Original Research Paper

Volume-9 | Issue-4 | April-2019 | PRINT ISSN No 2249-555X

Dermatology

# DERMATOPHYTIC INFECTION IN PAEDIATRIC AGE GROUP: A STUDY OF 100 PATIENTS

**Dr Anubhav Garg** M.D., Associate Professor and Head, G R Medical College, Gwalior.

**Dr Sushma Garg*** M.D., Associate Professor and Head, G R Medical College, Gwalior. *Corresponding Author

**ABSTRACT**

**Background:** Dermatophytosis are common fungal infections caused by dermatophytes. Although, there are enormous studies on adult dermatophytosis worldwide; there are very few studies on paediatric dermatophytosis. This study intends towards to collect data on paediatric dermatophytosis and to understand the causes behind its increasing trends in this age group in present scenario.

**Aims:** The aim of this study was to ascertain the epidemiological features of paediatric dermatophytosis.

**Methods:** This study was a hospital based (tertiary care centre) descriptive study of 100 consecutive patients of paediatric dermatophytosis, attending skin OPD over a period of three months.

**Results:** Of all the paediatric patients with dermatological disorder attending skin OPD, the prevalence rate was 9% of paediatric dermatophytic infection. Of them 65% belongs to rural background, and 60% belongs to low socioeconomic status. 86% patients had one of their family members affected with dermatophytic infection. 75% patients were having poor personal hygiene. Commonest dermatophytic variant was tinea corporis seen in 55% cases. 80% of all patients were treated by quacks, RMPs or non-dermatologists, and 90% had applied steroids before visiting us. Rest 10 % patients received proper antifungals but none of them taken proper follow-up with their treating doctors.

**Conclusions:** This study highlights the clinical and epidemiological features of dermatophytic infections in paediatric age group with various social and environmental factors.

**KEYWORDS :** Childhood tinea, paediatric dermatophytic infection, tinea corporis

## INTRODUCTION

Dermatophytes are a unique group of fungi that infect keratinous tissues of lower animals and humans.[1] They are characterized by their ability to invade the superficial layers of the epidermis, particularly, the stratum corneum and the high keratin–concentration containing appendages, the hair and nails of the living host.[2,3] Superficial fungal infection of skin, hair and nail are one of the most common cause of skin infections worldwide. Now-a-days around 50% of any skin OPD cases are of superficial fungal infections and cause a serious concern for treating dermatologists. Apart from the etiological factors, environmental and host factors contributes to current pandemic.[3] There had been an increasing trend of superficial fungal infection in paediatric age group which needs to be addressed.

Most of the current literature regarding paediatric fungal infection is either negligible or from other parts of the country. There is lack of adequate data about the frequency paediatric fungal infections from this part of country, so we undertook this study at our institute with the aim of characterizing the spectrum of paediatric fungal infections and to assess its environmental and host factors.

## MATERIAL AND METHODS

One hundred consecutive patients with superficial fungal infection in paediatric age group (upto 15 years of age), who attended Skin OPD were studied over a period of three months. After taking informed consent from parents, detailed history was taken. Detailed clinical examination including general and cutaneous examination was done.

Investigations were done as and when required. Digital photographs were taken in all the patients with superficial fungal infections.

The patients were studied with reference to their epidemiological profile, duration, site, symptoms, personal hygiene, history of similar complaints in the family members, associated skin or systemic conditions, history of application of any medications with particular stress was given to know about the use of topical steroids in past.

**Inclusion criteria:**

**P**atients upto 15 years of age with superficial fungal infections attending the Skin OPD in our institute were enrolled in the study.

**Exclusion criteria:**

Exclusion criteria were non consenting parents of patients. **Study period:** From November 2018 to January 2019

## OBSERVATIONS AND RESULTS

Of the total 1110 paediatric patients, a total of 100 patients were diagnosed with superficial dermatophytic infection giving the prevalence of around 9%. The most common age group found to be affected by the dermatophytic infection was 11-15 years (60%).

Maximum number of the patients belongs to rural background (65%). Low socioeconomic background was seen in 60% patients. Eighty six (86%) patients had one of their family members affected with superficial fungal infection, of which the most common source was mother followed by a sibling followed by the father. History of poor personal hygiene was noted in 75% of our patients which includes the failure to bathe daily and wear freshly washed clothes, wearing of damp undergarments, and sharing of clothes, towels, and combs among the affected family members [Table 1].

**Table 1: Epidemiological data of dermatophytic infection in the study**

| S No | Epidemiological features | | Data |
|---|---|---|---|
| 1 | Prevalence rate | | 9% |
| 2 | Age Group | Upto 5 yrs | 14% |
| | | 6-10 yrs | 26% |
| | | 11-15 yrs | 60% |
| 3 | Regional distribution | Urban | 19% |
| | | Semi-Urban | 16% |
| | | Rural | 65% |
| 4 | Socioeconomic status | High | 12% |
| | | Average | 28% |
| | | Low | 60% |
| 5 | Family history of Tinea infection | | 86% |
| 6 | Poor personal hygiene | | 75% |

Most common clinical pattern noted in our study was tinea corporis **[Figure 1]** reported in 55% cases, followed by tinea cruris (25%), tinea capitis (15%) **[Figure 2],** and tinea faciei (5%) **[Figure 3].** The gray patch was the most common type of tinea capitis followed by the inflammatory variety i.e. kerion. A significant number of around 25% cases had more than one sites involved at the of presentation to us. On studying the treatment behaviour in our patients, it was found that only 20% of the patients visited the hospital without any prior treatment, while 80% of patients had either been treated by quacks, RMPs, medical shop or non-dermatologists. Of all the patients treated earlier 90% of them had applied topical steroid alone or in combination with

antibiotic or antifungal medication in it. Of the 10% of patients who had not been prescribed steroids, very few had been advised treatment in appropriate dose and duration, and none of these patients had completed the total regimen prescribed to them.

## DISCUSSION

Dermatophytic infection is a common infection that constitutes public health problem among children worldwide. Fungal infections involving the skin can be either superficial or subcutaneous mycosis. Superficial mycoses are among the most frequent forms of human infections, affecting more than 20%–25% of the world's population.[4] Of all the superficial fungal infections, dermatophytic infections are the commonest and poses significant morbidity in developing countries like India. Dermatophytic infections are caused by the Trichophyton, Epidermophyton, and Microsporum species. [5] The dermatophytic infection classically presents as annular plaques with raised erytrhematous borders and central clearing. There may be inflammatory changes at border presenting as papules and pustules with mild scaling.

A dermatophytic infection is a global threat. The children are mostly affected due to various predisposing factors such as poverty, overcrowding. The prevalence of superficial fungal infections in children was found between 11.3% and 40.57% in different studies[6] indicating a rising trend of superficial fungal infections in children which was similar to our findings.

In our study the dermatophytic infection was found to most common in age group of 11 to 15 years of age (60%). This is similar to the study done by Oke et al[7] and Das et al[5]. While in other studies done by Ogbu et al[8] and George et al[9] the majority of cases were found to be less than 10 years of age. Due to lack of fungistatic properties of sebum in younger age group, there are more chances of dermatophytic infections. Also due to overcrowding, lack of cleanliness, not taking bath daily could be the reason behind high prevalence in this age group. Sixty five (65%) of our patients belongs to rural background and from low socio-economic status. Similar findings were observed by George et al[9] and dash et al[5]. The reason could be lack of health care facilities available in villages and also poor hygiene plays a pivotal role.

In our study 86% patients had contact history with family members of which mother was most commonly affected. Poor personal hygiene was seen in 75% of our study group. It is inclusive of failure to bathe daily, use of freshly washed clothes, wearing undergarments with moisture, and sharing of clothes, towels, and combs between the affected family members. These factors play a role in causing the spread of infection, leading to its persistence, and its recurrence. Also these factors lead to treatment failure. Educating the parents in detail about the personal hygiene, particularly the need to avoid overcrowding, washing clothes separately with hot water each day, avoiding dampness, and sharing of clothes and other fomites among children are an essential part to tackle dermatophytic infection and its recurrence.

When comes to the clinical pattern of dermatophytic infection, tinea corporis was found to be most common variety (55%) followed by tinea cruris (25%) and tinea capitis (15%). Das et al[5] has reported almost equal prevalence of tinea corporis and tinea cruris while Ogbu et al[8] and George et al[9] reported tinea capitis as most common dermatophytic infection in paediatric age group.

There has been an exponential growth in dermatophyte infection over past few years and it becomes a herculean task for dermatologists on account of increasing resistance and recurrence. The steroid abuse, lack of proper dosing, and duration of treatment plays a major role in recurrence of dermatophytic infection. These aspects were the main highlight in our study as well when we found that, 80% of all paediatric dermatophytic patients had been treated either by a local GP, non-allopathic practitioner, a medical shop, and other unqualified personnel before visiting to our hospital. Ninety (90%) of all the cases have used steroid alone or in combination with antibiotic or anti-fungals before visiting to our hospital. This signifies the gross problem of inappropriate treatment in our setup and a major lacuna and an area of emphasis in battling dermatophytic infection. In India, where the burden of health care facility particularly in rural areas, lies with the non-specialists, it becomes extremely important to take steps to educate the public and non-dermatologists practitioners, so that common people can get correct treatment and if not they will be guided to proper expert to seek medical opinion.

## CONCLUSION

The results in our study correlated with other available literature. However, due to small sample size a bigger multicentre study is warranted. The dermatophytic infections is as such is not life threatening but its high prevalence, worldwide distribution as bad as epidemic, recurrence and exponential increase in number make it highly important to conduct exhaustive study of its epidemiology.

**Financial support and sponsorship:** Nil.
**Conflicts of interest:** There are no conflicts of interest.

**Figures:**

**Fig 1: Tinea corporis**

**Fig 2: Tinea Capitis**

**Fig 3 Tinea Faciei**

## REFERENCES:

1. Weitzman I, Summerbell RC. The dermatophytes. Clin Microbiol Rev 1995; 8: 240-59.
2. Santos JI, Negri CM, Wagner DC, Philippi R, Nappi BP, Coelho MP. Some aspects of dermatophytoses seen at University Hospital in Florianopolis, Santa Catarina, Brazil. Revista do Instituto de Medicina Tropical de Sao Paulo 1997; 39: 137-40.
3. Jain A, Jain S, Rawat S. Emerging fungal infections among children: A review on its clinical manifestations, diagnosis, and prevention. J Pharm Bioallied Sci 2010; 2: 314 20.
4. Havlickova B, Czaika VA, Friedrich M. Epidemiological trends in skin mycoses worldwide. Mycoses 2008;51 Suppl 4:2 15.
5. Dash M, Panda M, Patro N, Mohapatra M. Sociodemographic profile and pattern of superficial dermatophytic infections among pediatric population in a tertiary care teaching hospital in Odisha. Indian J Paediatr Dermatol 2017;18:191 5.

6. Gandhi S, Patil S, Patil S, Badad A. Clinicoepidemiological study of dermatophyte infections in pediatric age group at a tertiary hospital in Karnataka. Indian J Paediatr Dermatol 2019;20:52-6.
7. Oke OO, Onayemi O, Olasode OA, Omisore AG, Oninla OA. The prevalence and pattern of superficial fungal infections among school children in Ile Ife, South Western Nigeria. Dermatol Res Pract 2014;2014:842917.
8. Ogbu CC, Okwelogu IS, Umeh AC. Prevalence of superficial fungal infections among primary school pupils in Awka South local government area of Anambra state. J Mycol Res 2015;2:15 22.
9. George IO, Altraide DD. Dermatophyte infections in children: A prospective study from Port Harcourt, Nigeria. Niger Health J 2008;8:52 4