

## Pattern of Pediatric Dermatoses in a Tertiary Care Centre of Eastern India

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### ABSTRACT

**Background:** Pediatric dermatology is a sub-speciality of dermatology that deals with skin diseases in the pediatric age group. Presentation of various skin diseases and their treatment approach also differs according to the age of presentation. The present study aims to provide an overview regarding the pattern of pediatric dermatoses in tertiary care centre in Eastern India.

**Methods:** This hospital based cross sectional study was conducted in the department of dermatology of IGIMS, Patna over a period of one year (January 2018 to December 2019). Patient aged upto 14 years with the diagnosis of primary skin conditions were included in the study after clinical examination and required evaluation.

**Results:** A total of 1000 patients and 1016 dermatoses were included in the study. Infections and infestations (51.08%), eczematous diseases (13.19%) and pigmentary disorders (10.43%) were the three major disease groups representing significant number of cases from the study population. Of the bacterial infections impetigo was the predominant one contributing to 10.13% cases of study population. Pompholyx and seborrhoeic dermatitis were the two most common entities among the eczematous disease group. Vitiligo was the commonest disorder of pigmentation seen in 41 (4.03%) cases.

**Conclusions:** Highest number of cases was of infections and infestations of which impetigo and scabies were the commonest in each group respectively. We noted more multibacillary leprosy cases than paucibacillary leprosy in our study among patients with childhood leprosy.

**Keywords:** Pediatric Dermatoses, Eastern India, Impetigo, Pompholyx.

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### INTRODUCTION

Pediatric dermatology is a sub-speciality of dermatology that deals with skin diseases in the pediatric age group. Approximately 30% of all visits to a dermatologist involve children.<sup>1</sup> Just as the physiology of skin changes across the span of life, presentation of diseases and their treatment approach also differs according to the age of presentation. For example, genodermatoses often presents in the early years of life and certain dermatoses are more commonly encountered in the younger population. The pattern of skin diseases is known to differ in various countries of the world and in different regions of the same country. Thus information regarding the local prevalence and pattern of various skin disease in pediatric age group aids in diagnosis and management of those conditions. In this context the present study was carried out in a tertiary care hospital in eastern India.

### METHODS

This hospital based cross sectional study was conducted in the department of dermatology of IGIMS, Patna over a period of one year. All patient aged upto 14 years with the diagnosis of primary

skin conditions visiting skin OPD in from January 2018 to December 2019 were included in the study after informed consent from parents. Patients having more than one dermatoses were also included. Detailed history taking and clinical evaluation was done. The diagnoses were grouped into 12 major categories, which were infections and infestations, eczematous diseases, keratinization and papulosquamous diseases, hypersensitivity disorders, disorders of skin appendages, nevi and skin tumors, connective tissue diseases, genodermatoses, bullous diseases, nutritional diseases and the miscellaneous group. Appropriate investigations like KOH, gram stain, AFB stain and histopathological examination were done whenever necessary. Findings were recorded in a predesigned proforma. The results were entered and tabulated in MS-excel sheet and further analysis was done.

### RESULTS

A total of 1000 patients were included in the study, of which 543 were male and 457 were female. Male to female ratio was 1.18:1.

Patients were divided in 3 age groups 0-5 yrs, 5-11 yrs, 11- 14 yrs. Majority of the patients belonged to the school going age group that is 5- 11 yrs (480, 48%), followed by 11-14 yrs (312, 31.2%) and 0-5 yrs (208, 20.8%). [Figure 1]

Figure 1: Age distribution of patients

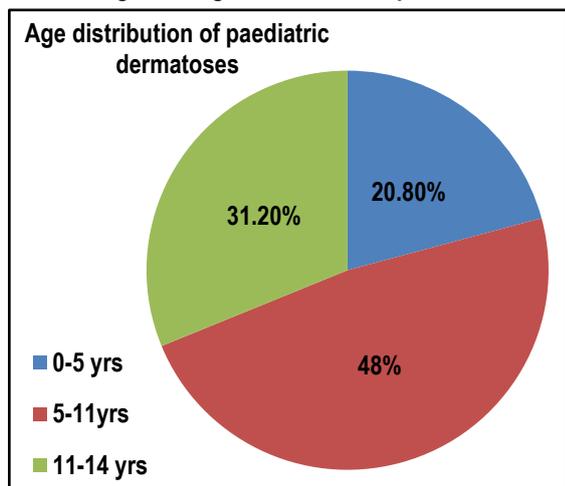
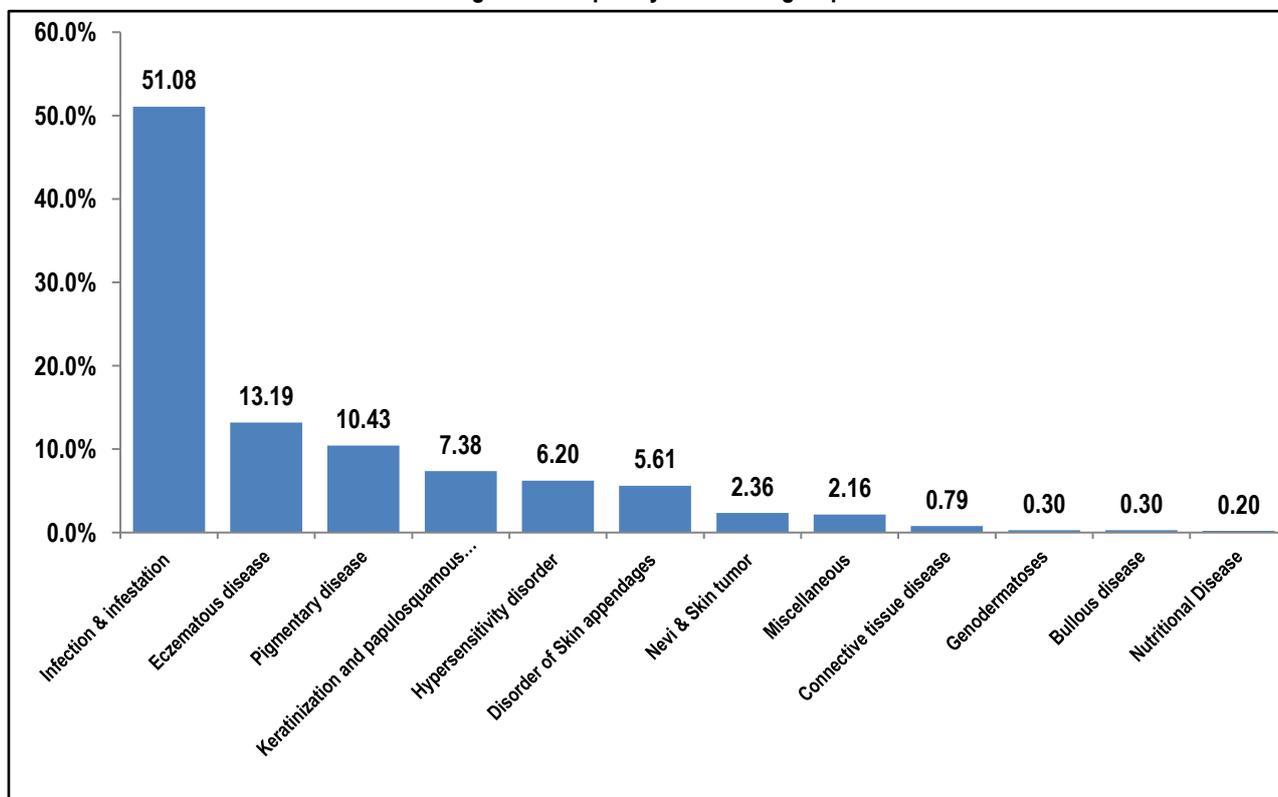


Table 1: Pattern of Dermastoses in the study population

| Disease Group                              | n    | %      |
|--|------|--------|
| Infections and Infestations                | 519  | 51.08% |
| Eczematous diseases                        | 134  | 13.19% |
| Pigmentary diseases                        | 106  | 10.43% |
| Keratinization and Papulosquamous diseases | 75   | 7.38%  |
| Hypersensitivity disorders                 | 63   | 6.20%  |
| Disorders of Skin appendages               | 57   | 5.61%  |
| Nevi & Skin tumors                         | 24   | 2.36%  |
| Connective tissue diseases                 | 8    | 0.79%  |
| Genodermatoses                             | 3    | 0.30%  |
| Bullous diseases                           | 3    | 0.30%  |
| Nutritional diseases                       | 2    | 0.20%  |
| Miscellaneous                              | 22   | 2.16%  |
| Total                                      | 1016 | 100%   |

Figure 2: Frequency of disease group

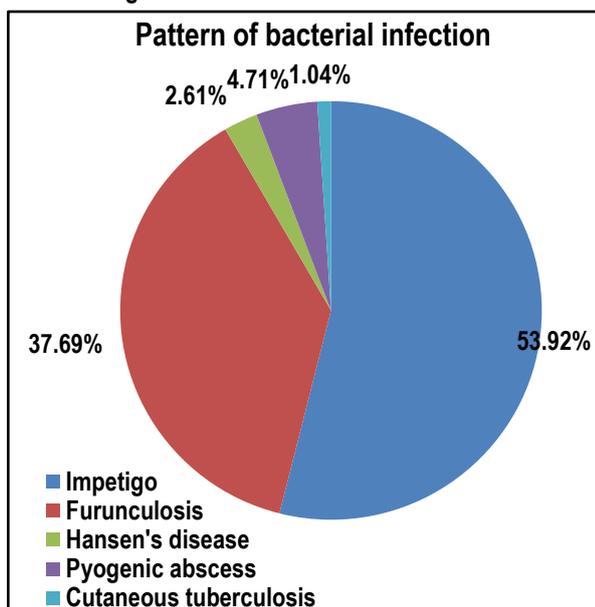


Altogether 1016 of dermatoses were noted in 1000 patients. Infections and infestations (519, 51.08%) were the most commonly encountered dermatoses in our study, followed by eczematous diseases (134,13.19%) and pigmentary disorders (106, 10.43%). [Figure 2] Among the infective dermatoses (372), bacterial infections (191, 51.34%) were highest in number followed by fungal (134, 36.02%) and viral infections (47, 12.63%). Dermatophytosis (97, 72.38%) attributed the major bulk of cases of fungal infections. Pityriasis versicolor (27, 20.14%) and candidiasis (10, 7.46%) were the other superficial fungal infections recorded in the study. Most prevalent viral infection was

Molluscum contagiosum (14, 1.37%) followed by wart (10, 0.98 %) and pityriasis rosea (8, 0.78%). Scabies (113, 11.12%) and pediculosis (34, 3.34 %) were the two entities in the infestation group.

Of the bacterial infections impetigo was the predominant one contributing to 103(10.13%) cases. Only primary pyoderma was included in the study. Other bacterial infections were furunculosis (72, 7.08%) and pyogenic abscess (5, 0.49%). Lepromatous leprosy (7,0.68%) was common than Tuberculoid Leprosy (2) among childhood leprosy cases. 2 cases of Scrofuloderma were noted in cutaneous tuberculosis. [Figure 3]

Figure 3: Pattern of bacterial infection



Pattern of eczematous dermatoses revealed pompholyx (35, 3.44%) as the most common one followed by seborrhoeic dermatitis (27, 2.65%) and pityriasis alba (24, 2.36%). Keratinisation and papulosquamous diseases consisted 7.38% (75) cases of study population, of which psoriasis (27, 2.65%), lichen

planus (21, 2.06%) and ichthyosis (11, 1.08%) were the three disorders with significant proportion of cases and keratosis pilaris (7, 0.68%), lichen nitidus (5), lichen striatus (3), pityriasis rubra pilaris (1) were among the less frequently encountered diseases in this group. Acne vulgaris (27, 2.65%) contributed to maximum number of cases in disorders of skin appendages, presenting in 11- 14 yrs age group. Other disorders in decreasing order of frequency were miliaria (19, 1.87%), alopecia areata (9, 0.88%) trichotillomania (2, 0.19%). Papular urticaria (32, 3.15%) was the most common entity among hypersensitivity disorders followed by acute urticaria (18, 1.77%), insect bite reaction (10, 0.98%) and chronic urticaria (3, 0.29%). Vitiligo was the commonest disorder of pigmentation seen in 41 (4.03%) cases followed by post inflammatory hypopigmentation and hyperpigmentation (37, 3.64%). Connective tissue diseases were noted in 8 patients (0.79%), 5 of them had morphea and 3 female patients were diagnosed with SLE. In Nevi and skin tumor group, highest number of cases were attributed to infantile hemangioma (7) followed by melanocytic nevus (5). Linear verrucous epidermal nevus, nevus depigmentosus, pyogenic granuloma had 3 cases each and there was 2 cases of port wine stain and 1 case of syringoma. Among Genodermatosis, 2 patient had neurofibromatosis type 1 and 1 patient had tuberous sclerosis. 3 cases of epidermolysis bullosa and 2 cases of acrodermatitis enteropathica were noted in our study. Diseases included in the miscellaneous group were milia (8, 0.78%), Henoch – Schonlein Purpura (4, 0.39%), PMLE (3, 0.29%), erythema nodosum (2), FDE (2), aphthous stomatitis (1), erythema toxicum neonatorum (1) and urticaria pigmentosa (1).

## DISCUSSION

Considering the significant pool of cases in dermatology outpatient department, several authors from different corner of the country

have carried out studies regarding the pattern of pediatric dermatoses which shows similarities as well as certain regional differences. Our study reveals the findings from a tertiary care centre in Bihar, which showed a male predominance in the study population with a ratio of 1.18 :1, alike studies by Roy et al.<sup>2</sup> and Sacchidanand S et al.<sup>3</sup> Similar to study by Nagarajan et al.<sup>4</sup>, our study also found school going age group (5-11 yrs) forming the major part of the study population. Whereas Sharma et al.<sup>5</sup> reported highest representation of cases among the adolescent population. Researches outside India<sup>6-8</sup> have often documented eczematous diseases to be commonest among paediatric dermatoses but Infections and infestations are certainly more prevalent in our part of the world supported by studies from North<sup>9,10</sup> South<sup>3,11</sup>, North eastern region<sup>4</sup> of the country. Frequency of occurrence ranged from 33.47% to 50.9% in these studies. In our study infections and infestations contributed to 51.08% of cases of which highest number of cases were of bacterial infections followed by fungal and viral infections. This distribution pattern of infectious diseases was at par with studies by Balai et al.<sup>12</sup> and Kartikayen et al.<sup>13</sup> Fungal and viral infections were found more in number than other infections by Reddy VS et al.<sup>11</sup> and Ngarajan et al.<sup>4</sup> respectively. Among bacterial infections impetigo was most frequently encountered in our study as wells as by many other authors.<sup>11,12,14</sup> Tropical climate, poor hygiene, breach in the skin often predisposes to this kind of bacterial infection. Majority of leprosy patients in our study had a diagnosis of BL or LL whereas Singh et al.<sup>15</sup> and Singhal et al.<sup>16</sup> found BT leprosy to be commoner in their study population. High endemicity of leprosy in our region might contribute to this type of presentation. Just like adult dermatophytosis these days, pediatric dermatophytosis is becoming a challenge for the treating dermatologist because of its widespread and atypical presentation. In our study 9.54 % cases of the study population were of dermatophytosis. Study by Reddy et al<sup>17</sup> from South India found a higher percentage (16.2%) of dermatophytosis cases in their study population. Pityriasis versicolor cases were 2.65% of the study population which was slightly lower than studies by other authors<sup>3,11,13,18</sup> that ranged from 3.3 -8.5%. Molluscum contagiosum and wart were the two most common viral infections in our study. Similar observations were made in study from North Kerala.<sup>11</sup> Frequency of Hand Foot and Mouth disease was greater than any other viral infection in study by Bisht et al.<sup>9</sup> due to HFMD outbreak during that time.

Among parasitic infestations scabies is quite common in pediatric population as found in our study (11.12% of total dermatoses) which was close to observation by Sardana et al.<sup>19</sup> In our study pediculosis capitis was 3.34% of total dermatoses which was higher than previous researchers<sup>4,13,19</sup> which could be due to lack of proper hygiene & awareness. Environmental and sociocultural differences often influence the prevalence pattern of eczematous diseases that is reflected in various studies from time to time. While infantile seborrhoeic dermatitis (10.49%) and atopic dermatitis (6.12%) were documented as the commonest eczema by Sardana et al.<sup>19</sup> and Sacchidanand et al.<sup>3</sup> respectively, our findings suggested pompholyx (3.44%) and seborrhoeic dermatitis (2.65%) to be the predominant two eczematous diseases in the pediatric age group as was in study by Nagarajan et al.<sup>4</sup> from Northeast. Atopic dermatitis had an incidence of 0.39% in our study which was lower than few other authors.<sup>3,12,19</sup> Studies in

developed countries have documented incidence ranging 3.1% to 28%.<sup>20</sup> Vitiligo, contributed to 38.67% cases among the pigmentary disease group, which was about 4.03% of the study population. Incidence of 6.7% and 4.5% was reported by Roy S et al.<sup>21</sup> and Rawat et al.<sup>22</sup> respectively. A lower frequency was documented by Sardana et al.<sup>19</sup> (1.28%) and Reddy VS et al.<sup>11</sup> (0.4%). Vitiligo vulgaris was the commonest pattern of vitiligo noted in our study (48% of vitiligo cases). Vitiligo vulgaris has been reported as commonest type of vitiligo in various other studies.<sup>23,24</sup> Though a study from Uttarakhand reported acrofacial vitiligo as commonest type of vitiligo in children.<sup>25</sup>

Among papulosquamous diseases, 2.65% cases of pediatric psoriasis were observed in our study. Commonest clinical pattern of psoriasis was psoriasis vulgaris. Sacchidanand et al.<sup>3</sup> reported a higher proportion of 4.28% cases. Other authors noted occurrence of pediatric psoriasis ranging between 0.02% - 1.4%.<sup>13,19,26</sup> Papular urticaria, which is a common entity in pediatric population occurring due to environmental exposure to mosquitoes and other insects, was found in 3.15% cases of our study population matching upto the observations by other authors.<sup>13,19</sup> Acute urticaria was more common than chronic urticaria as found by us and Sardana et al.<sup>19</sup>

In the present study, acne was noted in patients belonging to the 11-14 yrs age group in 2.65% cases with a female preponderance. Previously, Reddy VS et al.<sup>11</sup>, Singh et al.<sup>15</sup> have reported a higher incidence of 5.6% and 6.34% respectively. They included patients up to 18 and 17 years of age in their studies, whereas in our study patients of 14 years age and below were included. Hot and humid climate of our region predisposes to miliaria, found in 1.87 % of our patients. Other studies<sup>11,13,19</sup> have documented frequency of occurrence between 1.2 % - 5.46 %. This difference might be attributed to environmental differences. Alopecia areata was seen in 0.88% cases in our study which was lower than some previous studies.<sup>19,27</sup>

Connective tissue diseases were noted in 0.79% of our study population which was similar to observations by previous authors.<sup>11,13,26</sup>

## CONCLUSION

The present study attempts to provide an overview regarding the pattern of paediatric dermatoses in eastern India. Findings in our study showed few similarities as well as differences from previous studies. Infections and infestations were the major group of disease that can be managed by early treatment initiation and educating the patient about practice of cleanliness and hygiene to prevent future recurrences. We noted more multibacillary leprosy cases than paucibacillary leprosy in our study, which were often missed by the primary care physician. Early detection and initiation of treatment can break the chain of transmission and improve long term disease outcome. Our study was limited by its shorter duration and restriction to a single centre. However, the observations made in our study might help in bringing about modification in health education and disease management in our region.

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