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## A Clinical Study of Paediatric Dermatoses

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### Abstract

Incidence of dermatological conditions in the paediatric age group presents a pattern that often differs from that in adults; this is important for epidemiological studies and population based analysis. This clinical study in children up to age 12 in near by districts surrounding Kurnool, during the year 01-07-2011 to 30-06-2012 in the department of DVL, General hospital attached to Kurnool medical college, Kurnool, Andhra Pradesh. 13,650 children were included in this study with various dermatological conditions and tabulated based on the etiology, incidence, age and sex distribution and results were analysed.

**Keywords:** Paediatric, dermatological and epidemiological studies

### Introduction

All the parents wish to have a smooth, glowing normal skin on their children, without a blemish.

As the child grows he passes through different phases <sup>[1]</sup> of life. Many structural and functional changes take place during these phases which may be physiological or pathological. Childhood dermatoses are a distinct group of disorders, comprising the skin problems encountered during childhood and adolescence.

The skin of a child is different from that of an adult in functioning and in response to injury and infection. During the school years, the child is exposed to a wide variety of infections and potential irritants <sup>[1]</sup>. Puberty is a period where the skin poses a variety of problems causing anxiety to the child and his parents.

The present study is carried out to know the incidence of various skin problems encountered by children attending the Dermatology, Venereology, Leprology Department of Govt. General Hospital, Kurnool, Andhra Pradesh.

The Govt. General Hospital, Kurnool is catering to the health needs of the people of Kurnool district and the neighboring districts like Ananthapur, Kadapa and Mahaboobnagar and Bellary of the neighboring Karnataka state.

### AIMS and Objectives

The aims of this dissertation are,

1. To ascertain the incidence / pattern of various dermatoses occurring in children aged from 1 year to 12 years attending the department of dermatology, venereology, leprology, Kurnool medical college, Kurnool,
2. To analyse the possible factors which contribute to the higher incidence of any particular group of diseases, and
3. To come out with a solution, if possible, to reduce the incidence of such problems.

Children aged from 1 year to 12 years constitute about 35% of the patients attending the Dermatology, venereology, leprology department as outpatients, and form the most vulnerable group of the population to be affected by various dermatological problems, because of various factors affecting them both at home and school.

Most of the people attending this hospital belong to the low socioeconomic group. The home environment of these rural people is usually not maintained up to the expected levels of hygiene, for maintaining healthy skin of their children.

In the present study, an effort was made to elucidate the various influences of home and school environments on the dermatoses commonly seen in these children.

The main guidelines for this study are:

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1. The clinical features of individual cases.
2. The age and sex incidence,
3. The socio-economic status,
4. The possible causes/ source of infection.
5. The family back ground/pedigree,
6. Investigations in relevant cases.
7. The response to the treatment given,
8. To draw a comparison with similar studies done elsewhere.

**Materials and Methods**

All the children aged from 1 year to 12 years attending the Department of Dermatology, Venereology, Leprology, Govt. General Hospital. Kurnool, during the 12 months period extending from 1.7.2011 to 30.6.2012 were included in this study.

This period includes rainy season, winter and summer seasons, during which the atmosphere in this part of the world changes extensively, summer being very hot, winter is very cool and few rains during the rainy season, influencing the prevalence of various dermatoses.

The number of children being brought to the DVL department varies with the seasons and school vacations. Hence, it will be possible to study all kinds of diseases, if a 12-month period starting from July is included in this study.

**Diagnosis of all these dermatoses will be made based on -**

1. A detailed history taken from the attendants of the patient, in the proforma prepared by taking all the necessary issues, pertaining to a dermatological complaint in to account.
2. Detailed study of the clinical features.
3. Routine bed side investigations, such as,
  - A. Blood - Total count.
    - Differential count.
    - Hemoglobin.
    - Erythrocyte sedimentation rate.
  - B. Urine - Albumin.
    - Sugar,
    - Microscopy.
  - C. Stool - Microscopy
  - D. Tzanck smear, KOH mount, Skin clips.
4. Microscopic examination of the scrapings from the skin lesions suspected to be of fungal origin.
5. Mantoux test, when a tuberculous etiology is suspected,
6. X-ray chest and of the skeletal system wherever necessary,
7. Skin biopsy and lymph-nodal biopsy in relevant cases and histopathological confirmation,
8. Bio-chemical investigations, wherever necessary,
9. Microbiological culture for fungus and other microbes, wherever necessary.

**Observations and Results**

This clinical study was undertaken in the department of Dermatology, Venereology, Leprology, Kurnool Medical College, Kurnool of Andhra Pradesh. The period of study was for 12 months extending from 1.7.2011 to 30.6.2012. All the children under 12 years of age. Attending the DVL department for various skin problems were taken in to account.

40,698 patients attended the DVL department during the study period. Among the total attendees, 13,650 patients were aged 1 to 12 years, constituting 34.20%.

**Table 1.**

Out-patients	Number	Percentage
Adults	26,262	65.79
Children	13,650	34.20
Total: 39,912		

Among the total number of 13,650 children who attended the DVL outpatient department, 8,214 children were males and 5,436 children were females

**Table 2.**

Out-patients	Number	Percentage
Male children	8,214	60.18
Female children	5,436	39.82
Total	13,650	

The maximum number of patients was from the age group of 4 to 6 years, making 5,421, followed by 7 to 9 years making 4,312, next 1 to 2 years group 2,998, next 10 to 12 years group 919 of the total.

**Table 3.**

Age of the children	Number	Percentage
1 to 3 years	2,998	21.96
4 to 6 years	5,421	39.71
7 to 9 years	4,312	31.58
10 to 12 years	919	6.73

**Table 4: Socio-economic status**

Socio-economic class	Number	Percentage
Poor	10,116	74.10
Lower middle class	1,719	12.59
Upper middle class	1,216	8.90
Upper class	599	6.73

**Table 5: Educational status of parents**

Education of parents	Number	Percentage
Nil	5,622	41.18
Primary education	4,011	29.38
High school	3,102	22.72
College	915	6.70

The different types of dermatoses seen during the study period were categorised according to the aetiology.

**Table 6.**

Disease	Number	Percentage
Infections	4,484	32.84
Infestations	2,706	19.82
Nutritional disorders	1,491	10.89
Metabolic disorders	20	0.14
Eczemas	1,922	14.08
Nevoid disorders	370	2.71
Keratinisation disorders	372	2.72
Papulo-squamous diseases	280	2.05
Disorders of sweat and Sebaceous glands	652	4.77
Vesiculo-bullous diseases	152	1.11
Connective tissue Diseases	16	0.11
Disorders of skin color	289	2.11
Abnormal responses To light	277	2.02
Hair and nail disorders	212	1.55
Miscellaneous	427	3.12

**Various infections** seen during the study period were categorized according to the etiological agent. Bacterial infections were followed by fungal infections followed by viral and tuberculous infections

**Table 7.**

Type of infection	Number	Percentage
Bacterial	2,341	52.20
Viral	770	17.17
Fungal	1,330	29.66
Tuberculous	43	0.95

**Table 8:** different types of bacterial infections

Type of infection	Number	Percentage
Impetigo (bullous & non-bullous)	511	21.82
Ecthyma	76	3.24
Furuncles	609	26.01
Folliculitis	512	21.87
Staphylococcal Scalded skin syndrome	11	0.46
Secondary infections	594	25.37
Erysipelas	28	1.19

**Table 9:** Mycobacterial infections

Type of tuberculosis	Number	Percentage
Tuberculosis verrucosa Cutis	9	20.93
Lupus vulgaris	10	23.25
Scrofuloderma	17	39.53
Papulonecrotic tuberculids	7	16.23

**Table 10:** Fungal infections

Type of fungal infection	Number	Percentage
Dermatophytic infection	866	65.11
Candidiasis	352	26.46
Tinea versicolor	112	8.42

**Table 11:** List of viral infections

Type of viral infection	Number	Percentage
Molluscum contagiosum	84	10.90
Pityriasis rosea	167	21.68
Herpes simplex	186	24.15
Warts	210	27.27
Varicella, Herpes zoster	95	12.33
Gianotti crosti syndrome	28	3.63

**Table 12:** Infestations

Type of infestation	Number	Percentage
Scabies	2412	89.13
Pediculosis	294	10.86

**Table 13:** Nutritional disorders

Type of disorder	Number	Percentage
Phrynoderma	696	46.68
Pellagra	126	8.45
Cheilitis, glossitis Angular stomatitis	481522	35.01
Bitot's spots	112	7.51
Acrodermatitis Enteropathica	24	1.60
Xanthomas	11	0.73

**Different Types of Eczemas**

**Table 14.**

Type of eczema	Number	Percentage
Primary irritant Dermatitis	112	5.82
Allergic contact Dermatitis	35	1.82
Infectious eczematoid Dermatitis	25	1.30
Atopic dermatitis	684	35.58
Seborrhoeic dermatitis	284	14.77
Nummular eczema	186	9.67
Pityriasis alba	446	23.20
Juvenile plantar Dermatitis	150	7.80

**Table 15:** Nevoid and developmental difects

Type of the defect	Number	Percentage
Nevus sebaceous	18	4.86
Becker's nevus	18	4.86
Hemangiomas	124	35.51
Klippel- trenaunay synd.	2	0.54
Mongolian spots	174	47.02
Nevus of ota	4	1.08
Ectodermal dysplasias	15	4.05
Aplasia cutis	3	0.81
Inflammatory linear Verrucous epidermal Nevus	12	3.24

**Table 16:** Keratinisation disorders

S.No	Type of the disorder	Number	Percentage
1	Ichthyoses	194	52.15
2	Keratosis pilaris	112	30.10
3	Keratosis spinulosa	44	11.82
4	Palmo-plantar keratoderma	22	5.94

**Table 17:** papulo-squamous disorders

S.No	Type of the disorder	Number	Percentage
1	Lichen planus	124	44.28
2	Psoriasis	86	30.71
3	Lichen nitidus	70	25.00

**Table 18:** Sweat and sebaceous gland disorders

S.No	Type of the disorder	Number	Percentage
1	Acne	188	28.83
2	Miliaria	464	71.16

**Table 19:** Vesiculo-bullous disorders

S.No	Type of disorder	Number	Percentage
1	Epidermolysis bullosa simplex	88	57.89
2	Epidermolysis bullosa -	30	19.73
3	Epidermolysis bullosa	8	5.26
4	BCBDC	26	17.10

**Table 20:** Connective tissue disorders

S.No	Type of CTD	Number	Percentage
1	Systemic lupus erythematosus	4	25.00
2	Keloids	8	50.00
3	Morphoea	4	25.00

**Table 21:** Disorders of Skin colour

S.No	Disorder of skin colour	Number	Percentage
1	Vitiligo	181	62.62
2	Albinism	62	21.45
3	Piebaldism	12	4.15
4	Freckles	34	11.76

**Table 22:** Abnormal responses to light

S.No	Type of the abnormal	Number	Percentage
1	Polymorphic light eruption	232	83.75
2	Xeroderma pigmentosum	8	2.88
3	Drug eruptions	32	11.55
4	Porphyrias	5	1.80

**Table 23:** Hair and nail disorders

S.No	Type of the disorder	Number	Percentage
1	Alopecia areata	78	36.79
2	Alopecia totalis	12	5.66
3	Monilethrix	4	1.88
4	Canities	45	21.22
5	Paronychia	55	25.94
6	Peri- ungual warts	18	8.49

**Table 24.**

S.No	Type of the disorder	Number	Percentage
1	Tuberous sclerosis	6	1.46
2	Urticaria	41	10.00
3	Papular urticaria	274	66.82
4	Erythema multiforme	8	1.95
5	Apthous ulcers	7	1.70
6	Pyogenic granuloma	24	5.85
7	Callosities	6	1.46
8	Implantation dermoid	5	1.21
9	Palmoplantar hyperhidrosis	1	1.46
10	Nevus of ota	1	0.24
11	Acneiform eruptions	18	4.39
12	Fissure feet	10	2.43
13	Dermatitis herpetiformis	322	0.48
14	Geographic tongue	3	0.48
15	Balanoposthitis	8	1.9
16	Phimosis, Paraphimosis	9	2.1

**Discussion**

Dermatological disorders are very commonly seen during childhood and are a cause of special concern on the part of the dermatologist and a cause of substantial anxiety on the part of the parents. These dermatoses range from a minor skin ailments to serious problems that are sometimes beyond the control of the dermatologist from the point of their presentation.

The pattern of skin diseases presenting in children aged 1 to 12 years is very much influenced by the climate, external environment, and dietary habits of the child, socio-economic status and education of the parents.

In the present study, an effort was made to bring into focus, the pattern of various childhood dermatoses encountered in DVL department, Govt. General Hospital. Kurnool.

Children presenting with dermatological disorders constituted 34.20% of the total cases attending the DVL department, of which children aged between four and six years were the commonest.

Infections and infestations were the commonest skin problems that accounted for 52.66% of the total. Infections were seen in 32.84% of the total cases. The infestations constituted 19.82%. Negi *et al* [2] in their study found that infections and infestations contributed to 50% of their cases in Garhwal region of Uttar Pradesh. Thappa DM *et al* [4] found that 54.5% of their pediatric dermatoses were infections and infestations in their study conducted at JIPMER Pondicherry. Various other authors have reported them occurring in the range of 35.6% to 85.2%.

The incidence of infestations was found to be 19.82%, which included scabies and pediculosis. Scabies alone constituted the majority of this making 88.75% of the total. Negi *et al* [2] in their study found that the incidence of scabies has varied from 5.1% to 22.4% in various studies. Wu YH *et al* [5] in their study shows 1.4%. Bechelli *et al* [2] found out this incidence to be 3.0%

Pediculosis was found in 10.86% of the infestations presented. Two school surveys conducted in himachal Pradesh and Pondicherry [6] had found pediculosis capitis to be the most common dermatological disorder in childhood. Bacterial infections constituted 52.20% of the total. Secondary infections were the commonest usually following the insect bites. Furuncles constituted the next common group, followed by folliculitis, seen with increased frequency in children aged below 5years.

Mycobacterial infections resulting in skin tuberculosis constituted 0.95% of the infections and infestations in our study. Scrofuloderma was the commonest, followed by lupus vulgaris.

Fungal infections of the skin constituted 29.66% of the total infections. Dermatophyte infections were the commonest among these infections making up 65.11% of the total. Tinea capitis was seen most frequently and most of them were of the gray patch type. All these children had at least one member of their family affected by some form of tinea infections, mostly tinea corporis and tinea pedis.

Tinea corporis, Tinea faciei were found in a significant number of children and Tinea cruris was seen in a minority.

Tinea versicolor was seen in a few numbers of children accounting to 8.42% of the total fungal infections. Among the candidoses, which constituted 26.46% of the total infections, acute psudomembranous candidiasis (oral thrush) was seen in maximum number of children mostly during the first week of life. This was followed in frequency by angular cheilitis (perleche), Candidial intertrigo (flexural candidiasis) and candidiasis of the napkin area.

The viral infections constituted 17.17% of the total infections and infestations. Warts were the commonest viral disease constituting 27.27% of these infections.

Herpes simplex was the next commonest viral infection seen during the study period. They constituted 24.15% of the total viral infections.

Molluscum contagiosum (10.90%), Pityriasis rosea (21.68%) and Gianotti crosti syndrome [7] (3.63%) were seen in few numbers of children,

**Summary & Conclusions**

1. A total number of 13,650 children were examined for various skin problems during the study period of 12 months extending from 1.7.2011 to 30.6.2012.
2. Most of the children examined were in the age group of 4 to 6 years.
3. Male children out numbered the female children in all the skin problems.
4. Large number of patients (74.10%) belonged to the lower socio economic status, while 21.49% are from middle class family background and only 4.38% of the children are from upper class.
5. Infectious diseases were the commonest (32.84%), followed in frequency by infestations (19.82%).
6. Connective tissue diseases were the least common (0.11%).(Consistent with the study made by Kumar B *et al* [72] )
7. Secondary infections were the commonest bacterial infections (25.37%).
8. Dermatophyte infections were the commonest fungal infections (65.11%).
9. Scrofuloderma was the commonest form of tuberculosis seen (39.53%).
10. Warts were the commonest viral infections (27.27).

11. Among the infestations, scabies was the most prevalent (89.13%). (Consistent with the study made by Negi *et al* [52] )
12. Phrynoderma was the commonest disorder seen among the nutritional deficiency disorders (46.68%).
13. Atopic dermatitis was the commonest type of eczematous dermatitis seen (35.58%).
14. Among the nevoid and developmental disorders, Mongolian spots were the commonest (47.02%).
15. Ichthyoses were the commonest keratinisation disorders seen (52.15%).
16. Lichen planus was the commonest disorder among the papulosquamous disorders (44.28%).
17. Miliaria was the commonest disorder among the disorders of sweat and sebaceous glands (71.16%).
18. Impetigo was the commonest among the various vesiculo-bullous disorders (511), Epidermolysis bullosa of the simplex variety was the second most common (88).
19. Among the disorders of skin color, vitiligo was seen in 62.66% of cases.
20. Polymorphic light eruption (83.75%) was the commonest abnormal response to light seen among the children.
21. Among the disorders of hair alopecia areata was seen in 36.79%.
22. Papular urticaria (66.82%) was the commonly seen abnormality among those included under the miscellaneous category.
23. Improving the living conditions of these children, by upgrading the sanitary measures, improving the nutrition, reduction of overcrowding, health education of the parents and rural medical practitioners and immunisation helps in preventing many of these skin problems in children.

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