Pediatric Dermatoses: A Study of 313 Cases

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Abstract

Introduction: Pediatric dermatology is impotent wing of dermatology. It deals with prevention, diagnoses and treatment of skin disorder in children. It has become important to study about pattern of pediatric dermatoses which helps in making policies for its diagnosis, management and prevention.

Material and Method: This is a prospective cross sectional observation study conducted at Dhiraj General Hospital from January 2016 to June 2017. All the patients were subjected to detailed history & clinical examination. Based on the clinical features and investigations, final diagnosis was then made.

Result: Out of 313, 54 % were males and 46% were females. Majority of cases were in school going age group accounting for 40 % of total case. In present study, infectious diseases (30.99%) were highest followed by eczema and dermatitis (13.73%). Infectious diseases were most common in this study. Fungal infections (36.07%) were highest among infectious diseases in this study followed by viral infections (35.11%). Nevi constituted 7 % of all dermatoses. Pigmentary disorders were 6.38% of all dermatoses. Papulosquamous disorders were 8.62% of all dermatoses. Appendageal disorders constituted 13.41% of all dermatoses. Nutritional disorder was relatively less in this study. Connective tissue disorders constituted only 1.92% of all dermatoses. Genodermatoses were 2.87% of all dermatoses.

Conclusion: Pediatric dermatoses are vast array of diseases, so much so that pediatric dermatology is now considered a sub speciality of dermatology. In this study, the commonest condition encountered is infectious diseases while rare conditions like neuroblastoma and mastocytoses have also been recorded. This study is an endeavour to record and report the spectrum of dermatological conditions pediatric age group.

Keyword: Pediatric, Dermatoses.

Introduction

Pediatric dermatology is an important wing of dermatology. It mainly deals with the diagnosis, treatment and prevention of skin disorders occurring in the pediatric age group.(1) Among the pediatric age group, skin diseases are common in both developed and developing countries varying in the number of prevalence and patterns. Infections and infestations are more common in developing countries while eczema and other dermatitis related disorders are more common in developed countries. Almost 30% reasons for pediatric clinical visits are due to dermatological problems.(2) Various school based studies of pediatric dermatoses has shown incidence of skin diseases in children ranging from 8.7% to 38.8%.(3) Pediatric dermatoses are encountered frequently in dermatology OPD and there is a significant difference in clinical presentation and management of pediatric dematoses and adult dermatoses, therefore, it requires special skills for its diagnosis and prevention. It has become important to study about pattern of pediatric dermatoses which helps in framing policies for its diagnosis, management and prevention.(4) This study was carried out in our setup to identify pattern of various skin disorders in pediatric age group which will also contribute in future surveys.

Material and Method

In this study, pediatric patients attending the dermatology OPD of Dhiraj General Hospital with skin complaints were included and patient's consent was taken. All the patients were subjected to detailed history & clinical examination (both general and cutaneous examination). Detailed history, including age at the time of attending clinic, sex, chief complaints, and history of associated illness, history regarding the onset, duration and progress of the lesions was taken. Family history of similar complaints was also taken. Thorough general and dermatological examinations were performed in every patient according to mentioned in performa. Relevant investigations pertaining to the clinical presentation were carried out as and when required. Based on the clinical features and investigations, final diagnosis was then made. All variable (age, gender, skin disease) were expressed in percentage. $P<0.05$ was considered as statistical significant

Type of Study Design:- A prospective observational study.

Sample Size:- All pediatric patients with skin complaint attending the Dermatology OPD of Dhiraj General Hospital will be included.

Observation and Result

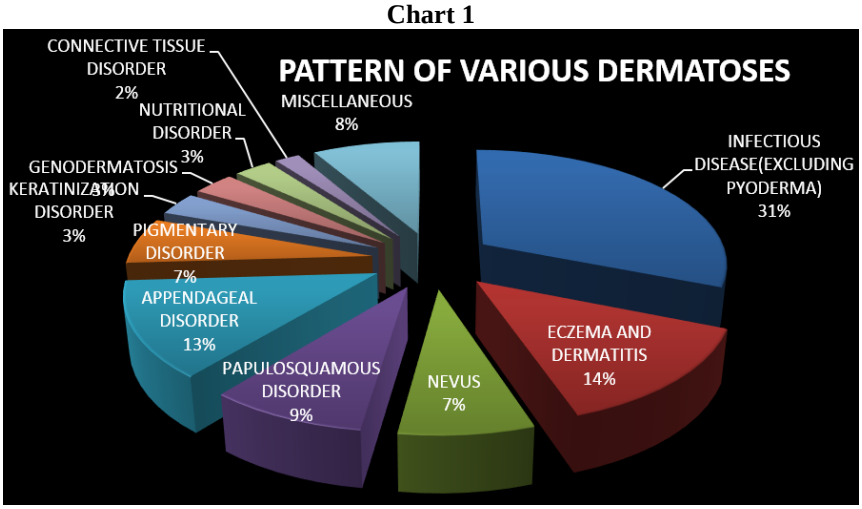
A total number of 313 patients were enrolled in present study from January 2016 to June 2017. In present study, the highest number of patients were from school going age group (>6 years up to <14 years) and the lowest were from neonatal age group (birth to <1 month) and the number of male patients (54%) was higher than female patients (46%) with ratio 1.17:1

Infectious diseases (30.99%) were the highest among all dermatoses followed by eczema and dermatitis (13.73%), appendageal disorders (13.41%) and papulosquamous disorders (8.62%). The Lowest number of cases was seen were connective tissue disorders (1.91%). In all the groups of disorders, male dominance was seen except in pigmentary disorders, connective tissue disorders, and genodermatoses. (Table 1 & chart 1)

Table 1

Pattern of Various Dermatoses		
Infectious Diseases (Excluding Pyoderma)	97	30.99%
Eczema And Dermatitis	43	13.73%
Nevi	24	7.66%
Papulosquamous Disorders	27	8.62%
Appendageal Disorders	42	13.41%
Pigmentary Disorders	20	6.38%
Keratinization Disorders	12	3.84%
Genodermatoses	9	2.87%
Nutritional Disorders	9	2.87%
Connective Tissue Disorders	6	1.92%
Miscellaneous	24	7.66%
	313	100%

Chart 1



Infectious diseases were 30.99% of all dermatoses. Among infectious diseases, fungal infections (36.07%) were the highest followed by viral infections. As we have excluded pyoderma bacterial infections (5.15%) were the lowest. In bacterial infections, there were 3 cases of biopsy proven borderline lepromatous leprosy. (Fig. 1c & 1d) There were 2 cases of cutaneous tuberculosis. One case was of tuberculosis verrucosa cutis, in which the lesion was present on dorsum of left foot. (Fig. 1B) The other case was of lupus vulgaris, which was seen over left knee. (Fig. 1A) All the cases were seen in school going children. In fungal infections, dermatophytic infections were the highest and it was the highest among all the infections, accounting for 27.83% of all infectious diseases. Tinea corporis was most common presentation in this study. Many patients had shown involvement of more than one anatomical sites. 16 cases out of 27 cases of dermatophytic infections had positive family history. All the patients of tinea faciei had positive family history. Common site of involvement was trunk followed by extremities. Crural fold involvement was less common. In viral infections, Viral warts were the highest followed by molluscum contagiosum. Viral warts (9.27%) were the 3rd highest among all infectious diseases. All the 9 cases of viral warts were verruca vulgaris. Common site of involvement was face followed by extremities. Molluscum contagiosum was the second most common viral infection in the study. It was common in school going age group. Molluscum contagiosum was also more commonly found over face. All the cases of hand foot and mouth diseases were of <7 years of age. Pityriasis rosea was seen more commonly in school going age group. One case was of biopsy proven Kaposi's varicelliform eruption. That patient was a known case of osteoscarcoma on chemotherapy. Tzanck smear showed multinucleated giant cells. In parasitic infections, scabies was the highest and it was second highest with 15.46% of all infectious diseases. Family history was found positive in 11 cases out of 15 cases of scabies. Papular urticaria was the second most common parasitic infection and mainly seen over extremities. (Table 2)

Fig. 1A,B,C,D

Table 2

Pattern of infectious diseases (n=97)		Number of patients	Percentage among infectious diseases	Percentage among all dermatoses
Bacterial infections (excluding pyoderma) (5.15%)	Lupus vulgaris	1	1.03 %	0.32 %
	Tuberculosis verrucosa cutis	1	1.03 %	0.32 %
	Leprosy	3	3.09 %	0.95 %
Viral infections (35.11%)	Viral warts	9	9.27 %	2.87%
	Molluscum contagiosum	7	7.21 %	2.23 %
	Herpes simplex	4	4.12 %	1.27 %
	Chicken pox	3	3.09 %	0.95%
	Hand foot mouth disease	4	4.12 %	1.27%
	Pityriasis rosea	4	4.12 %	1.27%
	Viral exantham	3	3.09 %	0.95%
Fungal infections (36.07%)	Dermatophytoses	27	27.83 %	8.62%
	Candidial intertrigo	6	6.18 %	1.91%
	Tinea versicolor	1	1.03 %	0.32%
	Mycetoma	1	1.03 %	0.32%
Parasitic infections (23.70%)	Scabies	15	15.46 %	4.79%
	Pediculosis	3	3.09 %	0.95%
	Papular urticaria	5	5.15 %	1.59%
Total		97	100 %	30.99%

In neonatal age group, physiological changes were higher than pathological conditions. Miliaria was the highest among all neonatal dermatoses, followed by ETN and cradle cap. There was one case of epidermolysis bullosa with extensive bullous lesions over extremities. (Fig. 4B) There was one case of cradle cap who had diffused alopecia. There was one case of collodian baby. (Fig. 2D)

Eczema and dermatitis was 13.73% of all dermatoses. Endogenous eczema (n=34) was more common then exogenous eczema (n=9). Among eczema and dermatitis, seborrheic dermatitis was 25.58% and highest in this group, followed by atopic dermatitis (18.60). Among seborrheic dermatitis, infentile seborrheic dermatitis was 6 cases out of 11 cases. Two cases of seborrheic dermatitis had eyelid involvement. (Fig. 2A) Common site of involvement was face in cases of seborrheic dermatitis. Among atopic dermatitis, 7 cases out of 8 cases of atopic dermatitis were in school going age group. (Fig. 2C) Two case of atopic dermatitis also had positive family history. None of the case of atopic dermatitis had asthma or allergic rhinitis. Ig E level was done in one of the case which was 864 IU/mL. All the cases of diaper dermatitis were seen in <3 years of age group. One of the cases of diaper dermatitis had extensive erosions over vulva,

perineum, and guteal fold and had history of delayed development and loss of control over bowel and bladder. (Fig. 2B) One case of acute severe malnutrition had extensive diaper dermatitis. Pompholyx was seen in > 3 years of age group. All cases had involvement of palms with classical sago grain like deep sited vesicles.

Nevi were 7.66% of all dermatoses. Epidermal nevus (37.50%) was the highest among all nevi, followed by vascular nevus (33.33%). Among epidermal nevi, 8 out of 9 cases were of verrucous epidermal nevus. In one patient had multiple distribution along blaschko's line but non verrucous. In 8 cases of vascular hemangiom, 6 cases were of strawberry hemangioma, one case had ulceration over cheek and one case was of verrucous hemangioma on thigh and one case was of port wine stain. (Fig. All the cases of vascular nevi were seen in <3 years of age group.

There were 2 cases of nevus lipomatosus superficialis, both cases were seen in school going age group and was on flank. There was one case of faun tail nevus without any spinal deformities.

Pigmentary disorders were 6.38% of all dermatoses. Pigmentary disoeders were more common in females than in males. In pigmentary disorders, the highest number of cases was of vitiligo vulgaris (65%), followed by nevus depigmentosus (25%). The majority number of cases of vitiligo vulgaris was seen in school going age group. Among all the cases of vitiligo, only two cases had positive family history. One case of vitiligo was of segmental variant.

Papulosquamous disorders were 8.62% of all dermatoses. Lichen planus (48.14%) was the highest in papulosquamous disorders followed by psoriasis (33.33%). 9 cases out of 11 cases of lichen planus were >7 years of age. two cases of lichen planus showed twenty nail dystrophy. Majority of cases showed involvement of extremities. All Psoriatic patients were seen in school going age group. Out of 9 patients of psoriasis, two cases were of guttate psoriasis and one case was of linear psoriasis.

Appendageal disorders were 13.41% of all dermatoses. Among all appendageal disorders, the highest number of cases was of acne with 33.33 %, followed by milliaria with 31.70%. Among milliaria, millaria rubra (n=11) was the most common followed by milliaria pustulosa (n=1) and milliaria crystilina (n=1) Among acne, female predominance was seen and 11 out of 14 cases were of adolescent age group. 2 cases were of neonatal acne and one case was of nodulocystic acne.

Among alopecia, 9 cases were of non-scarring alopecia while 2 were of scarring alopecia seen. In non-scarring alopecia, alopecia areata (n=7) was the highest. One patient had ophiasis. One case of Down syndrome had spares hairs on scalp. (Fig. 5A) Other variants of non-scarring alopecia were telogen effluvium and traction alopecia. There was one case of scaring alopecia which had history of recurrent follicilitis.

Connective tissue disorders were only 1.92% of all dermatoses. The Commonest connective tissue disorder was systemic lupus erythematosus. It was more common in female. In systemic lupus erythematosus, out of 4 cases, 3 cases were females and 1 case was male. One case had grade 3 lupus nephritis. One case was a known case of tuberculosis and was on anti Koch's treatment. ANA titer was done in 3 cases of systemic lupus erythematosus, all three were positive. (Fig. 5D) One case of MCTD (sceloderma + dermatomyocutic) had extensive hide bound skin, gottron papules, flexer deformities, calcinosis cutis on multiple sites. Case of amyopathic juvenile dermatomyositis presented with calcinosis cutis over bilateral elbow, gottron papule on dorsum of bilateral hand, heliptropic rash and no muscle weakness. (Fig. 5C)

Genodermatoses were 2.87% of all dermatoses. The Commonest genodermatosis was epidermolysis bullosa, followed by xeroderma pigmentosum and tuberous sclerosis. None of the genodermatoses had positive family history. Genodermatoses were more common in female. There were three casse of epidermalysis bullosa. Ages of all three cases were less than one year. One case of epidermilysis bullosa had extentive lesions mainly over extremities in 14 days old female patient. There was one 17 years old female patient of tuberous sclerosis who had positive history of seizures. There was two case of neurofibroma, one was of plexiform neurofibroma and one was neurofibromatoses type 5 with café-au-lite macule and segmental neurofibroma. (Fig. 4A&D) There were two cases of xeroderma pigmentosus, Biospy of nodule over face of one of the patient revealed features of basal cell carcinoma. Biopsy showed formation of lobules of basaloid cells in dermis. (Fig. 4C)

Nutritional disorders were 2.87 % of all dermatoses. Phrynoderma (n=7) was the commonest nutritional disorder followed by pellagrous dermatitis (n=2). Phrynoderma was found commonly after the age of 7 years. All case of phrynoderma had lesions over elbow area. One case of pellagrous dermatitis presented with severe nutritional deficiency and angular chelitis. One case of pellagrous dermatitis gave history of staple diet of maize, which might be the cause of pellagrous dermatitis.

Disorders of Keratinisation were 3.84 % of all dermatoses. The Commonest keratinisation disorder was keratoderma (n=6). Out of 6 keratodermas, 2 cases were of palmoplanter keratoderma and 4 were of planter keratoderma. One planter keratoderma was of Vohwinkel variety. (Fig. 3D) Out of 4 cases of ichthyosis, one case was of ichthyosis hystrix with positive family history.

Fig. 2A,B,C,D

Fig. 3A,B,C,D

Fig. 4A,B,C,D

Fig. 5A,B,C,D

Miscellaneous

24 cases out of 312 cases were put under miscellaneous group. There was one 5 month old case of cutaneous mastocytosis presented with erythomatous maculopapular lesions all over body. Darier's sign was positive in case. (Fig. 3A) There were two cases of drug reactions, one was of Steven Johnson's syndrome, a known case of focal seizures on carbamazepine and the other was of fixed drug reaction, a known case of diarrhea on injection metronidazole. There was one case of pyogenic granuloma seen over umbilicus treated by cryotherapy.

1 month old male patient of neuroblastoma presented with multiple erythematous nodules all over body and abdominal and pelvic mass on USG. (Fig. 3C)

There were 2 case of keloid, one case of keloid shown lesions on thigh it occurred following burns, one case of keloid shown lesions on chest it occurred at scar of chicken pox lesions. There was one case of biopsy proven henoch scholein purpura, patient presented with hematuria, abdominal pain, and non blanchable purpuric lesions on bilateral lower limb. (Fig. 3B)

There were two case of lymphagiectasia circumscrepta, both cases were seen in female patients and one was on chest and one was one arm. There were two case of subcutaneous fat necrosis, one case was 8 days old male patient with lesion on upper limb and one case was 2 years old male patient with lesion on buttock.

Discussion

The present study was conducted from January 2016 to June 2017 at Dhiraj hospital, Pipariya, Waghodia during which, a total of 313 patients were included in the study.

In present study, the patients were divided into six groups according to the age. The most common age group in the study was between 6 years to 14 years i.e. school going children (40.06%), while in a study done by Jawade et al, the most common age group was preschool (46.32%) and school going age group (33.00%) was the second most common.[4] This variation in the observation can be due to the fact that our hospital is situated in a rural area and therefore, chances of infections in school going children are very high.

Out of 312 patients, 170 were male and 142 were female. The male to female ratio in the present study was 1.20:1 which was similar to the study done by Roy et al where male to female ratio was 1.16:1,[5] while in another study done by Jawade et al the ratio was 1.40:1.[4]

In prsent study, physiological skin changes were seen in 69.56% of neonates, which is similar to the study done by Patel JK et al where physiological changes were seen in 78% of neonates,[6] but in the study done by Jawade et al it was found in only 39.69%.[4] In present study, miliaria was the most commonly seen physiological change in neonates followed by erythema toxicum neonatorum, while in the study by Jawade et al the most common finding was erythema toxicum neonatorum followed by miliaria.[4]

In present study, the infectious diseases (excluding pyodermas) were most common with 30.99%, which was similar to the study done by Hassan et al[7] where infectious diseases were 29.40%. However, it is lower than the other studies (35.60%- 85.20%) in India.[3] It may be because we have excluded pyodermas from our study. In a study done by Dogra and Kumar et al had also found only 11.04% of infectious diseases.[8]

Among bacterial infections, we have come across three cases of pediatric leprosy. All the three cases were diagnosed as borderline lepromatous leprosy. This was a rare encounter as borderline lepromatous and lepromatous leprosy are uncommon in children. In a study done by Nair et al, the most common type seen was borderline tuberculoid leprosy. In our study, there were two cases of cutaneous tuberculosis, one of which was of tuberculosis verrucosa cutis and the other one was of lupus vulgaris. The study done by Patel K et al had found three cases of tuberculosis verrucosa cutis.[9]

Among fungal infections, Tinea corporis was 5.76% of total dermatoses and tinea capitis were 0.96% of total dermatoses in present study. In the study done by Jawade et al, tinea corporis and tinea capitis were seen in 1.46% and 4.49% of the cases respectively.[4] In present scenario, cases of tinea corporis and tinea cruris are showing increasing trend among adults, which in turn may be transmitted to the children in the family.

In present study, the most common viral infection seen was viral warts (2.87%), followed by molluscum contagiosum (2.23%), Which is in contrast to the study done by Jawade et al, where molluscum contagiosum (5.39%) was the most commonly seen viral infection followed by viral warts (1.35%).[4] In the study done by Patel JK et al, the most common viral infection seen was viral warts (1.53%).[6]

In present study, pityriasis rosea was seen in 1.27 % of the cases which was similar to the study done by Ben Saif & Al Shehab (2.1%),[1] but in the study done by Jawade et al, it was 3.15%.[4]

Scabies (4.79%) was the most common parasitic infestation. In other studies conducted in India, incidence rate of scabies range from 5.1% to 24.49%. In present study, Pediculosis capitis was 0.95% which was similar to the study done by Jawade et al (0.45%) and Rao et al (0.5%).[4]

Eczema and dermatitis group constituted 13.73% of cases in present study, which was comparable to Jawade et al[4] (15.61%) and Hassan et al[7] (12.0%). In another study conducted by Dogra & Kumar,[8] incidence of dermatitis was found to be only 5.2%.

Atopic dermatitis was 2.56 % in our study which was lower (P value <0.05) compared to the study done by Jawade et at (4.27%).[4] Studies conducted all over the world found incidence rates of atopic dermatitis ranging from 3% to 28%. Seborrheic dermatitis was seen in 3.51% of cases in our study which was comparable to the study done by Ben Saif & Al Shehab (3.4%) and Jawade et al (3.60%), but in the study done by Roy S et al it was seen in only 1.82% of cases.[1,4,5] Pityriasis Alba was seen in 1.60% of cases in our study, whereas in the study done by Jawade et al,[4] it was 4.16%.

The percentage of Vitiligo cases was 4.15 % in our study, which was significantly higher (P value <0.05) compared to a study done by Patel K et al (1.01%) and Jawade et al (1.24%), but comparable to study by Hassan et al where percentage of vitiligo was 5.94%.[4,7,9]

In our study, papulosquamous disorders were 8.62% which is comparable to the study done by Jawade et al (9.8%).[4]

Lichen planus in our study was seen in 4.15% of cases, which was significantly higher (P value < 0.05) than the study done by Handa & Sahoo (2%) and Jawade et al (2.58%) but lower than the study done by Kumar & College et al (11.2%) and Luis Montoya (10.2%). In our study, lichen nitidus was seen in 0.32% of the cases, while in the study by Jawade et al it was 1.12%. The percentage of lichen striatus was 1.28%, which was higher than Jawade et al (0.11%).[8,72,73,74]

Psoriasis was seen in 2.87% of cases in our study, which was higher than the study done by Jawade et al (0.67%) and Sardana et al (0.54%), but was similar to the study by Roy et al where psoriasis was 2.17%.[7,8]

Keratinisation disorders were seen in 3.84% of cases in our study, which was similar to the study done by Hassan et al (3.2%) and Jawade et al (2.58%).[4,7]

In our study, nevi comprised of 7.66% of all dermatoses, which was very high in comparison to the

study done by Hassan et al where it was only 1.1%. Vascular nevi were 2.56 % in our study which was similar to the study by Patel K et al (2.64%).[7,9]

Miliaria was seen in 4.15% of the cases in our study, which was lower than the study done by Patel K et al (12.55%).[9] Acne was 4.48% which was comparable to that found in the study done by Patel K et al (4.55%) but higher than the study done by Sardana et al (0.08%). Alopecia areata was seen in 2.24% of cases, which was higher than that found in the study done by Jawade et al (0.79%) and Sardana et al (1.09%).[7,8]

Nutritional disorders were 2.87% which was comparable to the study done by Jawade et al (3.80%) and Patel K et al (1.17%),[4,9] while the study done by Hassan et al showed very low percentage of nutritional disorders (0.4%).[7] The study done by Negi et al showed very high percentage (17.5%).[10]

Genodermatosis was seen in 2.87% of cases in our study, which was comparable to the study done by Patel K et al (1.99%).[9]

Conclusion

Pediatric dermatoses are vast array of diseases, so much so that pediatric dermatology is now considered a sub speciality of dermatology. In this study, the commonest condition encountered is infectious diseases while rare conditions like neuroblastoma and mastocytoses have also been recorded. This study is an endeavour to record and report the spectrum of dermatological conditions pediatric age group.

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