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Original Research Article

Clinical study of cutaneous infections in children

Manikandan Natarajan Chandrasekaran[1], Vairaprabha Devi Mariappan[2]*

[1]Department of Paediatrics, [2]Department of Dermatology, Madras Medical College, Chennai, Tamil Nadu, India

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***Correspondence:**
Dr. Vairaprabha Devi Mariappan,
E-mail: drncm@yahoo.com

ABSTRACT

Background: Dermatological ailments contribute to one third of outpatient visits in paediatric clinics. Among these, cutaneous infections are found to be the commonest as per various studies. This study was conducted to find out the commonest cutaneous infections in children. Aim was to find out the prevalence of various cutaneous infections in children.
Methods: In this study 200 children aged between 1- and 12-years attending outpatient clinic with signs and symptoms suggestive of cutaneous infection were included in the study. History, physical examination and appropriate tests were done to arrive at the diagnosis.
Results: Here, 133 children were male and 67 were female. Viral infections were found to be the commonest cutaneous infections and were found in 85 children followed by bacterial infections in 52, fungal infections in 42 and infestations in 21. The presence of high humidity and hot climate in our coastal city along with the prevalent clothing pattern, overcrowding and socio economic factors play a significant role in the type of cutaneous paediatric infection found in that geographical area.
Conclusions: Proper hygiene, education and clothing along with avoidance of overcrowding and early medical attention will help to prevent peadiatric cutaneous infections.

Keywords: Cutaneous, Infections, Infestations, Paediatric

INTRODUCTION

About one third of all Peadiatric outpatient visits are for dermatological problems.[1] Similarly one third of Dermatological outpatients are children.[2] Infections and infestations were the commonest peadiatric dermatoses observed and they vary between different places due to differences in climate, culture, dietary habits and socioeconomic conditions prevailing in the particular area.[3] Hence this study was conducted to ascertain the different cutaneous infections found in children.

Aim was to find out the prevalence of various cutaneous infections in children.

METHODS

This study was conducted in the outreach outpatient clinics in the community during August 2018 to August 2019. Author conduct fortnightly specialty clinics for dermatological infections and the patients who attended these clinics were included in this study after getting proper informed consent.

Inclusion criteria

- In this study 200 children of both genders aged between 1 year and 12 years attending this outpatient clinic with signs and symptoms suggestive of

dermatological infections and infestations were included in the study.

Exclusion criteria

- Children whose signs and symptoms were not suggestive of cutaneous infections.
- Children whose parents did not give consent for investigations and procedures.

Study period of this study was conducted between August 2018 and August 2019. This is to ensure to have patients from all the seasons of the year.

Study methodology was after getting proper informed consent from the parents, detailed history was taken followed by meticulous examination of the lesion with hand lens. Infections which could be diagnosed clinically like Impetigo, Chicken Pox, Hand Foot and Mouth disease and Cutaneous Larva Migrans were documented.

For suspected fungal infections scrapping and analysis under KOH mount was done and after confirmation of the infection, results were documented. Molluscum contagiosum was diagnosed by the classical umbilicated lesion and in atypical presentations, excision biopsy was done, stained with H and E stain and examined under microscope for Molluscum bodies.

Herpes was diagnosed after performing Tzanck smear on the fluid sampled from the lesion. Warts were diagnosed clinically and for atypical lesions microscopic examination of excision biopsy was done for confirmation of diagnosis.

Infestation like Scabies was diagnosed after examining the skin scrapping for mites, eggs and Scybala. Pediculosis was confirmed on clinical finding of a live adult louse by hand lens or by microscopy of scalp skin scrapping.

Statistical analysis

The results were tabulated and analyzed for gender distribution, age distribution and the prevalence of cutaneous infections and infestations.

RESULTS

Among the 200 children, 133(66.5%) were male and the rest 67(33.5%) were female (Figure 1). Two third of the children brought for outpatient consultation were male and only one third were female.

79 children (39.5%) were in the age group of 1 to 4 years, 47(23.5%) in the age group 4 to 8 years and 74(37%) were in the age group 8 to 12 years (Table 1). Majority of the children were either preschool or preadolescent with a surprisingly low number representing the school age group.

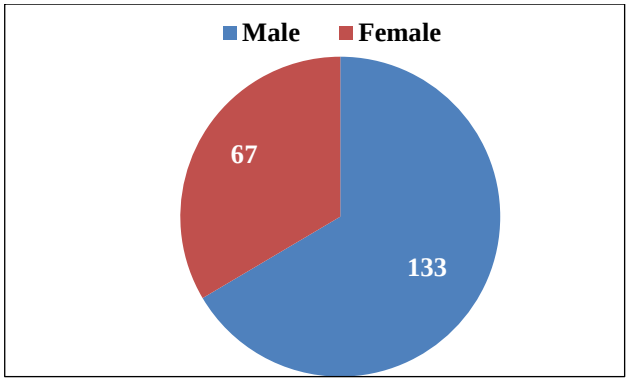

Figure 1: Gender distribution.

Table 1: Age Distribution.

Age group	Number of children
1 to 4 years	79
4 to 8 years	47
8 to 12 years	74

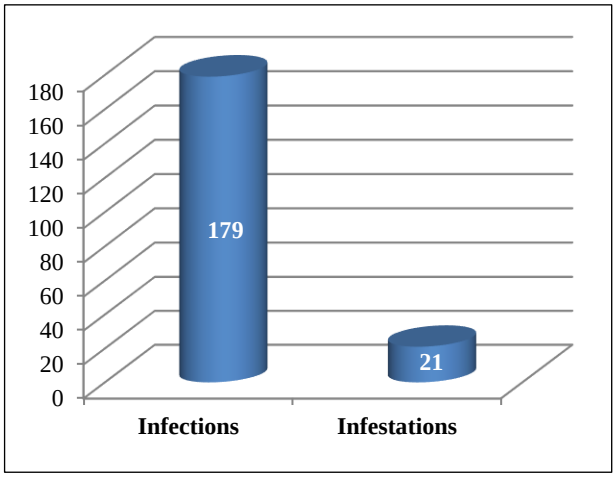

Figure 2: Distribution of infections and infestations.

179(89%) children out of the 200 children had infections and only 21(11.5%) had infestations (Figure 2). In this study infections outnumbered infestations by a ratio of 1:10. Almost 90 percent of children suffered from a bacterial, fungal or viral infection and only about 10 percent had infestations.

Among the infections and infestations, 52(26 %) were bacterial infections, 42(21 %) were fungal infections, 85 (42.5%) were viral infections and 21(10.5%) were infestations (Figure 3). Viral infections were the commonest infections noted followed by bacterial infections, fungal infections and infestations.

On further analysis of the results, Impetigo was found to be the commonest bacterial infection and was found in 41 children followed by secondary pyoderma which was seen in 9 children (Table 2). 2 had furunculosis and both

of them were type 1 diabetes mellitus patients with poor glycemic control.

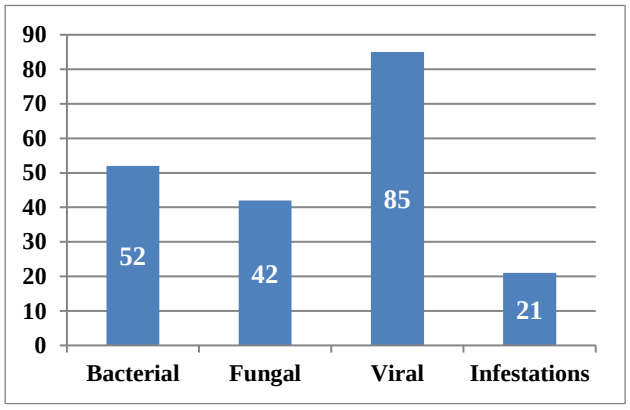

Figure 3: Sub-distribution of infections and infestations.

Table 2: Infections and Infestations.

	Impetigo	**41**	**20.5%**
Bacterial	Secondary Pyoderma	9	4.5%
	Furunculosis	2	1%
Fungal	Tinea Versicolor	14	7%
	Tinea Corporis	19	9.5%
	Candidiasis	5	2.5%
	Onychomycosis	4	2%
Viral	Warts	29	14.5%
	Varicella Zoster	13	6.5%
	Herpes Zoster	1	0.5%
	Molluscum Contagiosum	36	18%
	Other viral exanthems	6	3%
	Hand, foot and mouth disease	17	8.5%
Infestations	Scabies	15	7.5%
	Pediculosis capitis	5	2.5%
	Cutaneous larva migrans	1	0.5%

Tinea corporis was the commonest fungal infection noted and was seen in 19(9.5%) children. Most of the children found to have acquired this infection from an adult contact who lives in the same household. Tinea versicolor was found in 14(7%) children and most of them had the infection on the shoulder blades and the reason could be increased sweating in these areas due to the pressing of shoulder straps of school bags. Candidiasis was found in 5(2.5%) children and 4(2%) had Onychomycosis.

Viral infections were noted in 85 children and among them Molluscum contagiosum was found in 36(18%) children followed by warts in 29(14.5%), Varicella Zoster in 13(6.5%), Herpes zoster in 1 and other viral exanthems in 6. 15(7.5%) children had Scabies and most of them had an asymptomatic adult or elder sibling in the household as the source of infection. 5 had Pediculosis capitis and all 5 were female children. 1 child had a classical lesion of Cutaneous Larva Migrans in lower limb.

DISCUSSION

Cutaneous infections are very common during childhood and they cause considerable concern to the children and their parents. These may range in varied severity from minor skin ailments to major infections which if not properly diagnosed and treated early might produce substantial morbidity.

89.5% of the children involved in our study had infections and only 10.5% had infestations due to parasitic organisms. This is in accordance with the study done by Negi et al, who had reported 80.18% infections and 19.82% infestations.[4] Comparing our results with a study done in another Asian country, Wu VI I et al, in Taiwan, author found that the incidence of infestations there was very low 1.4%.[5] This might be because of the difference in climate, environment and socio-economic status of the parents.

Male children constituted 66.5% of the study population and females only 33.5%. The study done by R C Sharma et al, had 58% males and 42% females. Sardana K, Mahajan S et al, had reported an almost equal male to female ratio 1.07: 1.[6] All these studies have reported higher incidence of cutaneous infections in male children compared to female children.[7] Whether this is due to inherent susceptibility of male children to cutaneous infections or is it due to the extra care showered on male children by Indian parents needs to be implored further.

In this study 79 children belonged to the age group of 1 to 4 years followed by 74 children in 8 to 12 years. Only 47 children were in the age group of 4 to 8 years. The study by Subramanya Swamy et al, in Andhra Pradesh however showed peak incidence of cutaneous infections in the age group of 4 to 6 years followed by 7 to 9 years and 1 to 2 years.[8] This difference in age group distribution might be because of the different socio economic strata, dietary and cultural practices.

Viral infections (42.5%) were the commonest cutaneous infections encountered in our study followed by bacterial infections (26 %), fungal (21%) and infestations (10.5%). As per the study done by Karthikeyan et al, bacterial infections were the commonest followed by infestations, fungal infections and viral infections.[9] A study done in North India by Jain et al, showed infestations as the predominant cutaneous infections in children.[10] But this study was done predominantly in rural areas where overcrowding, ignorance and delay in getting proper medical attention could be the contributing factors for this preponderance of infestations.

Among the viral infections, Molluscum contagiosum was the commonest infection noted in our study followed by warts, Hand, foot and mouth disease, Varicella and other

viral exanthems. This predominance of Molluscum contagiosum could be attributed to its contagiousness and is in accordance with the study done by Sangameshwara et al, which reported it to be second commonest viral infection after viral warts.[11]

Impetigo and secondary Pyoderma were the commonest bacterial infections found in our study followed by furunculosis. This is in accordance with the prevalence of bacterial infections as per the study done by Karthikeyan et al in which secondary Pyoderma and Impetigo were the commonest bacterial infections found. This might be because of the high humidity and hot climate found in this study area which predispose to these bacterial infections.

Tinea corporis was the commonest peadiatric fungal infection encountered in our study followed by Tinea versicolor. Candidiasis and Onychomycosis were also noted in a few children. Again, the high humidity and hot climate leading to increased perspiration might be the contributing factor for these fungal infections. And most of the children with Tinea corporis had one or more adults in their household with fungal disease and washing of all the clothes together could be the source of infection.

In the study done by Sangameshwara G et al, fungal infections were found to be the commonest peadiatric infections and Tinea Versicolor was found to be the most common fungal infection followed by Tinea cruris and Tinea corporis. This might be because of the different clothing pattern and cultural practices prevalent in those study areas which might favor those fungal infections. Scabies was the commonest infestation noted in our study and was found in 15 children. Few of these children were staying in hostels but the rest are staying in their home. The source of infection was found to be one of the parents or siblings. In younger children parents were found to be the source and in older children it is usually the siblings.

Pediculosis capitis was the second commonest infestation noted and was found in 5 children. As expected, all the 5 were female and 4 out of 5 had long unkempt hair. Family members and schoolmates were traced to be the sources and overcrowding was found to be the significant risk factor. These findings are in accordance with the study done by Karthikeyan et al who also noted Scabies as the predominant infestation followed by Pediculosis capitis.

CONCLUSION

Cutaneous infections are common paediatric dermatoses encountered in day to day practice. Early diagnosis and treatment of these conditions is crucial to allay the anxiety of parents and to prevent complications in children. Ensuring proper hygiene, dietary practices, proper clothing and avoidance of overcrowding will prevent most of these infections.

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REFERENCES

1. Thappa DM. Common skin problems. Ind J Pediatr. 2002;69(8):701-6.
2. Federman DG, Reid MC, Feldman SR, Greenhoe J, Kirsner RS. The primary care provider and the care of skin disease: the patient's perspective. Archiv Dermatol. 2001;137(1):25-9.
3. Sandeepthi KS, Rao GV, Rajesh KK, Ranjitha GS. A Clinical Study of Cutaneous Manifestations in Paediatric Age Group. 2018;17 (11):73-78.
4. Negi KS, Kandpal SD, Parsad D. Pattern of skin diseases in children in Garhwal region of Uttar Pradesh. Ind Pediatr. 2001;38(1):77-80.
5. Wu YH, Su HY, Hsieh YJ. Survey of infectious skin diseases and skin infestations among primary school students of Taitung County, eastern Taiwan. Journal of the Formosan Medical Association= Taiwan yi zhi. 2000;99(2):128-34.
6. Sharma RC. Clinical Profile of Cutaneous Infections And Infestations In The Paediatic Age Group. Ind J Dermatol. 1999;44(04):174.
7. Sardana K, Mahajan S, Sarkar R, Mendiratta V, Bhushan P, Koranne RV, et al. The spectrum of skin disease among Indian children. Pediatr Dermatol. 2009;26(1):6-13.
8. Swamy MS, Subbaiah YV. A clinical study of paediatric dermatoses. Int J Applied Res. 2018; 4(3):477-481
9. Karthikeyan K, Thappa DM, Jeevankumar B. Pattern of pediatric dermatoses in a referral center in South India. Ind Pediatr. 2004;41(4):373-6.
10. Jain N, Khandpur S. Pediatric dermatoses in India. Ind J Dermatol Venereol Leprol. 2010;76:451-4
11. Sangameshwara GM, Venkatesh U. Clinical study of cutaneous infection in children: Changing trends. Ind J Paediatr Dermatol. 2015;16(3):136.

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