



Original Research Article

Prevalence of dermatophytes in patients attending a teaching hospital in Hyderabad, South India

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ABSTRACT

Introduction: Dermatophytoses are a group of superficial fungal infections of keratinized tissues. Though they do not cause mortality they cause morbidity and pose a major public health problem especially in tropical countries like India.

Aims and Objectives: The present study is done to know the prevalence of dermatophytes and to identify the causative agents in Hyderabad area.

Materials and Methods: A total of 180 samples were collected for a period of 1 year from infected skin, hair, and nails. Samples were collected under aseptic conditions and were then subjected to direct microscopy by KOH mount and culture on SDA.

Results: Dermatophytes were seen more in males (126/180). Direct microscopy by KOH mount revealed presence of fungal elements in (144/180) of samples. *T. mentagrophytes* was the most predominant isolate followed by *T. rubrum* and *T. violaceum*.

Conclusion: Dermatophytic infections are worldwide in distribution with superficial mycoses being more prevalent in India where heat and moisture play an important role. Dermatophytosis has been reported throughout the year in the present study locality and an increase in prevalence of certain species was found.

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1. Introduction

The dermatophytoses are a group of superficial fungal infections of keratinized tissues, namely, the epidermis, hair, and nails.¹ These are predominantly caused by a group of closely related keratinophilic mycelial fungi (dermatophytes) belonging to the genera of *Trichophyton*, *Microsporum*, and *Epidermophyton*.² Infections caused by dermatophytes are one of the earliest known fungal infections of mankind and are very common throughout the world. Although dermatophytosis does not cause mortality, they cause morbidity which pose a major public health problem, especially in tropical countries like India, due to the hot and humid climate. No race in any geographical location is totally free from dermatophytosis

The prevalence of dermatophyte infection varies according to different geographical areas. This variance in the distribution pattern is due to the social practices, migration of labourer, movements of troops, immigration, and frequent worldwide traveling.³ The increase in prevalence of dermatophytosis has been attributed to many factors including tropical climate, overcrowding, urbanization, sharing of rooms such as living in hostels, the use of occlusive footwear, tight-fitting clothes, common showering areas and sports activity.⁴ Skin infection caused by dermatophytes has become an important health issue affecting children, adolescents and adults.⁵ The hot and humid climate in tropical and subtropical countries like India makes dermatophytoses a very common fungal skin infection.⁶ This study was taken up with the main objective to determine the prevalence of dermatophytosis and their etiological agents.

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2. Materials and methods

This study was done from 2019 June to 2020 May. A total of 180 samples were collected from patients visiting dermatology OPD.

Ethical clearance was obtained from Institute ethical committee prior to start of study.

Detailed history and clinical examination of the patient was done and details of skin lesions were noted.

2.1. Inclusion criteria

All new cases of dermatophytosis of all age groups and both sexes who gave consent were included.

2.2. Exclusion criteria

Patients treated with antifungal or topical steroid in the recent past were excluded from the study.

The samples were collected according to the presenting condition like skin scales, crusts, nail clippings or hair plucking. A part of specimen was subjected to KOH wet preparation (10% for skin and hair, 40% for nail) for the presence of fungal elements. The remaining specimen was inoculated on SDA with chloramphenicol and cycloheximide and incubated at 25°C for up to 4 weeks. Species identification was done on basis of colony morphology, finding of teased mount using LPCB, urease test.

3. Results

A total of 180 samples were received for fungal examination out of which 131 were skin scrapings, 22 were hair samples and 27 were nail clippings. KOH mount was positive for fungal elements in 144 samples and culture was positive in 106 samples. On KOH mount, hyaline septate hyphae were seen in 132 samples and yeast cells in 12 samples. Among the culture positive samples, dermatophytes were identified in 86 samples, candida in 12 samples and other fungi in 8 samples. Dermatophytes were isolated from 67 skin scrapings, 11 nail clippings and 8 hair samples. Among the 86 dermatophytes isolated 49 belonged to *T.mentagrophytes*, 33 belonged to *T.rubrum* and 4 belonged to *T.violeceum*. Epidermophyton and Microsporum were not isolated.

Table 1: Distribution of patients according to sex

	Male	Female	Total
No.of cases	126	54	180
Percentage	70	30	100

4. Discussion

Mycotic infections are worldwide in distribution, with superficial mycoses being more prevalent in the tropical

Table 2: Distribution of sample on the basis of KOH mount and culture

Total no. of cases	KOH positive	Culture positive
180	144	106

Table 3: Distribution of dermatophytic cases based on clinical samples

Samples	Total no. of cases
Skin	67
Hair	08
Nail	11
Total	86

Table 4: No. of species isolated

Organism isolated	No. of isolates
<i>T.mentagrophytes</i>	49
<i>T.rubrum</i>	33
<i>T.violeceum</i>	04

and subtropical countries, including India, where heat and moisture play an important role in promoting the growth of these organisms. Superficial skin infections caused by dermatophytes resulting in local inflammation are common in humans. In the present study, skin infection were found to be common clinical presentation (72%) followed by nail (15%) and hair (12.2%).⁷ Males (70%) were more commonly affected than females (30%). Male to female ratio was 2.3:1, these observations are comparable with other studies. Current results revealed that males are more prone to dermatophytosis than females. This may be correlated with their nature of work leading to excessive sweating and the frequent interaction with different people of the society. The lower incidence in females may be also due to the non-reporting of the female patients to the hospitals due to the prevailing social stigma in the rural population in India.^{1,8} In our study, diagnosis of dermatophytosis cases were made by both, demonstration under microscope by KOH mount and culture on SDA. Among them direct KOH mount was found to be a good screening test as 80% samples were positive in KOH mount while 58.8% were positive in culture similar to some study.⁹ *T.mentagrophyte* (56.9%) is the predominant dermatophyte isolated followed by *T.rubrum* (38.3%) and *T.violaceum* (4.6%) similar to some other studies.^{1,3} Like other studies in our study also Trichophyton species were more commonly isolated than Epidermophyton and Microsporum.¹⁰

5. Conclusion

Based on the results of the present study, dermatophytosis is common in this region where hot and humid climate associated with poor hygienic conditions play an important role in growth of the fungi. Trichophyton species is the commonest etiological agent and *T.mentagrophytes* is the

most common isolate. Due to psychological effects and high morbidity in terms of loss of working days and treatment, dermatophytosis is a public health problem which can be curtailed by educating precautionary measures among the population at risk in this locality.

6. Source of Funding

None.

7. Conflicts of Interest

None.

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