International Journal of Contemporary Pediatrics
Patel KB et al. Int J Contemp Pediatr. 2016 Nov;3(4):1178-1184
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: http://dx.doi.org/10.18203/2349-3291.ijcp20163652

Original Research Article

Pediatric dermatoses encountered in dermatology outpatient department of a teaching institute

Krina B. Patel[1]*, Bhanu R. Desai[2]

[1]Department of Dermatology, [2]Department of Pediatrics, GMERS Medical College, Sola, Ahmedabad, India

Received: 28 July 2016
Accepted: 13 August 2016

***Correspondence:**
Dr. Krina B. Patel,
E-mail: y2k_kbpatel@yahoo.com

ABSTRACT

Background: A child presenting with a skin problem is a common encounter in dermatology outpatient department. Various infectious and non-infectious disorders may be seen in children of all ages. Their severity may also vary from mild to severe but their presentation and management may be different from their adult counterpart. Aim of present study was to evaluate the spectrum of skin diseases in pediatric population of dermatology department of a teaching institute.
Methods: A prospective study was undertaken to determine the pattern of skin diseases at the dermatology OPD of tertiary care hospital from January 2014 to December 2015. 3560 pediatric patients up to age of 14 years were included in the study. A detailed general, cutaneous and systemic examination of all patients was done along with necessary investigations as and when needed. The findings were recorded and data was analyzed.
Results: Out of 3560 study group population there were 57.35% male and rest female. The highest numbers of patients were in the age group of > 10 to 14 years (41.04%) Majority of patients presented with infections and infestations (52.6%) Scabies was the most common disease found in patients. Many rare genodermatosis were observed in present study.
Conclusions: Both preschool and school going children were found to be affected with skin diseases frequently. Infections were more commonly seen which reflect need for proper counselling of parents regarding maintenance of hygiene and skin care. Being a referral centre and tertiary care hospital, some of the rarest dermatoses were also found during present study.

Keywords: Dermatoses, Infectious dermatoses, Non-infectious dermatoses, Pediatric

INTRODUCTION

Dermatologic disorders are seen throughout all stages of life. Depending upon age, sex, ethnicity and locality skin disorders vary widely. A child presenting with skin problem is a frequent encounter in any dermatology outpatient department. Common innocuous infections to serious infections present in skin, genetic disorders frequently manifest in skin first, similarly many metabolic skin disorders manifest in skin first and so dermatologist play a special role in identifying and treating such disorders at the earliest.

Prevalence and incidence of different skin disorders vary in different parts of the world.[1] Similarly in India geographic variation in pediatric disorders is noted by various authors from various parts of country. Prevalence of skin disorders in children range from 8.7% to 35% as per different school survey based studies.[2] Infections generally outnumber other dermatoses as far as India and other developing countries are concerned; in contrast to non-infectious dermatoses like atopic dermatitis commonly seen in developed countries.[3,4]

Pediatric dermatoses require special consideration as their presentation and treatment differ than their adult

counterpart. Factors like poverty, malnutrition, overcrowding, lack of hygiene, illiteracy and social backwardness in many parts of India does influence pattern of skin diseases.[5] Studies show that dermatological problems account for about 30% of primary and secondary reasons for pediatric clinic visits and about 30% of all visits to dermatology OPD involve patients of pediatric age group.[6,7]

In view of this, present study was carried out to find out different dermatologic conditions in pediatric population from patients attending outpatient dermatology department of a teaching institute.

METHODS

A prospective study was carried out at skin department of GMERS medical college, Sola, Ahmedabad, India between January 2014 to December 2015. All pediatric patients up to age of 14 years presenting in outpatient department of dermatology; directly or referred from other departments during this period were enrolled in the study. Detailed history, clinical examination and systemic examination were carried out for all patients. Heamtological, radiological and other investigations including skin smear, biopsy etc. were carried out as and when needed. Diagnosis of skin disorders were based on clinical presentation supported by necessary investigations. Data were captured and analyzed.

RESULTS

Total number of pediatric patients seen during the study period of 24 months was 3560. Pediatric patients constituted approximately 5.5% of total patients of dermatology department of GMERS institute. Out of study group population there were 2042 (57.35%) male and 1518 (42.65%) female. M:F ratio was 1.35:1. Youngest patient seen was 1 day old and average age of patients was 7.9 years. Highest number of patients 41.03% presented in age group of >10 to 14 years (n=1461) Out of 562 patients of less than 1 year age group, 147 patients (4.12 %) were below 1 month of age and most of them presented within 1 week of the birth. Table 1 shows age and sex distribution of total study population.

Table 1: Age and sex distribution of patients.

Age group	Male	Female	Total (%)
Upto 1 year	309	253	562 (15.78)
>1 - 5 years	341	262	603 (16.94)
>5 - 10 years	490	444	934 (26.24)
>10 - 14 years	902	559	1461 (41.04)
Total	**2042**	**1518**	**3560 (100)**

Infectious disorders were found in 52.6% (n = 1872), while non-infectious dermtoses in 47.4% of patients (n = 1688) (Table 2, 3).

Table 2: Infectious disorders.

Disease	M	F	Total	%
Scabies/ pediculosis	417	276	693	19.46
Bacterial infections	289	212	501	14.1
Viral infections	150	125	275	7.72
Fungal infections	172	48	220	6.18
Leprosy, tuberculosis and leishmaniasis	7	3	10	0.28
Acne	111	51	162	4.55
STIs	2	4	6	0.16
HIV infection associated disorders	2	3	5	0.14
	1150	722	1872	52.6

Table 3: Non-infectious disorders.

Disease	M	F	Total	%
Physiological changes	79	51	130	3.65
Millaria	238	209	447	12.55
Eczema and related disorders	160	102	262	7.35
Atopic dermatitis	27	34	61	1.71
Vascular nevi	94	39	55	2.64
Other nevi	61	39	22	1.71
Ichyosis and related disorders	15	9	24	0.67
Other genodermatosis and developmental anomalies	42	29	71	1.99
Papulosquamous disorders	92	105	197	5.53
VB disorders	3	2	5	0,14
Urticaria/angioedema	42	51	93	2.61
ADR	38	45	83	2.33
Vitiligo and other depigmentory diseases	17	19	36	1.01
Nail disorders	5	1	6	0,16
Hair disorders	12	33	45	1.26
Nutritional disorders	27	15	42	1.17
Vasculitis	9	9	18	0.50
Autoimmune connective tissue diseases	0	4	4	0.11
Metabolic disorders	5	1	6	0.16
Miscelleneous disorders	3	0	3	0.08
Total	**892**	**796**	**1688**	**47.4**

Highest number of patients seen were of scabies and pediculosis group (19.46%), followed by bacterial infections (14.07%), millaria and periporitis (12.55%) formed the 3rd largest group, followed by viral infections

related disorder (7.72%), eczema group of patients (7.35%), fungal infections (6.17%), papulosquamous disorders (5.53%) and acne (4.55%). Other disorders were seen in varying number. Table 4 shows age and sex wise distribution of patients in all diseases groups.

Among scabies and pediculosis group more than 90% patients were of scabies (n=646) and were seen in all age groups. Pediculosis was seen more in children above 5 years of age (n=47). Among bacterial infections impetigo was the most common (Figure 1), followed by furuncles and other types of superficial bacterial infections. Paronychia was observed in one child below 1 year.

Among viral infections related disorders exanthematous rash associated with viral fever and chicken-pox were more commonly seen in children below 5 years of age, followed by herpes simplex, viral warts, molluscum contagiosum and herpes zoster in older age groups. 3 cases of Gianotti-Crosti syndrome were observed and because of most common etiological factor being viral infection these cases were grouped among viral infections. As children are exposed to classmates and involve in more outdoor activities incidence of viral infections like wart increases.

Figure 1: Impetigo contagiosa.

Figure 2: Cutaneous candidiasis.

Figure 3: Tinea capitis.

Figure 4: Erythema toxicum neonatorum.

Figure 5: Toxic epidermal necrolysis.

Figure 6: Lichen planus.

Figure 7: Limb agenesis.

Figure 8: Incontenatia Pigmentii.

Figure 9: Xeroderma pigmentosus.

Figure 10: Collodion baby

Figure 11: Tuberous xanthoma.

Figure 12: Epidermolysis bullosa.

Figure 13: Generalized morphea.

Figure 14: Hemangioma.

Table 4: Age and sex wise distribution of various groups of disorders.

Dermatosis	< 1 year		>1 - 5 years		>5 - 10 years		>10 - 14 years		Total	%
	M	F	M	F	M	F	M	F		
Physiological changes	66	42	13	9	-	-	-	-	130	3.65
Milliaria	22	9	47	25	74	114	95	61	447	12.55
Eczema and related diseases	13	5	39	11	49	44	59	42	262	7.35
Atopic dermatitis	0	2	9	8	11	13	7	11	61	1.71
Vascular nevi	19	26	16	22	3	6	1	1	94	2.64
Other nevi	11	6	8	5	9	4	11	7	61	1.71
Icthyosis and related disorders of keratinization	2	3	6	4	3	1	4	1	24	0.67
Congential anomaly, genodermatosis	14	16	9	7	5	4	14	2	71	1.99
Papulosquamous disorders	3	3	9	3	13	21	67	78	197	5.53
VB disorders	1	1	1	0	1	0	0	1	5	0,14
Urticaria/ angiodema	11	7	3	6	11	15	17	23	93	2.61
Drug reaction	0	0	4	5	12	8	22	32	83	2.33
Vitiligo	2	1	1	1	4	2	10	15	36	1.01
Nail disorders	1	0	1	0	1	0	2	1	6	0,16
Hair disorders	7	2	0	1	2	7	3	23	45	1.26
Nutritional dermatosis	1	0	1	0	9	4	16	11	42	1.17
Vasculitis e:g HSP	0	0	0	1	3	5	7	3	18	0.50
CTD - morphea, LSA, SLE, DM, vasculitis	0	0	0	0	0	2	0	2	4	0.11
Metabolic disorders	0	0	0	0	1	-	4	1	6	0.16
Misc. disorders	1	0	1	0	0	0	0	1	3	0.08
Bacterial infections	26	30	65	43	81	64	117	75	501	14.1
Viral infections	6	12	27	18	40	51	77	44	275	7.72
Fungal infections	21	17	2	9	51	9	98	13	220	6.18
Scabies/pediculosis	67	55	75	81	98	65	177	75	693	19.46
Leprosy, Skin tuberculosis and PKDL	0	0	1	1	1	0	5	2	10	0.28
Acne	15	16	2	1	9	3	85	31	162	4.55
STI	00	0	0	0	0	0	2	4	6	0.16
HIV associated skin disorder	0	0	1	1	0	2	1	0	5	0.14
Total	**309**	**253**	**341**	**262**	**490**	**444**	**902**	**559**	**3560**	**100**

Figure 15: Twenty nail dystrophy.

Figure 16: Acanthosis nigricans and acne.

Among fungal infections candidial infection (Figure 2) was commonly observed in children below 2 years of age, particularly in diaper areas and other intertriginous areas. Tinea capitis, tinea facei, tinea corporis and tinea versicolor were observed in children above 10 years of age (Figure 3). Tinea versicolor was seen on face of infants whose parents were of habit of massaging oil on baby's face. Physiological changes of infancy like erythema toxicum neonatorum, millia, seborrhea, sucking blister, generalized exfoliation of skin etc were seen in children below 1 month of age and occasionally in patient's upto 1and half years of age (Figure 4).

Acne was seen below 1 year of age occasionally and more in age group of >10-14 years. Overall acne was more common in male in these age groups. Urticaria and angioedema seen in children were generally infection associated but severe drug reaction like Steven-Johnson syndrome and Toxic epidermal necrolysis were also encountered in our patients (Figure 5). Among papulosquamous disorders pityriasis roscea was most frequently seen and psoriasis, lichen planus, lichen striatus and lichen nitidus were presenting complain in many patients across all age groups (Figure 6). Atopic dermatitis was observed in 1.71% of patients in our study above 1 year of age. Seborrheic dermatitis, pityriasis alba, insect bite reaction, pompholyx, perianal dermatitis, diaper rash etc. formed group of patients in eczema group.

Among congenital anomaly syndactyly, limb agenesis (Figure 7) due to unknown factor, aplasia cutis congenita, dysmorphosis of skull, spina bifida associated with hairy nevus, lipoma etc were seen. Common genodermatosis seen were neurofibromatosis and tuberous sclerosis. Rare conditions like; incontenetia pigmentii (Figure 8), xeroderma pigmentosus (Figure 9) were seen in 2 patients each and Vogt-Koyanagi Harada syndrome in one patient. Other rare dermatosis like collodion baby (Figure 10), harlequin icthyosis, erythrokeratoderma variabalis, tuberous and tendinous xantoma (Figure 11) due to hereditary lipid metabolism defect, nail dystrophy, congenital alopecia etc. were also seen. Among miscellaneous conditions one male patient of 10 month age presented with iatrogenic cushing's syndrome and one male of 4 years presented with spontaneous idiopathic gluteal atrophy. While one male patient of 11 year presented for topical steroid induced cutaneous atrophy, striae and depigmentation.

Among vesiculobullos disorders epidermolysis bullosa (Figure 12), childhood pemphigoid and dermatitis herpetiformis were seen. Among autoimmune connective tissue disorders Systemic lupus erythematosus was seen in 2 female paitents aged 10 and 13 years while linear morphea, localized plaque morphea and generalized morphea were also observed (Figure 13). Five patients were found to be HIV reactive by vertical transmission and they presented for oral candidiasis, generalized xerosis and generalized pruritus.

Acrodermatitis enteropathica was observed in two patients below 5 years of age. Protein energy malnutrition associated skin changes were seen in one patient while most of the patients in nutritional dermatosis group presented with phrynoderma with or without associated eye changes.

Among vascular nevi; hemangioma was most common (Figure 14) while port wine stain was also observed in few patients. Among other nevi epidermal nevus was most common, inflammatory linear verrucous epidermal nevus was found in 2 patients. Bathing trunk nevus, hairy melanocytic nevus were other types of nevi found. Twenty nail dystrophy (Figure 15) was seen among nail disorders and alopecia areata was seen in children above 5 years of age. Children below one year of age were brought to skin OPD for evaluation and treatment of occipital hair loss while female above 10 year commonly presented with complain of diffuse hair loss. Acanthosis nigricans was observed in 3 patients above 12 years of age (Figure 16).

Among the tropical infections most of the patients presented with tuberculoid leprosy, while three patients of tuberculosis verrucosa cutis and one patient of post Kala azar dermal leishmaniasis were observed. Surprisingly 6 patients of 13 - 14 years of age presented with various STIs. 2 male and 3 female patients had ulcerative STIs while one female patient had genital warts. All of them were from rural areas and during counseling gave positive history of sexual exposure.

DISCUSSION

The prevalence of various skin disorders is influenced by climate, socio-economic status and dietary habits. The present study delineates the common and uncommon dermatoses encountered in a tertiary care institute of west India. The most common group of disorders observed in our study was infections and infestations. (52.6%). Karthikeyan et al have also found infectious disorders to be most common among their study (54.5%).[8] Various other authors have reported infectious disorders in the range of 35.6% to 85.2% in pediatric population from India and other developing countries.[9-14]

Scabies infestation was most common in present study population followed by bacterial infections. Higher number of scabies in studied patients reflect study group population which largely come from low socioeconomic strata of society and poverty and overcrowding housing is common among them. Higher incidence of scabies among male of 10-14 years was found; as the institutes is adjoining children's residential institute and students come to the institute for treatment. Because of closeness of children in the hostel; they frequently contract scabies and bacterial infections. Karthikeyan et al, Negi et al and others have also reported higher incidence of scabies infestation in their study.[8,15]

Higher incidence of bacterial infections in present study group population coincides with the similar higher incidence found in other studies.[8] Incidence of milliaria is also very high in present study which reflects hot climate of our city as well as poor housing facilities of the patients. Eczematous disorders of various types were frequently seen in present study (7.35%) but atopic dermatitis was seen much less frequently (1.71%) as compared to western studies where 18% to 34% incidence of atopic dermatitis has been reported among pediatric age group.[16,17] This is because of lower incidence of infectious disorders in western population and higher incidence of atopic disease noted in western population.

Genodermatosis and congenital deformities were seen in 1.9% patients in present study. Similar incidence is found in Karthikeyan et al study.[8] Ghosh et al and Porter et al reported lower incidence of genodermatosis in their study.[12,18] Most of the patients with genodermatosis had a rural background and history of close community marriages which is probably responsible for higher incidence of genodermatosis. Also being tertiary care center many such cases are referred at the institute. Rare metabolic disorders like tendinous xanthoma was seen in three siblings due to familial disorder of lipid metabolism. Two siblings with Xeroderma pigmentosum and development of multiple malignancy were also seen in the OPD. All such cases are treated in close consultation with related speciality physicians.

The study highlights the importance of recognizing pediatric dermatoses at the early stage to prevent long term consequences on parents and burden on society. Most of the infectious disorders can be controlled by proper hygiene and understanding the importance of sanitation. Incidence of leprosy and STIs in pediatric age group is alarming as childhood leprosy reflects higher prevalence of leprosy in general population and STIs among children reflects need for proper sex education at right age among this group of patients. Being referral center number of rare autoimmune disorders along with genetic disorders and developmental anomalies which need specialized care were seen. Healthy childhood is essential to development of child and health of nation in general. Counseling regarding skin care, nutrition and hygiene is essential for prevention of many skin disorders in this age group of patients. WHO's recommendations for strengthening community dermatology for developing countries and training of health workers in diagnosing and managing common disorders may be adapted by India to bring down the prevalence of skin diseases and its associated myths in community.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Patel KB, Desai BR. Pediatric dermatoses encountered in dermatology outpatient department of a teaching institute. Int J Contemp Pediatr 2016;3:1178-84.