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**Original Research Article**

# Clinico-epidemiological study of dermatophytosis in teaching hospital of North Karnataka

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## ABSTRACT

**Background:** Although fungi are worldwide, only few of them are considered pathogenic. The pathogenic fungi may give rise to infections in animals and human beings. Skin infection due to dermatophytes has become a significant health problem of late equally affecting children, adolescents and adults. Depending on the climate and culture, the clinical picture can vary enormously. The objective of the study was to study the clinical and diagnostic spectrum of dermatophytosis at Dermatology OPD of KBNIMS, Kalaburagi.
**Methods:** The present descriptive study was conducted in Dermatology OPD in teaching Hospital of North Karnataka.
**Results:** Majority of the subjects were from 21 to 40 years age group i.e. 44.58% followed by 36.4% from 0 to 20 years age group. Out of 250 patients, majority were males i.e. 70.4% whereas 29.6% were females. More than half i.e. 174 (69.6%) out of 250 patients were KOH positive. Prevalence of culture positive specimen was found to be 40%. T. cruris (35%) and corporis (32%) were most common infections in our study. 31% of cases *T. mentagrophyte* was observed as most common isolate on culture.
**Conclusions:** In our study, most common dermatophytic infection was *T. cruris* (35%). Only 40% were culture positive and among which *Trichophton mentagrophyte* was commonly seen isolate. Low socioeconomic status, overcrowding and compromised personal hygiene with tropical climate are prevalent factors in our study.

**Keywords:** Clinico epidemiological, Dermatophytosis

## INTRODUCTION

Worldwide it is found that fungal infections of the skin, hair, and nails due to dermatophytes are common problem. Both sexes and all ages are susceptible to dermatophytoses. Amongst all, Tinea capitis is more common in prepubescent children whereas tinea cruris and tinea pedis are common in adult males.[1]

Despite the fact that dermatophytosis takes place global, person dermatophyte species may additionally vary in their geographic distribution and self-virulence. Those problems cannot be differentiated by ethnicity or socioeconomic popularity; however poverty and overcrowded living conditions are important underlying social determinants.[2] Factors contributing to the high frequency and continual occurrences of dermatophytosis in developing nations may also consist of negative residing situations, kids interaction styles, and poor health looking for behavior.[3]

Dermatophytes are fungal agents of dermatophytoses. Superficial mycoses of dermatophytoses are named after anatomic localization of the lesions. Dermatophytosis

(tinea or ringworm) is a general name for acute to moderate and chronic lesions of the outer layers of keratinized tissues induced by dermatophytes. Dermatophytoses encompass tinea barae, tinea faciei, tinea incognito, tinea capitis,tinea favosa, tinea corporis, tinea cruris, tinea manuum, tinea pedis, and tinea unguium.[4-9]

Few studies have investigated the etiology of cutaneous fungal infections inside the developing nations, and, therefore, there's much less knowledge of any adjustments to their epidemiology. Expertise of the essential causative species provides a clearer understanding of threat factors for superficial fungal infections and epidemiologic pattern in future.

***Objective***

- To study the clinical and diagnostic spectrum of Dermatophytosis at Dermatology OPD of KBNIMS, Kalaburagi.

## METHODS

The present descriptive study was conducted in Dearmatology OPD of Khaja Bandanawaz Teaching and General Hospital, Kalaburagi during the period of Januray 2017 to July 2017

***Sample size***

250 subjects of all age group (both male and female) reporting to dermatology OPD were involved.

***Study subjects***

Cases of dermatophytosis.

***Inclusion criteria***

Inclusion criteria were age between 0-80 years; all cases clinically diagnosed as having dermatophytic infection; those who are willing to participate with informed consent.

***Exclusion criteria***

Exclusion criteria were those who are not willing to participate in study.

Data of the patients was collected by using a pretested proforma. Variables like age, gender, dermatological examination, KOH staining was recorded. All samples were sent for culture.

***Statistical analysis plan***

Data enetered in MS excel sheet and analysed by using SPSS 23.0 version IBM USA. Qualitative data was expressed in terms of percentages and quantitative data was expressed in terms of mean and standard deviation.

## RESULTS

Majority were from 21 to 40 years age group i.e. 44.58% followed by 36.4% from 0 to 20 years age group (Table 1).

**Table 1: Distribution of subjects according to age.**

| | | Frequency | Percentage (%) |
|---|---|---|---|
| **Age group (in years)** | 0 to 10 | 26 | 10.25 |
| | 11 to 20 | 65 | 26.15 |
| | 21 to 30 | 81 | 32.28 |
| | 31 to 40 | 31 | 12.3 |
| | 41 to 50 | 14 | 5.61 |
| | 51 to 60 | 9 | 3.61 |
| | Above 60 | 24 | 9.76 |

**Table 2: Distribution of subjects according to gender.**

| | | Frequency | Percentage (%) |
|---|---|---|---|
| **Gender** | Male | 176 | 70.4 |
| | Female | 74 | 29.6 |
| | Total | 250 | 100 |

Out of 250 patients, majority were males i.e. 70.4% whereas 29.6% were females.

**Table 3: Distribution of subjects according to socioeconomic status.**

| | | No. | Percentage (%) |
|---|---|---|---|
| **Socio economic status** | Upper | 0 | 0 |
| | Upper-middle | 0 | 0 |
| | Lower-middle | 14 | 5.6 |
| | Upper-lower | 69 | 27.6 |
| | Lower-lower | 167 | 66.8 |
| | Total | 250 | 100 |

In our study majority of patients were from lower socioeconomic class i.e. 66.8%. Remaining 33.2% were from middle class.

**Table 4: Distribution of subjects according to KOH examination reports.**

| | | No. | Percentage (%) |
|---|---|---|---|
| **KOH report** | Positive | 174 | 69.6 |
| | Negative | 76 | 30.4 |
| | Total | 250 | 100 |

More than half i.e. 174 (69.6%) out of 250 patients were KOH positive and in 30.4% it was negative. So the prevalence of dermatophytosis was 69.6% in our study.

**Table 5: Distribution of subjects according to clinical diagnosis**

| | | Frequency | % |
|---|---|---|---|
| **Clinical diagnosis** | T. cruris | 61 | 35.06 |
| | T. corporis | 38 | 21.84 |
| | T. incognita | 19 | 10.92 |
| | T. capitis | 15 | 8.62 |
| | T. faciei | 8 | 4.60 |
| | T. corporis/cruris | 8 | 4.60 |
| | Onychomycosis | 8 | 4.60 |
| | T. pedis | 6 | 3.45 |
| | T. pedis/mannum | 6 | 3.45 |
| | T. mannum | 4 | 2.30 |

In our study, majority i.e. 61 (35.06%) had *T. cruris* infection followed by *T. corporis* in 38 (21.84%), T. Incognita 19 (10.92%).

**Table 6: Distribution of subjects according to culture positive dermatophytes (n=100).**

| | | Frequency | % |
|---|---|---|---|
| **Culture positive** | *T. cruris* | 35 | 35 |
| | *T. corporis* | 32 | 32 |
| | *T. incognita* | 12 | 12 |
| | *T. capitis* | 10 | 10 |
| | *T. corporis/cruris* | 6 | 6 |
| | *T. faciei* | 4 | 4 |
| | Onychomycosis | 2 | 2 |

In 35% of cases culture was found to be positive for *T. cruris*, 32% for *T. corporis* and 12% for *T. incognita*.

**Table 7: Distribution of subjects according to culture positive isoltes (n=100).**

| Culture | Number | % |
|---|---|---|
| ***T. mentagrophyte*** | 31 | 31 |
| ***T. rubrum*** | 27 | 27 |
| ***T. tonsurans*** | 23 | 23 |
| ***T. schoenleinii*** | 12 | 12 |
| ***E. floccosum*** | 5 | 5 |
| ***Microsporumgypseum*** | 3 | 3 |
| **Total** | 100 | 100.0 |

Most common isolate was found to be *T. Mentagrophyte* in 31% followed by *T. Rubrum* in 27% and *T. Tonsurans* IN 23%.

## DISCUSSION

In our study out of 250 subjects examined, majority were from 21 to 40 years age group i.e. 44.58% followed by 36.4% from 0 to 20 years age group. Out of 250 patients, majority were males i.e. 70.4% whereas 29.6% were females.

In our study majority of patients were from lower socioeconomic class i.e. 66.8%. Remaining 33.2% were from middle class.

In our study, we observed that almost more than half i.e. 174 (69.6%) out of 250 patients were KOH positive. So the prevalence of dermatophytosis was 69.6% in our study (Table 4).

Table 5 shows distribution according to clinical diagnosis that revealed that 88 patients out of 174 (35.06%) had *T. cruris* infection. 21.84% had *T. corporis* infection and 10.92% had *T. incognita* infection. *T. capitis* was seen in 8.62% patients.

Children under 14 years of age appeared to be more susceptible to tinea capitis, which is similar to the results of other studies.[10-13]

The high prevalence of fungal infection may be due to lower socioeconomic status. Overcrowding, sharing of towels, clothing and hair accessories with infected individuals may lead to the spread of infections. The spread of infections may also be attributed to the use of unsterilized barbering instruments.[14,15] Tinea pedis is common in adults due to bare foot and excessive use of water. Humidity and temperature are well-known factors affecting fungal penetration through the stratum corneum of the skin.[16]

Prevalence of culture positive specimen was found to be 40%.35% of samples were positive for *T. cruris*. 32% samples were positive for *T. corporis*. 12% were positive for *T. incognita* and 10% for *T. capitis*.

In our study, Out of 100 culture positives 31% of cases *T. mentagrophyte* isolate was observed. In 27% of cases we found *T. rubram* and in 23% it was *T. tonsurans*. Kannan et al in his study among 80 patients with dermatophytosis found isolates in 53 (66.3%) patients.[17] The isolation rate in our study is comparable with the other studies where it has ranged from 45.3-52.2%.[18-20]

## CONCLUSION

In our study, most common dermatophytic infection was *T. cruris* (35%). Only 40% were culture positive and among which *T. mentagrophyte* was commonly seen isolate. Low socioeconomic status, overcrowding and compromised personal hygiene are prevalent factors in our study.

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