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OCCURRENCE OF TINEA INFECTIONS IN JAIPUR CITY, INDIA

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Superficial fungal infections are most common on earth and have become an important public health issue especially in India. It occurs via adhering and penetrating pathogens onto host tissue through specific metabolic reactions. In the present study, the occurrence of Tinea infections was screened in citizens of Jaipur on basis of KOH test and culture test. In was observed that, out of total 119 samples collected, maximum patients were found to be suffering from Tinea cruris (39.50%).70.58% samples (84) were found to be KOH positives and out of total, 49.58% specimens were culture positive. The present study suggests that due to more occlusive clothing and more physical activities, young patients were at higher risk for fungal infections. The outcomes facilitate mycological research on fungus causing superficial infection of human being.

Keywords: Dermatophytes; Dermatophytosis; Superficial Mycoses; Tinea

Introduction

Nature functions as huge reservoir for fungi, an individual kingdom [1-2]. The fungi in nature as saprophytes became parasite by accident and then pathogenic to both humans and animals causing infections; referred as dermatophytes[3-4]. The infections may be classified as "Superficial" affecting only the skin, hair, nails and mucous membrane, or "Systemic" affecting the body as a whole[5-6]. Most superficial infections positioned on the epidermal layer of skin, are named as Tinea[7-12]. The warm and humid climate, poor socio-economy, crowded living and poor sanitary conditions support to the spread of infections[2,13]. In the present study, aim was to screen the occurrence of Tinea infections in citizens of Jaipur.

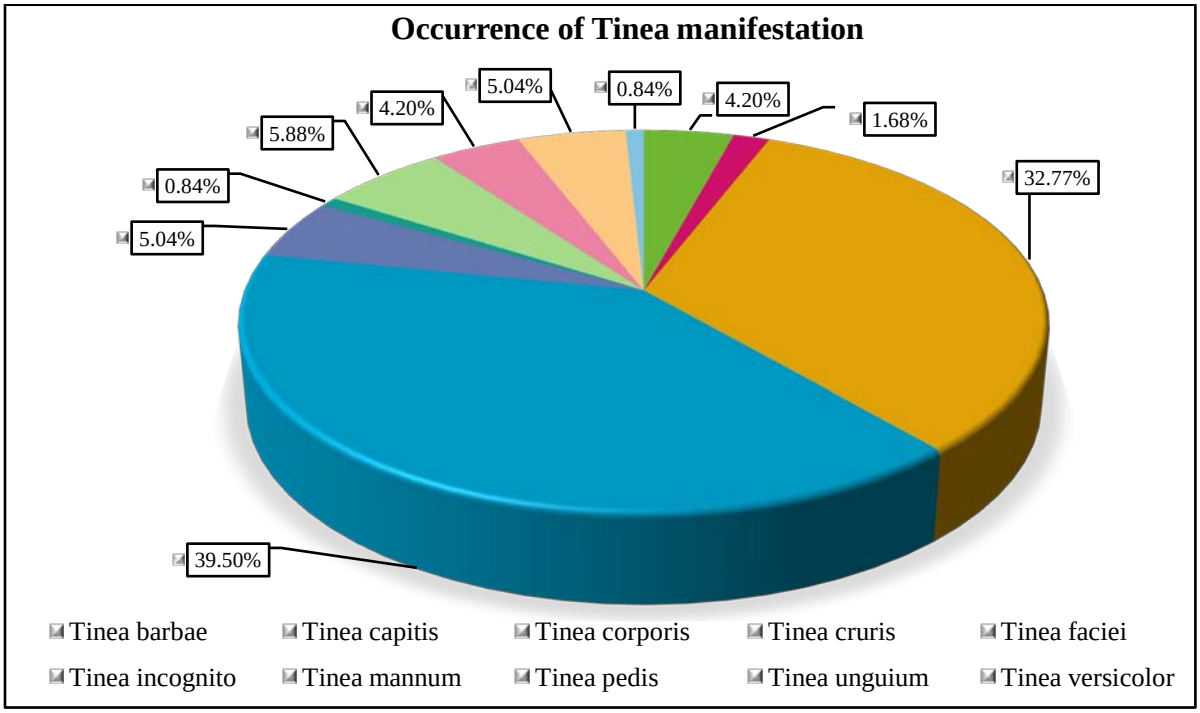
Materials and Methods

A total of 119 patients having age range of 6-69 years of dermatomycotic infections were randomly selected in period of December 2014 to June 2015 from outdoor patients of the Skin and VD Section of the Sawai Man Singh (SMS) Medical College and Hospital, Jaipur. Patient Performa was filled during the collection of sample to obtain relative information of infections and demographic data. Samples were collected from skin and nail using a sterile scalpel blade and nail cutter following cleaning of the affected sites with 70% alcohol. The scrapings were collected on a piece of sterile black paper. The Black paper allows easy visualization of small skin squames and absorption of moisture to reduce bacterial load, it should be thin enough to fold tightly at the corners and not leak specimen[14].

Sample processing: The specimens were examined for the presence of hyphae or spores which are characteristics of dermatophyte infection by KOH method. The skin scrapings were placed on a glass slide and 2-4 drops of 10% (w/v) aqueous solution of potassium hydroxide (KOH) was added. In case of nail specimen 20% (w/v) aqueous solution of potassium hydroxide was used and the slide was also gently heated. After 5 min a cover slip was placed on the slide. The wet mount prepared was carefully examined under low and high (10X and 40X) power objective lens to observe for the presence of diagnostic fungal forms[15]. The KOH positive and negative cases both were subjected to culture study, skin scrapings and nail clippings were cultured on sabouraud dextrose agar medium supplemented with chloramphenicol (0.05mg/ml) and cycloheximide (0.5mg/ml) [16]. The culture tubes were incubated at 28°C for 4 weeks and the culture growth was regularly examined at an interval of 2-3 days for fungal growth. The isolates were examined and identified based on macroscopic characteristics (duration of growth, surface morphology, color, texture, pigmentation production on reverse surface, colony morphology) and microscopic examination of fungal growth[17].

Results and Discussion

In the present study, 119 patient samples were collected from Skin and Venereal Disease Section of the SMS Medical College and Hospital, Jaipur. Maximum patients were found to be suffering from Tinea cruris (39.50%) and Tinea corporis (32.77%) while minimum occurrence was recorded for Tinea incognito (0.84%) and Tinea versicolor (0.84%). The moderate incidence of Tinea mannum (5.88%) and Tinea faciei and Tinea unguium (5.04%) was also found in subjected patients (Graph-1& Table-1).



Graph-1: Total Occurrence Status of Tinea Patients

Out of total 119 samples collected, 70.58% were found to be KOH positives representing that lesions were caused by fungi hence confirming existence of fungal infection. However, 29.42% specimens were also found to be KOH negative (Table-1).

Table 1. Total Number of KOH and culture positives samples

Type of Tinea	Total Number of patients	Number of patients	
		KOH Positive	Culture Positive
Tinea barbae	5	4	2
Tinea capitis	2	2	1
Tinea corporis	39	26	22
Tinea cruris	47	35	27
Tinea faciei	6	4	2
Tinea incognito	1	1	1
Tinea mannum	7	4	1
Tinea pedis	5	4	2
Tinea unguium	6	3	1
Tinea versicolor	1	1	0
Total	**119**	**84**	**59**

The results of KOH positive were presumptive diagnosis of fungal infection. The entire 119 specimens were cultured and out of total 59 (49.58%) specimens were found to be culture positive (Table-1). Maximum infections were found to be present in patients of age group 18 to 35 years at higher risk.

Present study is in support of a study whose findings reported that Tinea cruris (74.7 %) was most prevalent presentation in Madras city[18]. Although in another study Tinea cruris was second most common clinical type, followed by Tinea capitis, Tinea manuum, Tinea unguium[19]. The findings from Jaipur by Bhadauria et al. (2001) were in agreement with our results. In this study's results, the higher frequency was of Tinea corporis followed by Tinea capitis, Tinea pedis and Tinea manuum[20].

The findings from Gujarat by researchers were entirely in contradiction with our outcomes. In their results, out of total 377 subjected patients, T. corporis (52.78%) was most common clinical manifestation followed by T. cruris (15.64 %.) and T. versicolor (12.46%)[21]. Tinea corporis (24.57%) was most common clinical type followed by tinea cruris (22.28%)[22]. In a study, Tinea corporis (54.5%) was recorded as most common clinical type followed by Tinea cruris (25.5%) which are in disagreement with findings of our study[23].

The most predominant clinical manifestation was found as Tinea capitis (43.24%) followed by Tinea corporis and Tinea pedis 28.38% and 18.92% respectively[24] whereas Tinea cruris was recorded in the least presentation only 9.46%. In 2012, out of total 60, about 45%

were KOH positive while 50% were found to be culture positive for dermatophytes in Karnataka[25]. The variability in outcomes of different researcher was possibly due to difference in climatic conditions. The outcome data of present study confirmed the infections formulation from saprophytic nature to clinical manifestations with human contact which leads to favorable conditions for parasitism.

Conclusion

Our results indicated that fungi are opportunistic in nature and cause infections in humans. The infections mostly occurs and increase due to wearing of dirty and pungent clothing, crowded living conditions, a low tendency to self-limitation, booming tourism, sports activities, poor medical care and the climatic support for growth of dermatophytes. This study emphasizes the role of good hygiene in preventing transmission and further spread of such infections. The findings of present study suggest the role of geographical variation in clinical and mycological patterns. Similarly, Fungal culture helps to identify the species but it is not essential for the diagnosis, as it is not a sensitive test, although is useful for studying epidemiology of the disease.

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