

**Original research article****A Cross Sectional Descriptive Study of Various Papulosquamous Disorders and their Dermascopy in Children****Dr. Smita Prasad<sup>1</sup>, Dr. Pankaj Tiwari<sup>2</sup>, Dr. Anupama Singh<sup>3</sup>**<sup>1</sup>Assistant Prof. Department of Dermatology, PMCH Patna<sup>2</sup>Assistant Prof. Department of Dermatology, PMCH Patna<sup>3</sup>Assistant Prof. Department of Dermatology, PMCH Patna**Corresponding Author: Dr. Smita Prasad****Abstract**

**Background:** 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.

**Methodology:** This study duration of Six months, at the outpatient Department of Skin and STD, at Patna medical college and Hospital, Patna. Total 102 consecutive children (up to 13 years) with papulosquamous disorder were included in the study.

**Conclusion:** Lichen planus was the most common papulosquamous disorder observed. Chronic plaque psoriasis was the most common type of psoriasis followed by guttate type. Type IV pityriasis rubra pilaris was the most common type.

**Keywords:** Papulosquamous, childhood, psoriasis, lichen planus.

**Introduction**

The epidemiology of skin diseases give us information about prevalence, age and sex differences in affected groups, and their regional distribution. Sir Richard Doll has pointed out that “epidemiology is the simplest and most direct method of studying the causes of diseases in humans and many contributions have been made by studies that have demanded nothing more than an ability to count, think logically and have an imaginative idea<sup>1</sup>.” Although epidemiology is often perceived as a novel addition to dermatology, the first epidemiologic discovery can be traced back to 1746, when James Lind concluded that scurvy in sailors was related to dietary factors<sup>1</sup>. Skin diseases are a major health problem in the pediatric age group and are associated with significant morbidity. Skin ailments in children are common and are either transitory or chronic and recurrent<sup>2</sup>. 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<sup>3</sup>. 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<sup>3</sup>. 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. 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.

### **Objectives**

To study the clinical patterns of various papulosquamous disorders and their dermoscopy in children.

### **Review of Literature**

Papulosquamous disorders are a heterogeneous group of disorders whose etiology primarily is unknown. They consist of a diverse group of inflammatory conditions of the skin characterized by an eruption that exhibit papule and squamous components<sup>4</sup>. In Latin, papula means pimple and squames means scales. They are common in childhood. These disorders account for a large number of patients in both pediatric dermatology and the pediatric primary care practice. The prevalence of papulosquamous disorders varies from 2.5% to 10% in various studies<sup>5,6,7</sup>. In International Classification of Diseases-10: Papulosquamous disorders are coded (L40-L45). even in childhood the most frequent presentation pattern of psoriasis is the plaque type. Differences can reside in the age-related frequency of onset. From this viewpoint, lichen striatus, albeit not exceedingly rare in the adult, seems to be eminently a pediatric disease<sup>8</sup>. Lichen planus is rare in children, but all the adult variants of the disease can be observed. All these papulosquamous disorders have classic, distinct features. Still, they can appear confusingly similar in atypical presentations, which are common. The diagnosis must not only be right, but also complete. When uncertain of the diagnosis, it may be useful to perform a microscopic examination of scales on the skin, using a potassium hydroxide preparation. Because the lesions of syphilis resemble those of many other disorders, a Rapid Plasma Regain test needs to be performed, when syphilis is at all possible<sup>9</sup>. Seborrheic dermatitis can occur during infancy (infantile seborrheic dermatitis) or in postpubertal individuals (adolescent or adult seborrheic dermatitis).

Infants suffering from infantile seborrheic dermatitis do not develop adult-type seborrheic dermatitis more frequently<sup>10</sup>. An uncommon generalized form in infants may be linked to immunodeficiencies<sup>11</sup>. Seborrheic dermatitis is now established as a possible marker of early HIV infection. Infantile seborrheic dermatitis affects both sexes and is more common within the first 4-6 weeks of life. It generally disappears within a few months, even without treatment. The link between *Malassezia furfur* and dandruff was first proposed by Malassez in 1874<sup>5</sup>, whereas seborrheic dermatitis was described by Unna in 1877<sup>12</sup>. In most cases, the disease begins in the first month of life and clears by the fourth month. Infantile seborrheic dermatitis usually manifests with erythema on the scalp, in the diaper area, skin folds and occasionally the face<sup>5</sup>. On the scalp<sup>14</sup>, the vertex "cradle cap" and frontal areas are the sites of predilection, present as yellowish, thick, greasy, adherent scales on the vertex. Seborrheic layer is more prone for the development of seborrheic dermatitis<sup>14</sup>. It is distinctive viral exanthem of childhood that is characterized by papular or papulovesicular lesions that are most prominent on the face, buttocks and extremities<sup>15</sup>. It is commonly seen in children of 2-6 years age<sup>16</sup>. In 1955, an Italian Ferdinando Gianotti<sup>5,17</sup> described a disease characterized by lymphadenopathy, hepatitis, and an erythematous papular eruption symmetrically distributed on the face, buttocks, and extremities. In late 1950s the eponym Gianotti-Crosti syndrome was used. The disease appears to be distributed worldwide. Most hepatitis B associated cases have been reported in Italy and Japan. In children, there is neither an ethnic nor sexual predilection. There have been only scattered case reports in adults. In a review of 308 cases a slight male predominance and a mean age of onset of 2 years (6 months– 14 years) was observed<sup>5</sup>. 90% cases occur before 4 years of age<sup>17</sup>. Most cases occurred in the spring and summer months. Molluscum contagiosa, viral exanthem (nonspecific), scarlet fever, Kawasaki syndrome, measles and rubella are important differential diagnosis. The other differential diagnosis to be considered are : acute prurigo, scabies and other ectoparasitic infestations, granuloma annulare, atopic dermatitis, lichen planus, lichenoid drug eruption, lichen striatus, lichen nitidus, histiocytosis of Langerhans' cells, pityriasis lichenoides et varioliformis acuta (PLEVA), pityriasis rosea, papular urticaria, erythema multiforme, Henoch-Schönlein purpura.

### Material and methods

This is cross sectional study, Department of Skin, Study duration of Six months. Dermoscopy was done in all the patients. The pediatric patients attending the outpatient at Patna medical college and Hospital Patna, Bihar. were examined for papulosquamous disorders. 102 consecutive children with papulosquamous disorder were included in the study. Children above 13 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.

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 and two successive pediatric patients with papulosquamous disorders attending the Skin and STD Department, pmch patna. The study period was of Six months, duration. 17,866 outpatients attended the department of Skin and STD, of which 4,475 (25.04%) were children.

**Table 1: Percentage of pediatric patients**

Total No. of outpatients attending dept of Skin and STD	No. of pediatric patients attending dept of Skin and STD	Percentage
17 866	4,475	25.04%

Among the 4,475 children, 102 had papulosquamous disorders.

**Table 2: Percentage of pediatric patients with a papulosquamous disorder**

Total No. of pediatric patients attending dept of Skin and STD.	No. of pediatric patients with apapulosquamous disorder	Percentage
4,475	102	2.28%

Papulosquamous disorders constituted 2.28% of the pediatric dermatoses during the study.

There were 46 (45.1%) boys and 56 (54.9%) girls. Male to female ratio was 0.8:1.0 and their age -sex distribution .

**Table 3: Papulosquamous disorder**

Age in years	Male (%)	Female (%)	Total (%)
<b>0-4</b>	14 (30.43)	16 (28.57)	30 (29.41)
<b>5-9</b>	19 (41.30)	21 (37.50)	40 (39.22)
<b>10-13</b>	13 (28.27)	19 (33.93)	32 (31.37)
<b>Total</b>	46 (100)	56 (100)	102 (100)

The youngest patient was 1 month old and the oldest 13 years. Highest percentage was seen among the 5-9 years age group. During our study period, 4,475 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 0.65%. In this study, among the 102 children with papulosquamous disorders, 29(28.43%) children had lichen planus.

**Table 4: Site of onset of lichen planus**

Site of onset	No. of cases	Percentage
Upper extremities	17	58.6
Lower extremities	7	24.1
Trunk	5	17.3
<b>Total</b>	29	100

Only cutaneous involvement was observed in 26 (89.6%) children, both skin and mucosa were involved in 3 (10.3%) children. Only lips were involved in one and buccal mucosa in two 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 26 patients (89.6%). Seventeen (58.6%) children had the Koebner phenomenon. Drug-induced, familial lichen planus was not found in our study. None had associated systemic diseases, The hospital-based prevalence of childhood psoriasis was 0.38%. In this study, among the 102 children with papulosquamous disorder, 17(16.67%) children had psoriasis.

Lichen striatus constituted 3.92% (4 cases) of all papulosquamous disorders in our study. There were 3 girls and 1 boy. The male to female ratio was 0.3:1.0. In this study, lichen striatus was seen in children between 4 to 12 years of age, with a mean age of 8 years. Limbs were the common sites to be involved, more commonly the upper limbs (75%). various clinical findings. In our study, 2 (1.96%) children presented with lichen nitidus, with equal sex distribution. The mean age of onset was seven years.

**Table 5: Clinical findings of lichen nitidus**

Sl.no	Age/sex	Sites involved	Koebner's phenomenon
1	8 years/ male	Both forearms and hand	Present
2	6 years/ female	Upper and lower extremities	Present

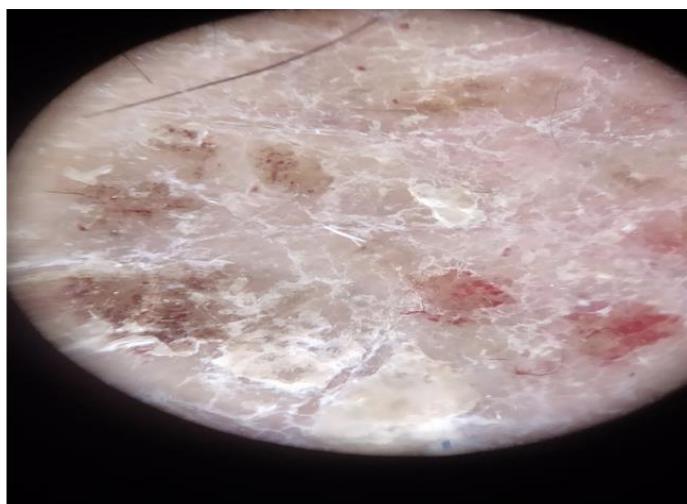
Extremities were the commonest site to be involved. Koebner's phenomenon was seen in both the cases. There was no nail or mucosal involvement. No association with lichen planus was seen in our study.



**Figure 1: Lichen planus**



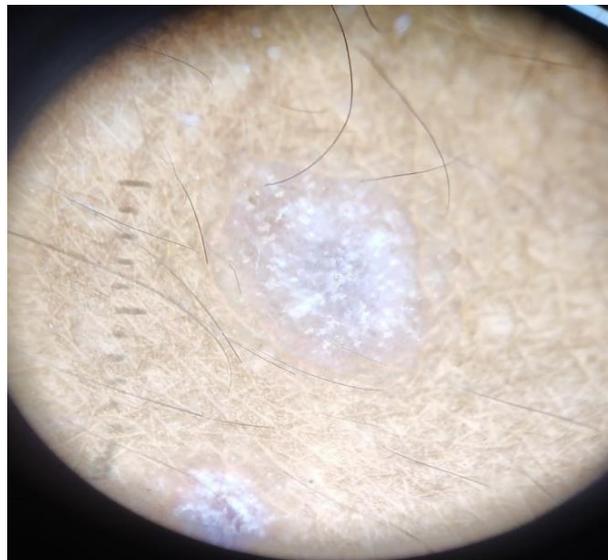
**Figure 2: Oral lichen planus**



**Figure 3: Dermascopy of psoriasis**



**Figure 5: Lichen Planus**



**Figure 6: Lichen Planus**

### **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. In our study, the various papulosquamous disorders in decreasing order of frequency were: Lichen planus (28.43%), Pityriasis rosea (25.49%), Seborrheic dermatitis (19.61%), Psoriasis vulgaris (16.67%), Lichen striatus (3.92%), Pityriasis rubra pilaris (3.92%), and Lichen nitidus (1.96%). Papulosquamous disorders constituted 6.9% of all pediatric dermatoses in a recent study from Turkey<sup>6</sup> and 2.5% in a study by Vetrichevvel<sup>7</sup> et al. In our study papulosquamous disorders constituted 2.28% of the pediatric dermatoses. In our study, girls outnumbered boys, i.e. there were 46 (45.1%) boys and 56 (54.9%) girls, which was in contrast to that seen in a similar study by Vetrichevvel<sup>7</sup> et al, where boys (57.5%) outnumbered girls (42.5%). Highest

percentage was seen among the 5-9 years age group in our study. In our study, the various papulosquamous disorders in decreasing order of frequency were: Lichen planus (28.43%), Pityriasis rosea (25.49%), Seborrheic dermatitis (19.61%), Psoriasis vulgaris (16.67%), Lichen striatus (3.92%), Pityriasis rubra pilaris (3.92%), and Lichen nitidus (1.96%). There were no cases of pityriasis lichenoides chronica, acrodermatitis enteropathica or erythroderma in our study. 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<sup>20</sup> The frequency of lichen planus varies from 2.1% to 11.2% in the pediatric population<sup>18,19,21,22</sup>. The prevalence of childhood lichen planus in our total number of pediatric dermatology patients was 0.65% during our study of one year duration, which was low when compared with the study by Handa<sup>18</sup> et al where children with lichen planus formed 2.5% of the total number of pediatric dermatology patients during 12.5 year period of observation. In our study, lichen planus was the commonest papulosquamous disorder with a percentage of 28.43%. In the study by Vetrichevvel<sup>7</sup> et al, lichen planus was the second commonest, forming 14.8% of the various papulosquamous disorders. In most studies<sup>22,23</sup>, the genders were equally affected, whereas in the study by Sharma and Maheshwari<sup>19</sup>, boys outnumbered girls by a ratio of almost Pityriasis rosea is an acute, self-limiting papulosquamous disorder of unknown etiology<sup>24</sup> 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%<sup>3</sup>, whereas in our study, the incidence of pityriasis rosea among all pediatric dermatoses was higher i.e. 0.6%. In a clinical study of papulosquamous diseases in children by Vetrichevvel<sup>7</sup> et al, PR was the most common papulosquamous disorder, i.e. about 32.4%. In our study pityriasis rosea was the second common condition seen in 26 (25.49%) children. In our study there were 11 boys and 15 girls; male to female ratio was 0.7:1.0, whereas in a study by Gündüz<sup>24</sup> et al, 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 7 months to 13 years. Andrew et al reported the youngest patient with pityriasis rosea to be 3 months old<sup>25</sup>. Out of 26 children with pityriasis rosea, 14(53.8%) cases belonged to the age group of 6-11 years, comparable with Gündüz<sup>24</sup> et al who observed a peak at 6-11 years(49%). In temperate climates, there is an increased incidence in the autumn and winter months<sup>26</sup>. In our study, an increased incidence in the autumn (26.92%) and winter (26.92%) months was observed which was similar to that observed by Vetrichevvel<sup>7</sup> et al, wherein pityriasis rosea occurred most commonly in winter months. Gündüz<sup>24</sup> et al also observed an increased incidence during winter 35% and autumn 23%.t 2 : 1. Lichen nitidus is a clinically and pathologically distinct inflammatory disorder commonly occurring in children<sup>27</sup>. In our study, 2 (1.96%) children presented with lichen nitidus which was very low when compared with Vetrichevvel<sup>7</sup> et al who noted lichen nitidus in 9.2% children. In lichen nitidus, the male/female ratio >1<sup>27</sup>. In our study, the male/female ratio was 1:1. In a study by Zapata<sup>28</sup> et al, predilection for males (4:1 where the mean age of onset was 7 years for males and 13 years for females. Extremities were the most common site to be involved in our study. Zapata<sup>28</sup> et al noted the trunk and upper limbs as the most frequently

affected body segments. No association with lichen planus was seen in our study. Koebner's phenomenon was seen in both the cases. There was no nail or mucosal involvement. No cases of lymphomatoid papulosis, parapsoriasis, pityriasis lichenoides, and Gianotti-Crosti syndrome were observed. This may be due to the fact that our study was of short duration.

### Conclusion

Papulosquamous disorders constituted 2.28% of the pediatric dermatoses during the study. Papulosquamous disorders were commonly seen in children between five to nine years of age and girls 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, Lichen planus was the most common disorder observed, closely followed by pityriasis rosea, seborrheic dermatitis and others.

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