

Clinico-Epidemiological Profile of Dermatophyte Infections

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Abstract

Background: The cutaneous mycoses, largely caused by dermatophyte fungus, are among the most frequent fungal infections globally, affecting several age groups and negatively affecting the quality of life of infected patients. **Subjects and Methods:** This present study was conducted on seventy four clinically suspected cases of dermatophytoses over 6 months from April to September 2018. Non-dermatophytic fungal infections and patients on antifungal treatment for more than four weeks were excluded from the study. **Results:** The total sample size for this study was 74, with 43 (58.1%) boys and 31 (41.9%) girls between the ages of 4 and 14. The study's most common age group was 7-11 years old. Tinea cruris was reported most prevalent dermatophyte condition in boys whereas Tinea unguium was predominant in girls. Tinea cruris infections were prevalent in children aged 7 to 11. The majority of dermatophyte infections were seen in children aged 7 to 11 years old, according to this study. **Conclusion:** Tinea cruris was found to be the most prevalent dermatophyte condition in boys, whereas Tinea unguium was shown to be the most common dermatophyte condition in girls, according to this study.

Keywords: Pediatric dermatophyte infection, cutaneous, and childhood tinea.

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Introduction

A major cause of morbidity in the world is superficial fungal infections of the hair, skin, and nails. Although candidiasis and pityriasis versicolor are also examples of major superficial mycoses, dermatophytoses are the most common cause of fungal infection in men. It is believed that 20-25 percent of the world's population is affected by superficial fungal infections.^[1] Because of their ability to derive nutrients from keratinized material, dermatophytes are parasitic fungi that infest the skin and cause infections of the skin, hair, and nails. These microbes infiltrate keratin tissues, causing inflammatory reactions in the host as a result of their metabolic byproducts.^[2] The organisms belong to 3 genera; Trichophyton, Epidermophyton and Microsporum. Dermatophytes may be divided into 3 types depending on host preference and natural habitat. Anthropophilic species mostly infect humans, while Geophilic species live in the soil and can infect both humans and animals, and Zoophilic species mostly infect non-human mammals.^[3] Traditionally, dermatophyte infections were given names based on the anatomical areas involved, by adding the Latin term for the body place after the word Tinea.^[4] In today's world, dermatophytosis is a

huge public health hazard. Dermatophytosis is frequent in tropical nations like India, and in regions with high humidity, overpopulation, and poor hygienic conditions, it can become epidemic.^[5] Men are more likely than women to develop the condition. Trauma, excessive perspiration, and diabetes are only a few of the factors that enhance the occurrence of disease.^[6] The study's goal was to look at the clinico-epidemiological picture of dermatophyte infections in kids at a Tertiary Care Teaching Hospital.

Subjects and Methods

This present study was conducted in the Department of Dermatology, World College of Medical Sciences Research and Hospital, Jhajjar, Haryana, India. This present study was conducted on 74 clinically suspected cases of dermatophytoses over six months from April to September 2018 after obtaining approval from the ethical committee of the institute. Non-dermatophytic fungal infections and patients on antifungal treatment for more than four weeks were excluded from the study. The subjects and their parents signed a written informed consent form. A thorough clinical history was taken, as well

as a thorough inspection of the lesion. From the afflicted lesions, samples were taken. When patients presented with lesions at many clinically distinct sites, samples were taken from all of them and processed and evaluated separately. Skin scrapings were taken using a sterile scalpel from the active edge of the lesions after washing the afflicted area with 70% ethanol. Clippings and scrapings are collected from friable or discoloured portions of hyperkeratotic nails in the case of nail infections. In cases of scalp infection, hair cuttings were obtained. Scrapings/clippings were transferred to the lab for easy specimen observation and processing for direct microscopy and culture procedures. The results were recorded in a semi-structured proforma that had been pre-tested. Microsoft Excel was used to analyse the data. The statistical analysis was done using SPSS 20 chi-square test and p value of <0.05 was considered significant.

Results

The total sample size for this study was 74, with 43 (58.1%) boys and 31 (41.9%) girls between the ages of 4 and 14. The study's most common age group was 7-11 years old. Tinea cruris was reported most prevalent dermatophyte condition in boys whereas Tinea unguium was predominant in girls. Tinea cruris infections were prevalent in children aged 7 to 11. The majority of dermatophyte infections were seen in children aged 7 to 11 years old, according to this study.

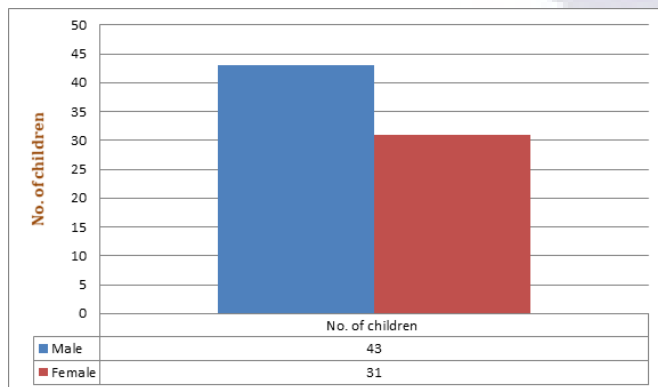


Figure 1: Shows the distribution of Gender

Discussion

The male population affected by dermatophytosis was roughly 1.2 times bigger than the female population with similar disorders, according to the research sample's characteristics [Table 1]. Similarly, several studies have found that men have a higher prevalence; this discrepancy could be explained by the fact that men are more prone to seek medical help.^[7,8]

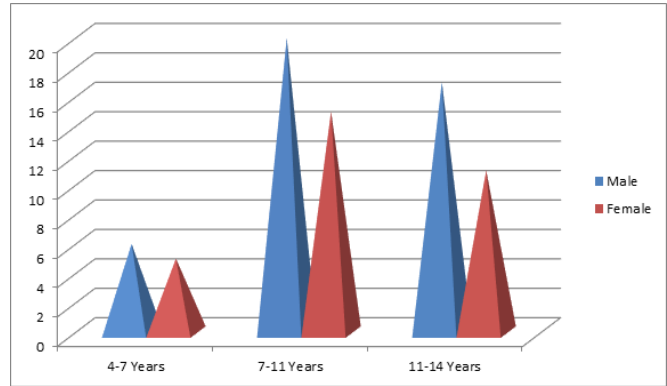


Figure 2: Distribution of gender on the basis of age group.

Surface or subcutaneous mycosis are two types of fungal diseases that affect the skin. Superficial mycoses are one of the most common types of human infections, affecting roughly 20%–25% of the global population.^[9] Dermatophytic infections are the most common superficial fungal infections in impoverished nations, and they are linked with severe morbidity. Trichophyton, Epidermophyton, and Microsporum species cause dermatophytic infections.^[10] Superficial fungal infections can be caused by dermatophytes as stated above and nondermatophytes such as cutaneous candidiasis, pityriasis versicolor, tinea nigra, and black and white piedra.^[11] Tinea infections traditionally appear as annular plaques or patches with elevated erythematous edges often coupled with central clearing. Inflammatory papules and pustules may also accompany the lesions. Children are disproportionately impacted by dermatophyte diseases because of predisposing circumstances such as poverty, overcrowding, and a lack of hygiene. In different studies, the prevalence of superficial fungal infections in children ranged from 11.3 percent to 40.57 percent,^[10,12] indicating a rising trend in superficial fungal infections in children, which was consistent with our findings. Dermatophytes are parasitic fungi that feed on keratin-rich tissues, causing a cutaneous inflammatory response. This produces redness, extreme itching/burning, and an aesthetically unappealing appearance.^[13] The severity of the infection is determined by a number of factors, including the host's immunological response to fungal metabolic products, the virulence of the infecting strain, the infection's anatomical location, and environmental conditions.^[14] Tinea unguium was the most common clinical form in females, whereas Tinea cruris was the most common dermatophyte disease in boys, according to an analysis of 74 clinically identified cases of dermatophytosis. Tinea cruris infections were prevalent in children aged 7 to 11. The majority of dermatophyte infections were seen in children aged 7 to 11 years old, according to this study. A study conducted by Hosthota A et al showed that Tinea cruris was the commonest

Table 1: Distribution of gender on the basis of age group

Age Group in years	No. of children (%)		Total
	Boys	Girls	
4-7 years	06 (13.95%)	05 (16.12%)	11 (14.86%)
7-11 years	20 (46.51%)	15 (48.38%)	35 (47.29%)
11-14 years	17 (39.53%)	11 (35.48%)	28 (37.83%)
Total	43 (100.0%)	31 (100.0%)	74 (100.0%)

Table 2: Distribution of dermatophyte infections

Dermatophyte infections	No. of children (%)		Total
	Boys	Girls	
T. unguium	7 (16.27%)	8 (25.8%)	15 (20.27%)
T. capitis	3 (6.97%)	2 (6.45%)	05 (6.75%)
T. pedis	4 (9.30%)	4 (12.90%)	08 (10.81%)
T. cruris	11 (25.58%)	7 (22.58%)	18 (24.32%)
T. faciei	7 (16.27%)	4 (12.90%)	11 (8.14%)
T. corporis	8 (18.60%)	4 (12.90%)	12 (16.21%)
T. manuum	3 (6.97%)	2 (6.45%)	05 (6.75%)
Total	43 (100.0%)	31 (100.0%)	74 (100.0%)

Table 3: Distribution of sample with respect to dermatophyte infections and age

Dermatophyte	No. of children (%)			Total
	4-7 years	7-11 years	11-14 years	
T. unguium	2 (18.18%)	7 (20.0%)	4 (14.28%)	13 (17.56%)
T. capitis	1 (9.09%)	3 (8.57%)	3 (10.71%)	07 (9.45%)
T. pedis	1 (9.09%)	4 (11.42%)	3 (10.71%)	08 (10.81%)
T. cruris	3 (27.27%)	10 (28.57%)	6 (21.42%)	19 (25.67%)
T. faciei	2 (18.18%)	3 (8.57%)	5 (17.85%)	10 (13.51%)
T. corporis	1 (9.09%)	6 (17.14%)	7 (25.0%)	14 (18.91%)
T. manuum	1 (9.09%)	2 (5.71%)	0 (0.0%)	03 (4.05%)
Total	11 (100.0%)	35 (100.0%)	28 (100.0%)	74 (100.0%)

clinical type (50 percent) followed by Tinea corporis (18.4 percent) and Tinea unguium (11.9 percent). Trichophyton rubrum was the most common aetiological agent found (33%), followed by Trichophyton mentagrophytes (20 percent).^[15] According to the findings of a study conducted by Chaudhary et al, males were 88 percent more likely than females to develop dermatophytoses in total positive cases. Trichophyton rubrum was the most prevalent fungal pathogen isolated from clinical samples, with Tinea cruris being the most common clinical manifestation. Dermatophytic infections are common all throughout the world, but due to a lack of education and resources for diagnosis, they have become a greater problem.^[16] Tinea unguium (52 percent) was the most common clinical condition, according to a study by Gupta CM

et al. Males were affected more (79 percent) than females. Dermatophytosis was predominantly found in more than 60 years (32 percent) and 31-45 years (24 percent). Fungi were found in 55.0 percent of the KOH mounts, and 46.0 percent of the cultures were positive. Sixteen percent of the cases tested negative for KOH but positive for culture. The most common species was Trichophyton rubrum (41 percent).^[17]

Conclusion

In conclusion, tinea cruris was found to be the most prevalent dermatophyte condition in boys, whereas Tinea unguium was shown to be the most common dermatophyte condition in girls, according to this study. Tinea cruris infections were prevalent

in children aged 7 to 11. The majority of dermatophyte infections were seen in children aged 7 to 11 years old, according to this study. There are various risk factors which can develop dermatophytoses. The main risk factors for the spread of dermatophytoses were poor hygiene and the use of topical steroid creams. To lower the risk of dermatophytoses, people should be educated about personal cleanliness and sanitary management.

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