

Spectrum of Paediatric Dermatoses in a Private Medical College

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Abstract

Introduction: Dermatoses in children puts a huge burden on the parents as well as their development. Severity of these dermatoses vary from location to location. Environment plays an important role, especially in children and presentation of these dermatoses may be quite different than those in adults.

Methods: This is a six months prospective study. All children who presented to the Paediatrics / Dermatology OPD with any skin ailment were included. Diagnosis was done clinically, investigations if required were done. Based on age, cases were divided into six groups. Skin disorders were categorized into 17 groups. The demographic data and other clinical details were recorded on a pre-designed performa.

Results: 206 children were included in our study. Males were 136 (66.01%) and females were 70 (33.98%) with M:F ratio 1.94:1. The spectrum of skin diseases were infections and exanthems (40.29%), eczematous diseases (19.41%), disorders of sebaceous and sweat glands (13.10%), papulosquamous diseases (6.31%), hypersensitivity syndromes (5.82%), disorders of pigmentation (5.33%), disorders of hair and nail (3.39%), cutaneous tumor and tumor syndromes (1.94%), vascular disorders (1.45%), disorders of cornification (0.97%), photo-dermatoses (0.97%), histiocytosis and malignant skin tumors (0.48%), and miscellaneous (0.48%). Dermatoses according to age were neonatal (0.97%), infant (4.36%), toddlers (9.70%), preschool (18.44%), school-age-children (30.58%), and adolescents (35.92%).

Conclusions: Skin infections and infestations being the majority explains the status of developing countries like India. This study can help identify (or diagnosing) and treating common dermatological conditions in children and this would also sensitize our fellow paediatricians to this common but often neglected aspect of childcare.

Introduction

Paediatric dermatology is a branch of dermatology that focuses on the diagnosis and treatment of childhood skin diseases. Dermatoses in children require a unique view as it is different from adult dermatoses in features and treatment.¹

India being the second most populated country in the world² has 39% of its population under the age of 18.³ In a school based survey it was noted that dermatological problems among the school students varied from 8.7% to 35%.⁴ Several skin diseases affect children, they can vary depending on their socioeconomic status, location and age.⁵ At least 30% of the cases reaching the paediatric OPD have dermatological problems and 30% cases reaching the dermatologists are children.^{6,7} The dermatoses in children not only causes significant morbidity to the child but also causes

considerable psychological stress on their parents.¹ Studies of epidemiological importance are needed as they not only aid in assessing the public health, but also in policy making.⁸

This study aims to find the spectrum of paediatric dermatoses in a private medical college in the southernmost part of Rajasthan, India.

Methods

This was a prospective study conducted in Departments of Dermatology and Paediatrics at Pacific Medical College and Hospital (PMCH), a tertiary care referral hospital and a private medical college situated in Udaipur District of southern region of Rajasthan, India. This study was conducted over a period of six months from 1 Jan 2020 to 30 Jun 2020. Prior approval from Institutional Ethics Committee was taken. All children, 18 years and below, attending the dermatology or paediatrics out-patient department with any skin related ailment during the study period were included in the study. Prior consent of parents was taken. The diagnosis was made by a dermatologist based on detailed history, clinical features, and appropriate investigations based on case basis. No routine laboratory investigations were done. The cases were divided into six groups based on age:

neonatal group (0 – 1 month), infant age group (1 month - 1 year), toddler age group (1 year – 3 years), preschool age group (3 - 5 years), school age children (6 - 12 years) and adolescent age group (13 - 18 years).⁹ According to Hurwitz clinical paediatric dermatology the skin disorders were categorized into 16 categories; any diagnosis which could not be included in these categories were added in miscellaneous. Patients with multiple diseases were entered in all the relevant categories.¹⁰ The categories are shown in table 1. The observed data was entered into an Excel spreadsheet and relevant statistical analysis performed.

Results

Over a period of six months, 206 children were examined in our department and were included in our study.

Out of the 206 patients, 136 (66.01%) were males and 70 (33.98%) were female children (male to female ratio –1.94:1). The age wise distribution of the study group is shown in Table 1, maximum number of children were from the age group between 13 to 18 years of age. The spectrum of skin diseases in our study group are shown in Table 1. Infections (40.29%, N = 83) was the commonest

Table 1. Classification of spectrum of dermatoses according to gender and age groups

Disease Group	Gender Distribution		Age Groups						Total
	Male	Female	Newborn (%) (0 month to 1 month)	Infant (%) (1 month to 1 year)	Toddler (%) (1 to 3 years)	Preschool (%) (3 to 6 years)	School (%) (6 to 12 years)	Adolescents (%) (13 to 18 years)	
Infections and exanthems	58	25	1 (50)	3 (33.33)	7 (35)	18 (47.3)	28 (44.44)	26 (35.13)	83 (40.29)
Eczematous Disorders	25	15	0	4 (44.44)	11 (55)	8 (21.05)	15 (23.80)	2 (2.7)	40 (19.41)
Disorders of sebaceous glands and sweat glands	18	9	1 (50)	0	0	1 (2.63)	1 (1.5)	24 (32.43)	27 (13.10)
Papulosquamous	9	4	0	0	0	2 (5.26)	7 (11.11)	4 (5.4)	13 (6.31)
Hypersensitivity syndromes	8	4	0	0	0	3 (7.89)	6 (9.52)	3 (4.05)	12 (5.82)
Disorders of pigmentation	6	5	0	0	1 (5)	2 (5.26)	5 (7.93)	3 (4.05)	11 (5.33)
Disorders of hair and nail	3	4	0	0	0	1 (2.63)	0	6 (8.1)	7 (3.39)
Cutaneous tumors and tumor syndromes	3	1	0	1 (11.11)	0	1 (2.63)	1 (1.5)	1 (1.35)	4 (1.94)
Vascular disorders	3	0	0	1 (11.11)	1 (5)	1 (2.63)	0	0	3 (1.45)
Disorders of cornification	1	1	0	0	0	1 (2.63)	0	1 (1.35)	2 (0.97)
Photodermatoses	1	1	0	0	0	0	0	2 (2.7)	2 (0.97)
Histiocytosis and malignant skin tumors	0	1	0	0	0	0	0	1 (1.35)	1 (0.48)
Disorders of dermis	0	0	0	0	0	0	0	0	0
Immunobullous disorders	0	0	0	0	0	0	0	0	0
Connective tissue disorders	0	0	0	0	0	0	0	0	0
Nutritional disorders	0	0	0	0	0	0	0	0	0
Miscellaneous	1	0	0	0	0	0	0	1 (1.35)	1 (0.48)
Total	136	70	1 (0.97)	9 (4.36)	20 (9.70)	38 (18.44)	63 (30.58)	74 (35.92)	206 (100)

in our out-patient department followed by eczematous disorders (19.41%, N = 40) and disorders sebaceous and sweat glands (13.10%, N = 27). Age wise distribution of dermatoses are shown in Table 1. The mean age in the neonatal was 20 days \pm 2 days, toddlers was 0.33 years \pm 0.19 years, preschool was 4.07 years \pm 0.92 years, school age children was 8.71 years \pm 2.08 years, and adolescents was 15.93 years \pm 1.87 years. Skin diseases increased as the age increased, from neonatal (0.97%, N = 2) to adolescent (36.09%, N = 74).

The diseases in neonatal age group were staphylococcal scalded skin syndrome and miliaria crystallina shown in Figure 1 and 2. The most common spectrum of diseases observed in the infant age group were eczematous disorders and infections and exanthems. The most observed diseases among this age group were seborrheic dermatitis (44.44%, N = 4) shown in Figure 3, tinea corporis (22.22%, N = 2) and hand foot and mouth disease (11.11%, N = 1).

Figure 1. Staphylococcal scalded skin syndrome in neonatal age group baby.



Figure 2. Miliaria crystallina in a neonate.



Figure 3. Extensive seborrheic dermatitis due to steroid abuse in an infant.



The most common spectrum of diseases observed in toddler age group were eczematous disorders and infections and exanthems. The most observed diseases among these were seborrheic dermatitis (35%, N = 7), impetigo (20%, N = 4), atopic dermatitis (15%, N = 3) and molluscum contagiosum (10%, N = 2). The most common spectrum of disease observed in preschool age group were infection and exanthems, eczematous disorders and hypersensitivity syndromes. The most common diseases were impetigo (15.78%, N = 6), tinea infections (10.52%, N = 4) shown in Figure 4 and varicella (7.89%, N = 3), pityriasis alba (7.89%, N = 3) and atopic dermatitis (5.26%, N = 2). Papular urticaria, insect bite reaction and chronic urticaria were seen in hypersensitivity syndromes.

Figure 4. Kerion in preschool child.



Figure 5. Verruca plana in preschool child.

The common spectrum of disease observed in school going children age group were infection and exanths, eczematous disorders, papulosquamous disorders and disorders of pigmentation. Among these diseases most common were tinea infections (11.11%, N = 7), scabies (7.93%, N = 5), impetigo (7.93%, N = 5), pityriasis alba (7.93%, N = 5), seborrheic dermatitis (7.93%, N = 5), and vitiligo (7.93%, N = 5).

Figure 6. Lichen sclerosus et atrophicus in a school going child.

Among the adolescent age group infections and exanths were the commonest ailment followed by disorders of sebaceous glands and sweat glands, disorders of hair and nails. Among these diseases most common were acne vulgaris (28.37%, N = 21), tinea infections (17.56%, N = 13), lichen planus (5.4%, N = 4), pityriasis versicolor (4.05%, N = 3) and telogen effluvium (4.05%, N = 3). Among the infections and exanths, fungal infections (43.37%, N = 36) were the highest in number, followed by bacterial infections (24.09%, N = 20), viral infections (22.89%, N = 19), and infestations (9.63%, N = 8). The most common

fungal infection was dermatophytosis (36.14%, N = 30), the most common bacterial infection was impetigo (19.27%, N = 16), the most common viral infections were varicella (6.02%, N = 5) and viral exanthem (4.81%, N = 4), and the most common infestation was scabies (9.63%, N = 8).

Among eczematous disorders, seborrheic dermatitis was most seen (42.5%, N = 17) followed by pityriasis alba (25%, N = 10), atopic dermatitis (15%, N = 6), and contact dermatitis (7.5%, N = 3). The other less commonly seen diseases were discoid eczema, juvenile plantar dermatoses, follicular eczema, and frictional dermatitis with 2.5%, n = 1 each respectively.

Figure 7. Discoid / follicular eczema in a toddler.

Acne vulgaris (81.48%, n = 22) was the most seen in the diseases of the sebaceous glands and sweat glands. These were seen most in adolescent group, mainly in the males than the females with the ratio of 1.75:1 (M: F). Among the papulosquamous disorders, lichen planus 53.84%, N = 7 (shown in Figure 8) and psoriasis 38.46%, N = 5 (shown in Figure 9) were the commonest. The male to female ratio of lichen planus was 4:3 (M:F) and psoriasis was 4:1 (M:F). Pityriasis rosea (7.69%, N = 1) was seen less.

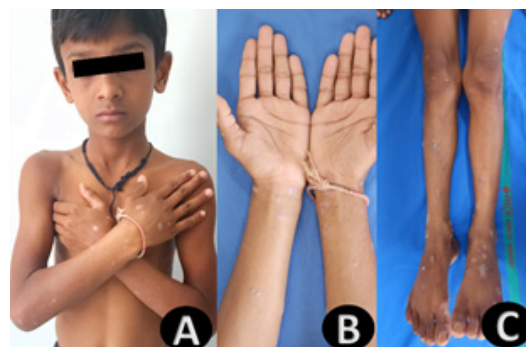
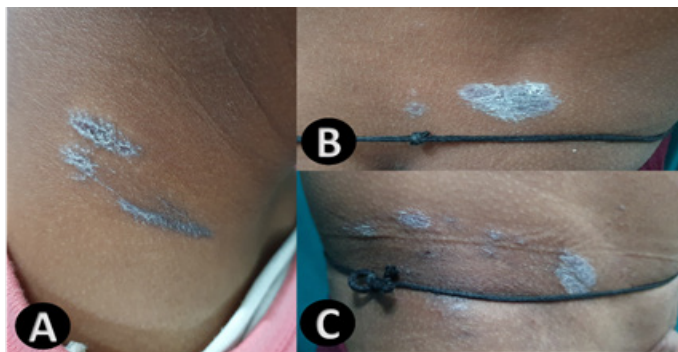
Figure 8. Lichen Planus in a school going child.

Figure 9. Psoriasis in a school going child. Picture A and B Showing silvery white plaque on the neck and lower back. Picture C showing Koebner's phenomenon.



Among the hypersensitivity syndromes, urticaria (50%, N = 6) followed by insect bite reactions (25%, N = 3), papular urticaria (16.66%, N = 2) and erythema multiforme (8.33%, N = 1) shown in Figure 10. Among the disorders of pigmentation, vitiligo (90.9%, N = 10) was the commonest, shown in Figure 11. Segmental vitiligo (20%, N = 2) was seen only in the males. In vitiligo both males and females (1:1, M:F) were affected equally. Less commonly periorbital hyper melanosis (9.09%, N = 1) was seen.

Figure 10. Erythema multiforme – major in an adolescent.



Figure 12. Vitiligo with leukotrichia in an adolescent female.



The patients who came to our out-patient department did not present with any nail diseases. In the disorder of hair and nail spectrum, there were patients with telogen effluvium (42.85%, N = 3), alopecia areata (28.57%, N = 2) shown in Figure 12 and less commonly seen hair disorders were androgenetic alopecia and premature canities.

Figure 12. Alopecia areata



Other less commonly seen disorders were cutaneous tumors and tumor syndromes (1.94%, N = 4) in which post burn scar, mastocytoma, neurofibromatosis (shown in Figure 13) and keloid were seen, in vascular disorders (1.45%, N = 3) infantile hemangioma (shown in figure 14) and idiopathic thrombocytopenic purpura were seen, in disorders of cornification (0.97%, N = 2) ichthyosis vulgaris and lamellar ichthyosis (shown in Figure 15) were seen, in photodermatoses (0.97%, N = 2) polymorphic light eruption was seen, in histiocytosis and malignant skin tumors (0.48%,

N = 1) xanthoma was seen and in miscellaneous (0.48%, N = 1) oral aphthous ulcer was seen.

Figure 13. Neurofibromatosis in an adolescent. Picture A & B shows café au lait macules and cutaneous neurofibromas. Picture C shows axillary freckling.



Figure 14. Ulcerated infantile hemangioma.



Figure 15. Lamellar ichthyosis in a preschool child.



Discussion

In our study male and female ratio was 1.94:1 which is in concurrence with other research studies from across the nation.^{6,8,11,12} The high male to female ratio could also be due to the small sample size of our study. The majority of the patients were in the adolescent group which was in concordance with other studies.^{8,12} This may be due to the fact that adolescents are conscious about their appearance and health than children in other age group who depend on parents for their wellbeing. In our study, infection and infestations were the commonest (40.29%) followed by eczematous disorders (19.41%) and disorders sebaceous and sweat glands (13.10%). Other authors in their study on paediatric dermatoses found that infections and infestations were the commonest skin ailment in paediatric age group.^{11,13-15} High incidence of infections and infestations in our study could be due to majority of children belonging to lower socioeconomic strata which paid less attention to personal hygiene.

Of the infective dermatoses in our study, fungal infections were the commonest dermatoses followed by bacterial and viral. Sayal et al and Poudyal et al reported similar findings to our study.^{8,16} There are many Indian studies which have found bacterial infections to be commoner than fungal and viral infections in the pediatric age group.^{7,17} The difference in this may be attributed to the environmental, socioeconomic, hygiene and nutritional status of the study population.

In the eczematous dermatoses group, seborrheic dermatitis was the commonest (42.5%) followed by pityriasis alba (25%), atopic dermatitis (15%), and contact dermatitis (7.5%). Sardana et al also reported similar findings.¹⁵ Other studies show atopic dermatitis and pityriasis alba to be more common.^{11,12,18,19}

In our study, acne vulgaris was the commonest disorder of sebaceous and sweat gland. A high number of cases with acne vulgaris in our study could be due to the fact that a large proportion of our study group comprised of adolescents. Acne vulgaris was seen more commonly in males as compared to females. All the other studies also depict similar results^{8,14,15,18} except Medasani et al in their study reported a higher incidence of acne among females as compared to males.¹²

In our study, lichen planus (53.84%) and psoriasis (38.46%) were the commonest in papulosquamous disorder group.

Jawade et al and Patel et al reported pityriasis rosea to be the commonest.^{6,15} Podder et al and Bonthu et al in their paediatric dermatoses study found lichenoid disorders as the commonest in papulosquamous disorders.^{14,20} Saini et al, Rao et al and Sacchidanand et al reported psoriasis as the commonest papulosquamous disorder.^{18,19,21} However, Balai et al in their study with 1000 children reported only one case of psoriasis and no case of lichen planus.¹¹ Lichen planus and psoriasis was seen more in males than females with respective ratio of 4:3 (M:F), and 4:1 (M:F). Saini et al showed results similar to our study while Pawar et al showed 1:1 (M:F) in psoriasis.^{13,18}

We had less cases of hypersensitivity syndromes in our study which could be due to the fact that many cases of urticaria are treated on an emergency basis in the emergency OPD and do not reach the Paediatric or Dermatology OPD. Urticaria led the group followed by insect bite reactions, papular urticaria and erythema multiforme. Other studies also show results similar to our study.^{7,14,18} Vitiligo (90.9%) was the commonest disease in the disorders of pigmentation group. Other authors also furnish results consistent with our study.^{6,14,19} Medasani et al in their study shows post inflammatory hyperpigmentation as the commonest disorder of pigmentation.¹²

In the disorder of hair and nail spectrum, telogen effluvium (42.85%) was the commonest followed by, alopecia areata (28.57%), androgenetic alopecia and premature canities. Nail disorders were not found in the patients who visited us. Other studies of paediatric dermatoses found alopecia areata as the commonest hair disorder.^{6,18,19} Other less commonly seen disorders were cutaneous tumors and tumor syndromes (1.94%), vascular disorders (1.45%), disorders of cornification (0.97%), photodermatoses (0.97%), in histiocytosis and malignant skin tumors (0.48%) and in miscellaneous (0.48%). These groups were not commonly classified by most of the authors.

Interestingly dermatoses under disorder of dermis, immunobullous, connective tissue disorders and nutritional disorders were not observed in our out-patient department which was in contradiction to other similar studies where these dermatoses were seen but less commonly.^{6,11-13,15,18,20}

Conclusions

Infections and infestations remain the commonest reason for visit to a dermatologist in the paediatric age group followed

by atopy and eczema. Paediatric dermatology is a growing sub speciality of dermatology with bright prospectus.

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