

CLINICAL AND EPIDEMIOLOGICAL STUDY OF PAPULOSQUAMOUS DISORDERS IN CHILDREN ATTENDING DERMATOLOGY OPD

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Received : 28/04/2023

Received in revised form : 01/06/2023

Accepted : 14/06/2023

Keywords:

Papulosquamous disorders, Lichen striatus, lichen planus, pityriasis rosea.

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DOI: 10.47009/jamp.2023.5.3.462

Source of Support: Nil,

Conflict of Interest: None declared

Int J Acad Med Pharm
2023; 5 (3); 2351-2360



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Abstract

Background: To study the clinical patterns of various papulosquamous disorders in children with respect to their age and sex distribution. **Materials and Methods:** The present study was conducted in the department of Skin and STD, Mahatma Gandhi Memorial Hosital, Warangal, Telangana, from October 2021 to March 2023. This study included a total of 100 children with papulosquamous disorders up to 14 years of age. **Results:** Papulosquamous disorders constituted 2.15% of the pediatric dermatoses during the study. Majority of the patients (39%) belonged to the 5–9-year age group; the youngest patient was 1 month old, at the time of presentation. Boys (52) outnumbered Girls (48) constituting a male to female ratio of 1.08:1.0 Psoriasis was the most common papulosquamous disorder (30%), followed by Lichen Planus (29%). Relapse and recurrences were not noted as our study included detailed study of clinical features at the time of presentation. Psoriasis was seen in 30% cases, more commonly in girls (53.33%), with a male to female ratio of 0.8: 1.0. Majority of patients (80%) belonged to the age group of 5-14 years. The peak age of onset in boys was in the 5–9 year age group, whereas the majority of girls had an onset between the ages of 5 and 14 years. Scalp was the most common initial site affected (46.66%). Classical plaque psoriasis was the most frequent type (76.66%) noted. Guttate psoriasis was seen in 6.66% cases. Nail involvement was seen in 23.33% cases, with pitting being the most common finding. Family history was observed in only 2 children (6.66%). Koebnerization was observed in 40% cases and pruritus in 80%. 29% of the cases had lichen planus, of which there were 18 (62.07%) boys and 11 (37.93%) girls. The most common morphologic variant seen was classic lichen planus (82.9%) followed by linear lichen planus (10.3%), annular lichen planus (3.4%) and actinic lichen planus (3.4%). Nail involvement (pitting and ridging) was seen in six(20.68%) patients and palmoplantar involvement in one (3.4%). Oral involvement was seen in 10.3%, koebnerization in 58.6% and pruritus in 96.55% of cases, extremities were the most common site to be involved (82.7%). Pityriasis rosea: 13% of the patient in our study had pityriasis rosea with male to female ratio 1.16:1.0. Seborrheic dermatitis was seen in 14% cases, more commonly in girls (57.14%). 92.85% cases were infants and 7.14% cases were above 1 year of age in our study. Lichen nitidus was seen in 7 children. Extremities were the most common sites involved. There was no nail or mucosal involvement. Lichen striatus was seen in 5 children, with a mean age of 6.6 years. **Conclusion:** Papulosquamous disorders constituted 2.15% of the pediatric dermatoses during the study. Papulosquamous disorders were commonly seen in children between five to nine years of age and boys were commonly affected.

INTRODUCTION

Skin diseases are major health problems in paediatric age group and are associated with significant morbidity and psychological impact.^[1] Skin ailments in children are common and are either transitory or chronic and recurrent.^[2] Dermatological problems constitute at least 30% of all outpatient visits to a pediatrician and 30% of all visits to a dermatologist involve children. The prevalence of skin diseases amongst children in various parts of India has ranged from 8.7% to 35% in school-based surveys.^[3] Chronic dermatoses like psoriasis and lichen planus are associated with significant morbidity and psychological impact. The pattern of skin diseases in children is very much influenced by climate, external environment, dietary habits and socio economic status.^[3]

Papulosquamous disorders are characterized by scaly papules and plaques. Among the wide spectrum of skin diseases in children, papulosquamous disorders form quite a common group. Papulosquamous disorders during childhood can present a vast array of clinical findings. In children, these range from inflammatory skin diseases like lichen planus to infections like syphilis.

While some papulosquamous disorders mimic each other and some present as atypical variants, a fine diagnostician's mind should be ready to navigate through it. The clinical diagnosis of atypical variants means saving of time, resources and often avoidance of a biopsy. Papulosquamous disorders in children require a separate view from adult dermatoses as there are important differences in clinical presentation, treatment and prognosis.

The presentation of same disease may differ in children and adults. Prevalence of subtypes in the same disease will vary between adults and children. There are many studies about skin diseases in children. Various epidemiological studies have been undertaken across the world including India to study the pattern of pediatric dermatoses and also studies have been done on individual papulosquamous diseases. However there are hardly any studies on papulosquamous disorders in children.

Thus studying the epidemiology of papulosquamous disorders in children helps dermatologists understand better the papulosquamous disorders in children and to be able to manage them appropriately.

Aims and Objectives of the Study

1. To know the hospital based prevalence of papulosquamous disorders among children upto 14 years of age presenting to skin OPD, Mahatma

Gandhi Memorial Hospital, Warangal, Telangana.

2. To study the clinical patterns of various papulosquamous disorders in children with respect to their age and sex distribution.

MATERIALS AND METHODS

This study was undertaken from October 2021 to March 2023. The pediatric patients attending the outpatient Department of Skin and STD, Mahatma Gandhi Memorial Hospital, Warangal were examined for papulosquamous disorders. 100 consecutive children with papulosquamous disorder were included in the study. Children above 14 years and on treatment for papulosquamous disorders were excluded from the study.

Informants were parents or guardians accompanying the children. After taking an informed consent, a detailed history about onset, duration and evolution of lesions was taken. All patients were subjected to general physical examination, cutaneous examination including nail, hair, genitalia, mucosae and systemic examination to note down associated diseases and HIV. Findings were documented in the proforma.

Routine haematological investigations like estimation of haemoglobin, total count, differential count, ESR, urine examination, liver function test and renal function test were carried out for each patient. Special investigations like potassium hydroxide mount, culture and skin biopsy were done for relevant cases. All the investigations were carried out under the direct guidance and supervision of my guide. The results of the study were tabulated, analyzed and discussed. Simple proportions and percentages for comparing different variables like age, sex etc was used. Final outcome was expressed as the percentage of papulosquamous disorders among the study group as a whole and as the percentage of individual papulosquamous disorders.

RESULTS

One hundred pediatric patients with papulosquamous disorders attending the Skin and STD Department, Mahatma Gandhi Memorial Hospital, Warangal during the study period, formed the study material. The study period was of duration from October 2021 to March 2023.

During the period of study, 18,485 outpatients attended the department of Skin and STD, of which 4,650 (25.15%) were children [Table 1].

Table 1: Percentage of pediatric patients attending dept of Skin and STD during the study period

Total No. of outpatients attending dept of Skin and STD during the study	No. of pediatric patients attending dept of Skin and STD during the study	Percentage
18,485	4,650	25.15%

Among the 4,650 children, 100 had papulosquamous disorders. [Table 5]

Table 2: Percentage of pediatric patients with a papulosquamous disorder

Total No. of pediatric patients attending dept of Skin and STD during the study	No. of pediatric patients with a papulosquamous disorder	Percentage
4,650	100	2.15%

Papulosquamous disorders constituted 2.15% of the pediatric dermatoses during the study.

Age and Sex Distribution

There were 52 (52%) boys and 48 (48%) girls. Male to female ratio was 1.08:1.0 and their age -sex distribution is depicted in [Table 2].

Table 3: Age & Sex distribution of children with a papulosquamous disorder

Age in years	Male (%)	Female (%)	Total (%)
0-4	11 (21.15)	12 (25.00)	23 (23.00)
5-9	19 (36.53)	20 (41.66)	39 (39.00)
10-14	22 (42.30)	16 (33.33)	38 (38.00)
Total	52 (100)	48 (100)	100 (100)

The youngest patient was 1 month old and the oldest 14 years. Highest percentage was seen among the 5-9 years age group.

The various papulosquamous disorders recorded in decreasing order of frequency were as follows [Table 4].

Table 4: Frequency of various papulosquamous disorders

Sl. No.	Papulosquamous disorders	No. of Cases	Percentage
1	Psoriasis	30	30%
2	Lichen planus	29	29%
3	Seborrheic dermatitis	14	14%
4	Pityriasis rosea	13	13%
5	Lichen nitidus	7	7%
6	Lichen striatus	5	5%
7	Pityriasis rubra pilaris	2	2%
Total		100	100

Psoriasis was the most common papulosquamous disorder with 30 cases (30%), closely followed by Lichen Planus with 29 cases (29%).

PSORIASIS

The hospital-based prevalence of childhood psoriasis was 0.64%. In this study, among the 100 children with papulosquamous disorder, 30(30%) children had psoriasis. There were 14 (46.66%) boys and 16 (53.33%) girls, with a male to female ratio of 0.8 : 1.0. In this study, majority of patients (89.99%) belonged to the age group of 5-14 years. Youngest patient was 3 year old. [Table 5] shows the age and sex distribution of children with psoriasis.

Table 5: Age and sex distribution of children with psoriasis

Age group (years)	Boys (%)	Girls (%)	Total (%)
0-4	2 (14.28%)	1 (6.25%)	3 (10%)
5-9	6 (42.85%)	8 (50%)	14 (46.66%)
10-14	6 (42.85%)	7 (43.75%)	13 (43.33%)
Total	14 (100)	16 (100)	30 (100)

Age of onset

In our study, the age of onset (Table-09) ranged from 2 year to 13 years. The mean age of onset was 7.45 years. The peak age of onset in boys was in the 5–9 year age group, whereas the majority of girls had an onset of psoriasis between the ages of 10 and 14 years.

Table 6: Age of onset of psoriasis

Age group (years)	Boys (%)	Girls (%)	Total (%)
0-4	4 (28.57%)	3 (18.75%)	7 (23.33%)
5-9	7 (50%)	6 (37.5%)	13 (43.33%)
10-14	3 (21.42%)	7 (43.75%)	10 (33.33%)
Total	14 (100)	16 (100)	30 (100)

Initial site of onset

Initial site of onset is depicted in [Table 7]. The scalp was the most common initial site affected in 14 (46.66%) cases, followed by the lower extremities 7 (23.33%) ,upper extremities 6 (20%), and trunk 3 (10%).

Table 7: Initial site of onset of psoriasis

Site of onset	No. of patients	Percentage
Scalp	14	46.66%
Lower Extremities	7	23.33%
Trunk	3	10%
Upper Extremities	6	20%
Total	30	100

Types of psoriatic lesions at the time of presentation are shown in [Table 8]. Classical plaque psoriasis was the most frequent type of psoriasis at the time of presentation [23 (76.66%) patients].

Table 8: Types of psoriatic lesions at the time of presentation

Type of psoriasis	No. of patients	Percentage
Chronic plaque	23	76.66%
Guttate	2	6.66%
Palmoplantar	2	6.66%
Scalp	3	10%
Pustular	0	0
Erythrodermic	0	0
Total	30	100

Exclusive scalp involvement was seen in 3 (10%) cases. Guttate psoriasis was seen in 2 (6.66%) children and palmo plantar psoriasis is seen in 2 (6.66%). Pustular psoriasis, palmoplantar psoriasis, psoriatic arthritis and erythrodermic psoriasis were not seen in this study.

The nails were involved in 7 (23.33%) cases. Pitting was the most common nail change, followed by ridging.

A positive family history was present in only 2 (6.66%) patients. Koebnerization was observed in 12 (40%) patients. Pruritus was present in 24 (80%) children. Auspitz's sign was positive in all the cases.

In only 2 (6.66%) patients were precipitating factors recalled that had brought about the onset of the disease or had been associated with exacerbation. Throat infection was the precipitating factor in both the cases.

LICHEN PLANUS

During our study period, 4,650 pediatric patients attended our dermatology clinic. Of these, 29 had lichen planus, thus the prevalence of childhood lichen planus in our outpatient pediatric population was 0.62%. In this study, among the 100 children with papulosquamous disorders, 29 (29%) children had lichen planus.

Of the 29 children, 18(62.06%) were boys and 11 (37.93%) were girls. The male and female ratio was 1.6:1.0. Their ages ranged from 3 years to 14 years, with a mean age of 9.06 years [Table 9].

Table 9: Age and sex distribution of children with lichen planus

Age in years	Male (%)	Female (%)	Total (%)
0-4	2 (11.11)	1 (9.09)	3 (10.34)
5-9	6 (33.33)	7 (63.63)	13 (44.82)
10-14	10 (55.56)	3 (27.27)	13 (44.82)
Total	18 (100)	11 (100)	29 (100)

The age of onset [Table 10] ranged from 3 years to 12 years, with a mean age of onset of 7.68 years.

Table 10: Age of onset of lichen planus

Age in years	No. of cases	Percentage
0-2	0	0%
3-5	7	24.13%
6-8	9	31.03%
9-11	11	37.93%
12-14	2	6.89%
Total	29	100%

The most common morphologic variant [Table 11] seen was classic lichen planus in 24 (82.9%) children. Linear lichen planus occurred in three children (10.3%), annular lichen planus in one (3.4%) and actinic lichen planus in one (3.4%). Two cases with classic lichen planus had generalized involvement.

Table 11: Percentages of various types of lichen planus

Type of lichen planus	No. of cases	Percentage
Classic	24	82.9
Linear	3	10.3
Annular	1	3.4
Actinic	1	3.4
Total	29	100

Nail involvement (pitting and ridging) was seen in 6 (20.68%) children. Palmoplantar involvement was seen in one child. [Table 12] shows the clinical findings of lichen planus.

Table 12: Clinical findings of lichen planus

Clinical findings	No of cases	Percentage
Oral involvement	3	10.3%
Nail involvement	6	20.68%
Palmoplantar involvement	1	3.4%
Koebner's phenomenon	17	58.6%
Pruritus	28	96.55%

The site of onset [Table 13] was most commonly in one of the limbs (25 patients, 86.2%). Lesions first appeared on the lower extremities in 16 (55.17%) children, on upper extremities in 9 (27.58%) children and on trunk in 4 (13.79%) children.

Table 13: Site of onset of lichen planus

Site of onset	No. of cases	Percentage
Lower extremities	16	55.17%
Upper extremities	9	31.03%
Trunk	4	13.79%
Total	29	100

Only cutaneous involvement was observed in 26 (89.6%) children, both skin and mucosa were involved in 3 (10.3%) children. The morphology of the mucosal lesions varied from violaceous papules on the lips to a classic lacy pattern on the buccal mucosa.

The lesions were pruritic in 28 patients (96.55%). Seventeen (58.6%) children had the Koebner phenomenon. Drug-induced, familial lichen planus was not found in our study. None had associated systemic diseases.

PITYRIASIS ROSEA

In our study pityriasis rosea was seen in 13 (13%) children. There were 7 boys and 6 girls; male to female ratio was 1.16 :1.0. [Table 14] shows the age and sex distribution

Table 14: Age and sex distribution of pityriasis rosea

Age	Boys (%)	Girls (%)	Total (%)
0-5	0	0	0
6-11	4 (57.14%)	4 (66.66%)	8 (61.53%)
12-14	3 (42.8%)	2 (33.33%)	5 (38.46%)
Total	7 (100%)	6 (100%)	13 (100%)

Their ages ranged from 6 Years to 14 years. The maximum percentage (61.53%) of cases was seen in the 6-11 year age group.

A prodrome of fever and upper respiratory tract infection preceding the skin manifestations were noted in 4 (30.76%) cases. 7 (53.84%) cases had pruritus.

None had drug intake prior to the onset. Neither nail/mucosal involvement nor any atypical variants of pityriasis rosea was seen.

Herald patch was seen in all cases. Herald patch was most commonly situated on the trunk in our study. The median time between the appearance of a herald patch and eruption of widespread lesions was 6 days (range: 3-10 days).

The sites of involvement are shown in [Table 18].

Table 15: Sites of involvement of pityriasis rosea

Sites	No. of patients	Percentage
Face	3	23.07%
Neck	4	30.76%
Arms	10	76.92%
Chest	9	69.23%
Back	10	76.92%
Thighs	8	61.53%

In our study, back and arms (76.92%) was the most common site to be involved, followed by chest (69.23%) and thighs (61.53%).

SEBORRHEIC DERMATITIS

Seborrheic dermatitis was seen in 14 cases (14%) in our study. There were 6 (42.85%) boys and 8 (57.14%) girls. 13 (92.85%) were infants and 1 (7.14%) were above 1 year of age. The youngest child was 1 month old and oldest was 2 years.

Table 16: Age and sex distribution of Seborrheic Dermatitis

Age of onset of seborrheic dermatitis (in months)	Males		Females		Total
	No. of cases	Percentage	No. of cases	Percentage	
0 - 3	4	66.66%	4	50%	8(57.14)
4 - 6	2	33.33%	2	25%	4(28.57)
7-9	0	0	0	0	0
10-12	0	0	1	12.5%	1(7.14)
> 12	0	0	1	12.5%	1(7.14)
Total	6	100.0	8	100.0	14(100)

Among the children with seborrheic dermatitis, 8 children (57.14%) had their belong to first three months of life. Boys had earlier presentation as compared to girls. Sites of involvement: table 20 shows various sites of involvement. In our study, the scalp (100%) was the commonest site to be involved, followed by intertriginous area (64.28%) by face (35.71%), and neck (21%). The trunk was involved in 14.28% of cases.

Table 17: Sites of involvement of seborrheic dermatitis

Site	No. of Patients	Percentage
Scalp	14	100
Face	5	35.71%
Neck	3	21.42%
Trunk	2	14.28%
Intertriginous areas retroauricular area axilla, groin)	9	64.28%

LICHEN NITIDUS

In our study, 7 (7%) children presented with lichen nitidus, with male to female ratio 1.3 : 1.0. The mean age of onset was 6.35 years Extremities were the commonest site to be involved. There was no nail or mucosal involvement. No association with lichen planus was seen in our study.

Table 18: Age & Sex Distribution of Lichen Nitidus

	Male	Female	Total
0 - 4	1 (25%)	1 (33.33%)	2 (28.57%)
5 - 9	2 (50%)	1 (33.33%)	3 (42.85%)
10 - 14	1 (25%)	1 (33.33%)	2 (28.57%)
Total	4 (100%)	3 (100%)	7 (100%)

Table 19: Site Distribution of Lesions in Lichen Nitidus

Site	No. of Patients	Percentage
Upper Limb	7	(100%)
Lower Limb	5	(71.42%)
Trunk	3	(42.85%)

LICHEN STRIATUS

Lichen striatus constituted 5% (5 cases) of all papulosquamous disorders in our study with 0.10% prevalence. There were 3 girls and 2 boys. The male to female ratio was 0.66 : 1.0.

Table 20: Clinical findings of lichen striatus

Sl. No	Age/ sex	Sites involved (linearly)
1	1 year/ Female	Right thigh to Right Knee
2	6 years/ Female	Left side of chest to left arm and fore arm
3	10 years/ Female	Left elbow to forearm extending to dorsum of left hand
4	6 years/ Male	Medial side of Right fore arm to arm
5	10 years / Male	Right Knee to Right Ankle

In this study, lichen striatus was seen in children between 1 to 10 years of age, with a mean age of 6.6 years. Limbs were the common sites to be involved, more commonly the upper limbs (60%). Youngest child was 1 year old and oldest child was 10 year old. All the cases had unilateral presentation and were associated with pruritus. There was no history of atopy in any case in our study.

Table 21: Age and Sex distribution in Lichen Striatus

Sl. No	Male	Female	Total
0-4	0 (0%)	1 (33.33%)	1 (20%)

5-9	1 (50%)	1 (33.33%)	2 (40%)
10-14	1 (50%)	1 (33.33%)	2(40%)
Total	2 (100%)	3 (100%)	5 (100%)

PITYRIASIS RUBRA PILARIS

In this study, 2 children presented with pityriasis rubra pilaris 2% of all papulosquamous disorders. Table 27, shows various clinical findings and types.

Table 22: Clinical findings and type of pityriasis rubra pilaris

Sl. No	Age / sex	Sites involved	Type of PRP
1	8 years/ Female	All limbs, trunk, buttocks	Type III
2	9 years/ Male	Upper and lower limbs	Type IV

None of the children had nail or mucosal involvement. No child presented with ectropion. Erythroderma due to pityriasis rubra pilaris was not seen in our study.

DISCUSSION

Skin diseases are a major health problem in the pediatric age group and are associated with significant morbidity. Dermatological problems constitute at least 30% of all outpatient visits to a pediatrician and 30% of all visits to a dermatology clinic constitute children.

The prevalence of skin diseases amongst children in various parts of India has ranged from 8.7% to 35% in school-based surveys¹, whereas in our study the hospital based prevalence of skin diseases among children was 25.15%.

Papulosquamous disorders, characterized by scaly papules and plaques, are common in childhood. Papulosquamous disorders constituted 6.9% of all pediatric dermatoses in a study from Turkey² and 2.5% in a study by Vetrichevvel³ et al. In our study papulosquamous disorders constituted 2.15% of the pediatric dermatoses. In a study by Pankaj and Das Papulosquamous disorders constituted 4.92% of paediatric dermatosis⁴.

AGE AND SEX DISTRIBUTION

In our study, boys outnumbered girls, i.e. there were 52 (52%) boys and 48(48%) girls, which is similar to Vetrichevvel et al,^[3] were boys (57.5%) outnumbered girls (42.5%).

In a study by Pankaj and Das boys constituted 54 and girls constituted 49. Where male and female ration 1.1: 1.04. In our study male and female ratio 1.08 : 1.0.

Highest percentage was seen among the 5-9 years age group in our study.

FREQUENCY OF VARIOUS PAPULOSQUAMOUS DISORDERS

Vetrichevvel et al.^[7] in their study, found pityriasis rosea (32.4%), as the commonest papulosquamous disorder followed by lichen planus (14.8%), seborrheic dermatitis (11.1%), psoriasis (11.1%), pityriasis rubra pilaris (10.2%), lichen nitidus (9.2%), lichen striatus (6.4%), pityriasis lichenoides chronica (2.7%), acrodermatitis enteropathica and drug induced erythroderma (one case each, 0.9%) and a total of 5 cases of erythroderma due to papulosquamous causes were noted.

In our study, the various papulosquamous disorders in decreasing order of frequency were: psoriasis (30%), Lichen Planus (29%), Seborrheic dermatitis (14%), pityriasis rosea (13%) Lichen nitidus (7%) Lichen striatus (5%), Pityriasis rubra pilaris (2%).

In a study by Pankaj and Das⁴ Seborrheic Dermatitis (44.66%), Psoriasis (25.24%) Lichen striatus (14.56%), Lichen Planus (1.94%), Pityriasis Lichenoideschronica (1.94%), pityriasis rubra pilaris (0.97%). Lichen nitidus (0.97%).^[4] In an Egypt study Pityriasis rosea is commonest followed by Psoriasis.^[5]

There were no cases of pityriasis lichenoides chronica, acrodermatitis enteropathica or erythroderma in our study.

PSORIASIS

Childhood psoriasis is relatively common, but only limited epidemiologic data are available. It presents with lifetime prevalence estimates commonly at 1% to 3% of the general population. Approximately 1/3rd of patients with psoriasis develop diseases during childhood.

During our study period, 4,650 pediatric patients attended our dermatology clinic. Of these, 30 had psoriasis. Thus, the prevalence of childhood psoriasis in our outpatient pediatric population was 0.64%.

In a Turkish study, the prevalence of psoriasis in children was as high as 3.8%. In a study by Gül et al,^[6] the frequency of psoriasis in children was 5.4%. Psoriasis comprised 1.4% of all pediatric dermatoses as seen in patients less than 14 years of age at a referral hospital in South India. Psoriasis prevalence was 1.8% in a study conducted in South Arabia.^[6]

In our study, among the 100 children with papulosquamous disorders, 30% children had psoriasis which was high when compared with Vetrichevvel et al who noted psoriasis in 11.1% children with papulosquamous disorder.^[3]

In a study conducted in South Arabia which showed prevalence of 22.6% of childhood psoriasis among papulosquamous disorders is similar to our study.^[6]

It is commonly found that girls with psoriasis outnumber boys (2:1). Reports from India and Australia have documented equal sex predisposition.^[7]

In our study, there were 14 (46.66%) boys and 16 (53.33%) girls with a male to female ratio of 0.8:1.0

which was comparable with Morris et al.^[8] who observed male to female ratio of 0.9:1.0. A study from Denmark.^[9] has shown a female preponderance, whereas in a study by Kumar et al.^[10] the male to female ratio was 1.09: 1.0.

In our study, a majority of patients (89%) belonged to the age group of 6- 14 years which was similar to Kumar et al.^[10]

The age of onset ranged from 2 years to 13 years in our study. The mean age of onset was 7.45 years. In the study by Kumar et al.^[10] the age of onset ranged from 4 days to 14 years of age. The mean age of onset was 8.1 ± 2.1 years in boys and 9.3 ± 2.3 years in girls. In a study from Denmark.^[9] study the mean age of onset was 8.1 years.

The peak age of onset in childhood psoriasis varied in different studies. In our study the peak age of onset in boys was in the 5–10 year age group, whereas the majority of girls had an onset of psoriasis between the ages of 10 to 14 years, similar to a study by Kumar et al.^[10] and a study from Denmark.^[9] In contrast to the above studies, Morris et al reported a peak of onset at the ages of 0 to 2 years.

In our study the scalp was the most common initial site affected in 14 (46.66%) cases, followed by the lower extremities 7(23.33%), upper extremities 6(20%) and trunk 3(10%). The two most common sites involved in various studies^{10,8,9} were legs and scalp, diaper area and scalp; and scalp and face respectively.

Classical plaque psoriasis was the most frequent type of psoriasis at the time of presentation.^[23] (76.66% patients), as observed in almost all previous studies.^[11,12] although the percentage varies. In contrast, guttate psoriasis was the most common type of psoriasis observed in Denmark.^[9] and infection was reported to be the most common provoking/precipitating factor. Moreover, genetic and environmental factors may also play an important role, so that children in India tend to manifest the established plaque form of the disease rather than the transient guttate form.

The palms and soles have been reported to be uncommon sites of psoriasis involvement in children; which constituted 2 cases (6.66%). In the study by Kumar et al.^[10] the soles were the most frequent site of onset after the legs and scalp, whereas Morris⁸ et al reported plantar involvement in only 4%.

As generalized pustular psoriasis, arthropathy, and erythroderma are rare in childhood, we found no patients in these categories.

Nail involvement was noted in 23.33% of our patients, and pitting was the most common finding, which is comparable to a study from Kuwait⁹ where it was 37.8% and a study by Kumar et al.^[10]

Variable familial incidence has been reported in childhood cases of psoriasis, ranging from 9.8% to 89%. We found a positive family history in only 6.66% of patients, comparable with Kumar et al, who found a positive family history in 4.5% of their patients. A positive family history of psoriasis was obtained in 28% of patients in a study from Kuwait

and in 9.8% of patients in a study by Nanda et al and 8% in Yan Wv.^[11-18]

In agreement with other reports¹², pruritus was the most frequently (80%) experienced symptom in our study.

In our study, Koebnerization was observed in 12 (40%) patients, whereas Kumar et al.^[10] observed it in 27.9% of their patients. Psoraitic Arthropathy and Erythrodermic psoriasis were not observed in our study.

LICHEN PLANUS

Lichen planus is a unique common inflammatory disorder of unknown etiology. It is uncommon in children and extremely rare in infants with most reports from the Indian subcontinent, suggesting that children from this region are more susceptible.^[14] The frequency of lichen planus varies from 2.1% to 11.2% in the pediatric population.^[15-18] The prevalence of childhood lichen planus in our total number of pediatric dermatology patients was 0.62% which was low when compared with the study by Handa et al.^[15] where children with lichen planus formed 2.5% of the total number of pediatric dermatology.

In our study, lichen planus was the 2nd most common papulosquamous disorder with a percentage of 29%. In the study by Vetrichevvel et al.^[7] lichen planus was the second commonest, forming 14.8% of the various papulosquamous disorders. In study of Pankar and Das Lichen planus constituted 1.94% 1. In a study by Ravi Kiran et al.^[19] Lichen planus constituted 17.7% of all papulosquamous disorders.

In most studies.^[20] the genders were equally affected, whereas in the study by Sharma and Maheshwari.^[16] boys outnumbered girls by a ratio of almost 2 : 1.

In our study the male to female ratio was 1.6:1.0, whereas the study by Handa et al.^[15] where the male to female ratio was 1.1 : 1.0. However, Kumar et al.^[17] reported that more girls were more commonly affected. Our study male, female ratio is similar Nichal and Kharkar.

In our study, their ages ranged from 3 years to 14 years, with a mean age of 9.06 years, which was consistent with other studies.^[21] where the mean age ranged from 7 to 11.3 years. While reported mean age is dependent on the inclusion criteria, it is clear that lichen planus is particularly uncommon in infants and preschool-aged children.^[22]

In our study the age of onset ranged from 3 years to 12 years with a mean age of onset of 7.68 years which was little higher than that noted by Handa et al.^[15] where the age at onset was between 8 months and 12 years (mean, 7.1 years). In other major published studies⁷⁰ the age of onset varied from 5 months to 13 years.

The most common clinical type of lichen planus in our patients was the classic form, in 24 (82.9%) children, similar to earlier studies.^[17]

Linear lichen planus occurred in three children (10.3%) in our study which was comparable with Kara et al.^[22] who noted linear lichen planus in three children (8%). The high incidence of linear lesions in

children may be due to increased tendency of children to traumatize themselves leading to Koebnerization.

In our study, palmoplantar involvement was seen in one (3.4%) child, comparable with Handa et al.^[15] who observed palmoplantar involvement in two (2.3%) children. Palmoplantar in ravikiran et al is 7.8%.

Pruritus was present in 96.55% of our study patients. This finding is consistent with those of other authors who reported pruritus with a frequency of 96%, 100% and 87% respectively. Therefore, it can be considered a common symptom in children.^[20]

In our study, seventeen (58.6%) children demonstrated the Koebner's phenomenon. Koebner's phenomenon is considered to be common in children with lichen planus, varying between 24 and 28% in various studies.^[18] However, it was observed in only 6% patients in the study by Kanwar and De.^[23]

In our study, the most common site of onset has been the limbs (25 patients, 86.2%), more commonly the lower limbs (55.17%). Limbs have been the site of onset in 41-70% patients across studies.^[20] In study by Ravikiran et al.^[19] lower limb is most the common site of onset which is 59.3% and upper limbs constitutes 22.4%.

The involvement of skin alone was observed in 26 (89.6%) children, and both skin and mucosa were involved in 3 (10.3%) children which was comparable with Handa et al.^[15] who observed the involvement of skin alone in 75 (86.2%) children, and both skin and mucosa involvement in 11 (12.6%) children.

Although lichen planus is usually sporadic, there is a familial form of lichen planus. In most of the studies¹⁸, no familial lichen planus was observed, while Nanda et al.^[20] reported one girl with classic lichen planus whose father had also similar complaints. No family history of lichen planus was noted in our study.

PITYRIASIS ROSEA

Pityriasis rosea is an acute, self-limiting papulosquamous disorder of unknown etiology²⁴ with a highly characteristic morphology and clinical course.

In a study to determine the pattern of dermatoses in children in south India, pityriasis rosea constituted 0.2%¹, whereas in our study, the prevalence of pityriasis rosea among all pediatric dermatoses was i.e. 0.27%.

In a clinical study of papulosquamous diseases in children by Vetrichevvel et al, 3 PR was the most common papulosquamous disorder, i.e. about 32.4%. In our study pityriasis rosea was the constituted seen in 13% children.

In our study there were 7 boys and 6 girls; male to female ratio was 1.16:1.0, whereas in a study by Gündüz et al.^[24] there were 27 boys and 24 girls; male to female ratio was 1.1:1.0.

In our study, the age at presentation ranged from 6 years to 14 years. Andrew et al reported the youngest patient with pityriasis rosea to be 3 months old. Out

of 13 children with pityriasis rosea, 8(61%) cases belonged to the age group of 6-11 years, comparable with Gündüz et al²⁴ who observed a peak at 6-11 years (49%).

SEBORRHEIC DERMATITIS

In a survey by Nanda et al among 10000 consecutive pediatric dermatology patients in Kuwait¹⁰, infantile seborrheic dermatitis prevalence was 3.1%. In a survey of common cutaneous lesions in healthy infants at the well baby clinic, 13.2% of the infants had seborrheic dermatitis, and commonly during 2nd month of life.^[25]

LICHEN NITIDUS

Lichen nitidus is a clinically and pathologically distinct inflammatory disorder commonly occurring in children.^[26] In our study, 7 (7%) children presented with lichen nitidus which was little low when compared with Vetrichevvel et al.^[7] who noted lichen nitidus in 9.2% children.

In our study, the mean age of onset was 6.35 years which was comparable with Lapins et al, ²⁷ where the mean age of onset was 7 years for males and 13 years for females.

LICHEN STRIATUS

Lichen striatus is a benign, self-limiting, linear, inflammatory dermatosis of unknown etiology that usually affects children between 5 and 15 years of age.^[28]

Lichen striatus constituted 5% (5 cases) of all papulosquamous disorders in our study, which was low as compared with Vetrichevvel et al.^[3] who noted lichen striatus in 6.4% children. Prevalence of Lichen striatus is 0.10% noted in our study.

In our study, male to female ratio was 0.66:1.0, comparable with Patrizi et al.^[29] who noted male to female ratio of 0.5: 1.0.

PITYRIASIS RUBRA PILARIS

In our study, 2 children presented with pityriasis rubra pilaris, thus accounting for 2% of all papulosquamous disorders which was very low when compared with Vetrichevvel et al.^[3] who noted pityriasis rubra pilaris in 10.2% children with papulosquamous disorder. All the cases were females in our study.

One patient was female 8 years old with type 3 pityriasis rubra pilaris and one was male 9 years old with type 4 pityriasis rubra pilaris presentation.

Palmoplantar hyperkeratosis is a cardinal feature of juvenile pityriasis rubra pilaris it is seen in female patient with type 3 pityriasis rubra pilaris. It occurs in 79 to 100 % of all sub types and is regarded as primary diagnostic criteria. Allison et al.^[30] reported half of there patient had palmoplantar involvement. pityriasis rubra pilaris sandal was not found in our patients probably because of small number of cases.^[30]

CONCLUSION

1. Papulosquamous disorders constituted 2.15% of the pediatric dermatoses during the study.

- Papulosquamous disorders were commonly seen in children between five to nine years of age and boys were commonly affected.
- Of the various papulosquamous disorders, we observed only seven conditions in our study i.e. lichen planus, pityriasis rosea, seborrheic dermatitis, psoriasis, pityriasis rubra pilaris, lichen striatus, lichen nitidus.
- Psoriasis was the most common disorder observed, closely followed by Lichen planus, seborrheic dermatitis and others.
- Chronic plaque psoriasis was the most common type of psoriasis.
- Classical Lichen Planus is the most common type.
- There were no drug induced papulosquamous disease / erythroderma observed during the period.
- Most of these disorders are curable, however few of them recur.

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