its severity should not be underestimated as it can cause great discomfort and at times cause disability and disfigurement.⁴ Even though many workers have reported incidence of dermatophytosis from different parts of our country, very little work has been done on this subject in this part of our state.

The present study was undertaken with clinico-mycological profile of dermatophytic infection, prevalence of various species, co-relation between site of involvement and causative agent and to compare KOH smear positivity with culture positivity.

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MATERIALS AND METHODS

A total of 200 clinically diagnosed cases of tinea infection, of all age groups and of both sexes, attending out patient Department of Dermatology and venereology, Chigateri General hospital and Bapuji hospital were taken for this study. A detailed history of the patient was recorded. The affected part was cleaned with 70% ethylalcohol, skin and nail scrapings were collected in a sterile paper packets. The affected hair were epilated with sterile forceps. All the samples were subjected to microscopy and culture. Microscopic examination was done with 10% KOH, 20% KOH was used for nail clipping. All the samples were observed for presence of fungal filaments. Irrespective of demonstration of fungal filaments, all the samples were inoculated on slopes of modified Sabourauds agar i.e Sabourauds dextrose agar with chloramphenicol and cycloheximide. The culture were incubated at room temperature and observed daily for growth for period of one month. Growth obtained was identified based on colony morphology, texture, pigment production, microscopic appearance and other relevant tests as per standard instructions.

RESULTS

Out of total 200 non-repetitive samples collected, 180(90%) were skin scrapings, 14(7%) were hair stubs and 6(3%) were nail clippings. Most of the clinical presentation were common among men than women except for *Tinea faciei*. Most common clinical type was *Tinea corporis* accounting for 89cases (44.5%) followed by *Tinea cruris* 57cases(28.5%). Least common clinical type was *Tinea manuum* 5 cases(2.5%).

Out of 200 cases, 173cases (86.5%) were positive by direct microscopy and 132 cases (66%) were positive by culture. 119 cases (59.5%) were positive by both microscopy and culture. 54 cases (27%) were positive by microscopy and negative by culture. 13 cases (6.5%) were negative by microscopy but culture positive. 14 cases were negative both by microscopy and culture.

In this study, commonest species isolated was *T. rubrum* 86(65.2%) followed by *T. mentagrophytes* 28(21.2%), *T. violaceum* 9(6.8%) and *M. audouinii* 6(4.5%).

Table 1. Shows Dermatophytes isolated from different clinical types

Clinical types	No	<i>T. rubrum</i>	<i>T. mentagrophytes</i>	<i>T. violaceum</i>	<i>M. gypseum</i>	<i>M. audouinii</i>	Total
<i>Tinea corporis</i>	89	43(48.3)	15(16.9)	-	-	4(4.5)	62(69.7)
<i>Tinea cruris</i>	57	26(45.6)	7(12.3)	-	-	1(1.8)	34(59.6)
<i>Tinea capitis</i>	14	-	-	9(64.3)	2(14.3)	1(7.1)	12(85.7)
<i>Tinea unguium</i>	6	3(50.0)	1(16.7)	-	-	-	4(66.7)
<i>Tinea pedis</i>	7	3(42.9)	-	-	-	-	3(42.9)
<i>Tinea manuum</i>	5	2(40)	1(20)	-	-	-	3(60.0)
<i>Tinea faciei</i>	7	2(28.6)	-	-	1(14.3)	-	3(42.9)
Mixed	15	7(46.7)	4(26.7)	-	-	-	11(73.4)
Total	200	86(43.0)	28(14.0)	9(4.5)	3(1.5)	6(3.0)	132(66.0)

DISCUSSION

Various studies on dermatophytosis from different parts of the country have shown consistent results. The major clinical type seen in our study was *Tinea corporis* followed by *Tinea cruris*. Similar findings have been reported by other

workers, Mohanty *et al*⁵ reported *T. corporis* 36.19%, *T. cruris* 26.66%; Sumana *et al*.⁶ reported *T. corporis* 60%; Sen *et al*⁷ reported *T. corporis* 48% and *T. cruris* 19%. Wearing tight clothing, less aeration, maceration and high rate of sweating around waist and groin region make these sites vulnerable to dermatophytosis. High incidence of

tinea capitis in children may be due to their increased susceptibility to fungal infection, frequent shaving of scalp and sharing of caps. They have immature immune system and increased exposure in school to subclinical infection. Results of comparison of microscopy and culture of our study is consistent with other reports. Peerapur *et al*⁸ reported microscopy positive in 76% and culture positive in 64%. Kannan *et al*.⁹ reported microscopy positive 100% and culture in 66%.

Commonest species isolated in our study was *T.rubrum* followed by others which is in agreement with other workers. Peerapur *et al*⁸ reported *T.rubrum* 43%, *T.mentagrophytes* 28.1%, *M.audouinii* 6.2%; Sumana *et al*.⁶ reported *T.rubrum* 60%, *T.violaceum* 26%; Sen *et al*.⁷ reported *T.rubrum* 68.6%, *T.mentagrophytes* 23% and *T.violaceum* 1.9%.

The present study gives a clear insight about mycological aspect of Dermatophytosis. There is no much difference in species isolated in present study as compared to studies in other parts of our state.

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