



### Original Research Paper

## Infectious skin diseases among children attending the Dermatology Outpatient Department

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### Abstract

**Background:** Skin lesions are a common problem in pediatric age group. The etiology of these lesions can be bacterial or viral infections, helminthic infestation and inflammatory lesions. Some of these lesions may be congenital like salmon patch or strawberry angiomas etc. Pediatric patients being brought for various skin lesion forms a major part of dermatology OPD hence it is important from the point of view of a dermatologist to be aware of common pediatric dermatological problems or skin lesions so as to be able to accurately diagnose and manage such conditions.

**Materials and Methods:** The study was approved by institutional ethical committee. This was a prospective observational study of all children between the age group of 0-12 years brought to dermatology OPD of our institute during the study period. A detailed history and thorough clinical examination was done in all the cases. Diagnosis mainly was done on the basis of clinical examination. Relevant investigations were done whenever necessary. The data was analysed using SPSS 16.0 version software.

**Results:** There were 200 pediatric patients who were included in this study on the basis of inclusion criteria. Out of these patients there were 120 (60%) boys and 80 females (40%) with a M: F ratio of 1:0.66. The age ranged from 1 day to 12 years with a mean age of 4.9 years. 90 (45 %) patients belonged to age group of 1-5 years. Common skin lesions included scabies (41 %), pyoderma (24 %), viral exanthema (16.5 %), superficial fungal infections (12.5 %). Pediculosis was seen in 6 % patients.

**Conclusion:** Pediatric consultations for various skin lesions are common. In addition to usual dermatological problems congenital skin lesions may be seen in neonatal period or infancy. It is important from the point of view of a dermatologist to be well aware of various skin lesions seen in pediatric age group so as to be able to properly treat these patients.

**Keywords:** Skin lesions, pediatric age group, Congenital skin lesions, Management.

### Introduction

Skin lesions are common in pediatric age group and children with dermatological problems constitute a major portion of any dermatology

outpatient department<sup>1</sup>. In developing countries including India infectious conditions like pyoderma, impetigo and scabies are common in children. These lesions are usually neglected and

dermatological consultations are done only in cases who have severe symptoms hence only a part of children actually having dermatological problems are seen by dermatologists<sup>2</sup>. The lesions seen in different settings are different for example at the level of primary health care providers (primary health care centers and rural hospitals) most of the children are brought with the complaints like pyoderma. Though even at the level of tertiary care centers' dermatology OPDs usually caters to the children with common infectious diseases many children with rare skin conditions like epidermolysis bullosa, ichthyosis, collagen vascular diseases and autoimmune conditions may also be seen<sup>3</sup>. One of the major problems in any study undertaken to know the prevalence of skin disorders in children is the attitude of parents who usually attribute the skin conditions to various allergies and delay consultation. Since many of these conditions are infectious (pyoderma or scabies) multiple members of a family may get affected<sup>4</sup>. The possibility of self medication by over the counter creams is also very high in many parts of the countries where access to qualified dermatologists is difficult. The common infectious dermatological conditions include bacterial infections, viral dermatoses, parasitic infections and fungal infections<sup>5</sup>.

The common bacterial infections seen in pediatric age group include impetigo (caused by staphylococcus or streptococcus), pyoderma, furunculosis ecthyma and cellulitis. Children with congenital or acquired immunodeficiencies, severe acute malnutrition, Zinc deficiency and children living in overcrowded places are prone for developing bacterial infections. Overcrowded schools seen in developing countries provide a perfect milieu for dissemination of infective dermatoses<sup>6</sup>.

Viral dermatoses in children may include herpes simplex, herpes zoster, viral rash (measles, rubella and erythema infectious etc). The predisposing factors are pretty much similar to what is seen in bacterial infections<sup>7</sup>. The availability of vaccines

against certain viral illnesses have reduced the incidence of viral dermatoses in children belonging to high socioeconomic strata but in developing countries but vaccine preventable viral illnesses like Varicella, rubella and measles etc are common in unimmunized or partially immunized children<sup>8</sup>.

Fungal and parasitic infections in children are also a common occurrence. Common parasitic infections seen in pediatric age group include scabies and pediculosis. Though pediculosis and Scabies both are fairly common it is scabies for which most commonly dermatology consultation is sought because of its intense symptoms. It usually presents with intensely itchy skin lesion seen in multiple members of a family and secondary bacterial infections are fairly common<sup>9</sup>. We conducted this prospective observational study to find the prevalence of various skin infections seen in children attending dermatology OPD of a tertiary care institute. Children being brought for various infections as well as those children who were found to be having skin infections as incidental finding both were included in this study. The purpose of our study was to find out types of skin infections seen in children from infancy to 12 years of age.

### Materials and Methods

This was a prospective observational study comprising of 200 children attending dermatology OPD of a tertiary care institute and having any type (bacterial, viral, parasitic or fungal) of skin infection. In this study pediatric patients belonging to age group of 0-12 years were included depending upon a predefined inclusion criteria. Any child having any exclusion criteria was excluded from the study. Children who were brought primarily for skin lesions as well as those children who were brought for some other reason but were found to be having skin infection both were included in this study. Demographic data like age sex and socioeconomic status of the patients were recorded in all the cases. Detailed history was taken in all the cases. Past history of

skin infections or history of similar skin lesion or any other skin infection in family members was noted. When in doubt close family members were also examined. Any condition predisposing the child for skin infections like congenital or acquired immunodeficiency syndrome and malnutrition was noted down. Immunization status of all children was also determined (unimmunized/immunized/partially immunized). Thorough clinical examination was done to find out type (bacterial,viral,fungal or helminthic), severity and extent of of skin lesions. Any associated mucous membrane lesions were also noted down. Complete blood count was done in all the cases. Relevant investigations like CBC, absolute eosinophil count and KOH smear was done whenever indicated. Patients were treated on the basis of diagnosis. Specific as well symptomatic treatment was given. If multiple family members were affected (Scabies , chickenpox and measles etc) then everyone was given treatment. Data analysis was carried out using SSPS (Statistical Package for Social Sciences, Chicago, I1, USA) version 16 software.

#### Inclusion criteria

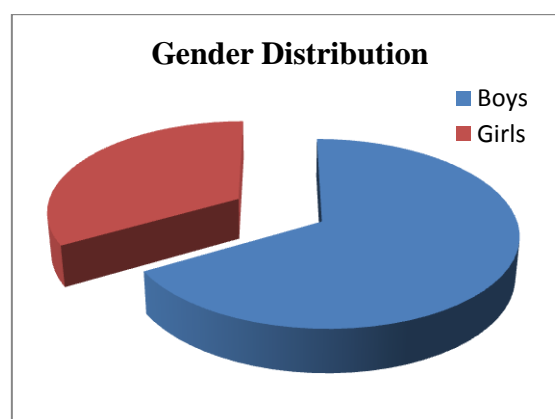
1. All the children presenting to dermatology OPD with skin infections.
2. Age group from 0-12 years.
3. Parents consented to study.

#### Exclusion Criteria

1. Non Infective skin lesions
2. Age more than 12 years.
3. Parents Refused consent.

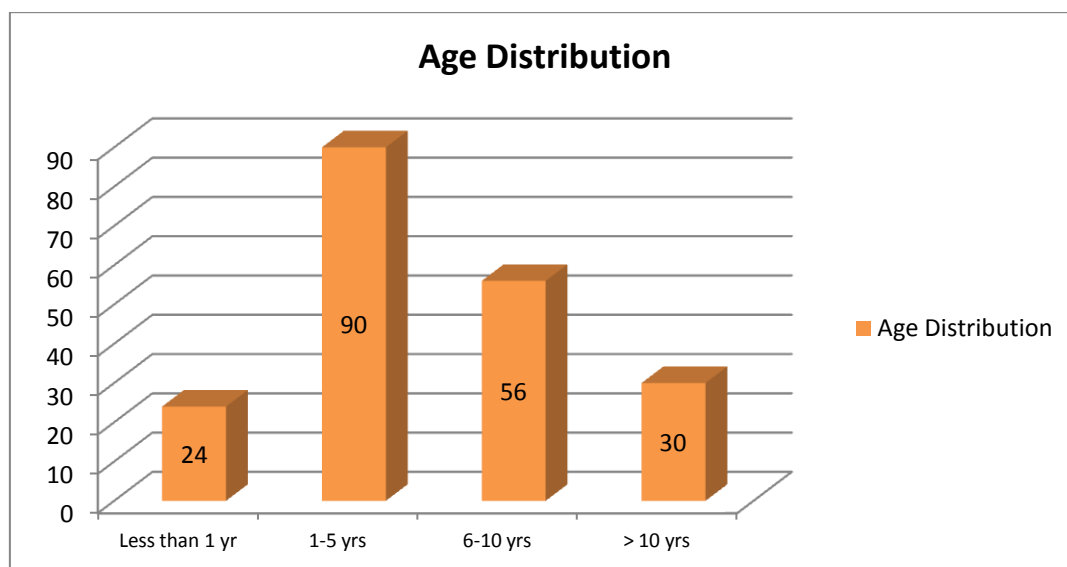
#### Results

This was a prospective study of pediatric patients with skin infections. Out of the 200 children who were included in this study on the basis of inclusion and exclusion criteria there were 120 (60%) boys and 80 (40%) girls with a M:F ratio of 1:0.66.



**Figure 1:** Gender Distribution of the studied cases

The analysis of age distribution of the studied cases showed that the most common affected age group was 1-5 years (45 %) followed by 6-10 years (28 %), more than 10 years (15%) and less than 1 year (12 %).



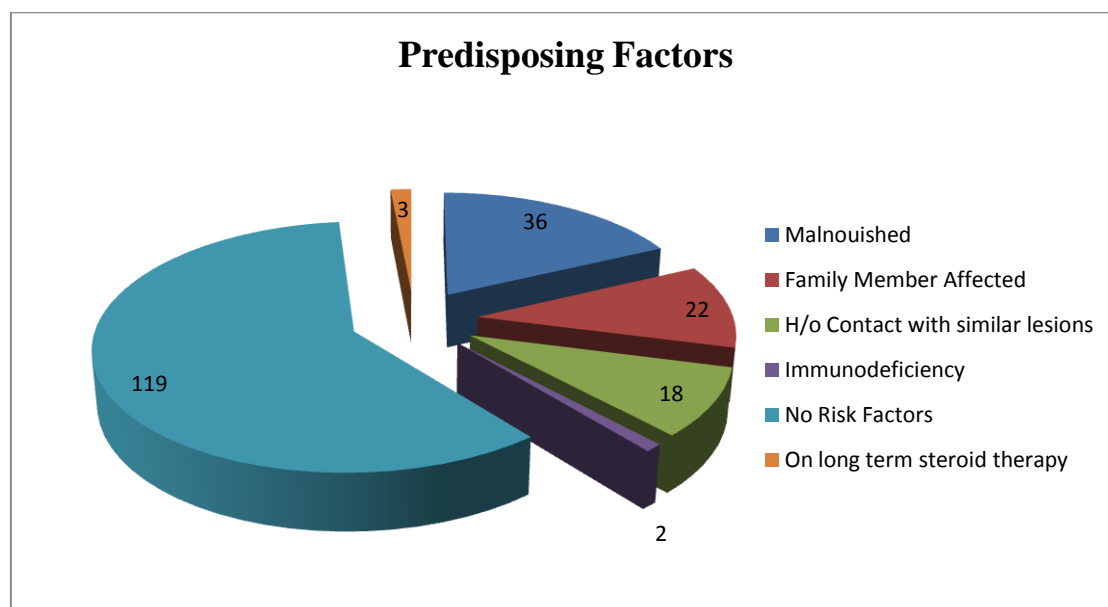
**Figure 2:** Age distribution of the studied cases

The analysis of the presenting complaints of the children presenting with infective skin conditions showed that the most common complaint encountered was skin lesions (84.5 %) for which parents sought dermatology consultation. The other complaints which were present included itching (56%), pus discharge (39 %), fever (17 %) and lymphadenopathy (7 %).

**Table 1:** Presenting complaints of the pediatric patients attending OPD.

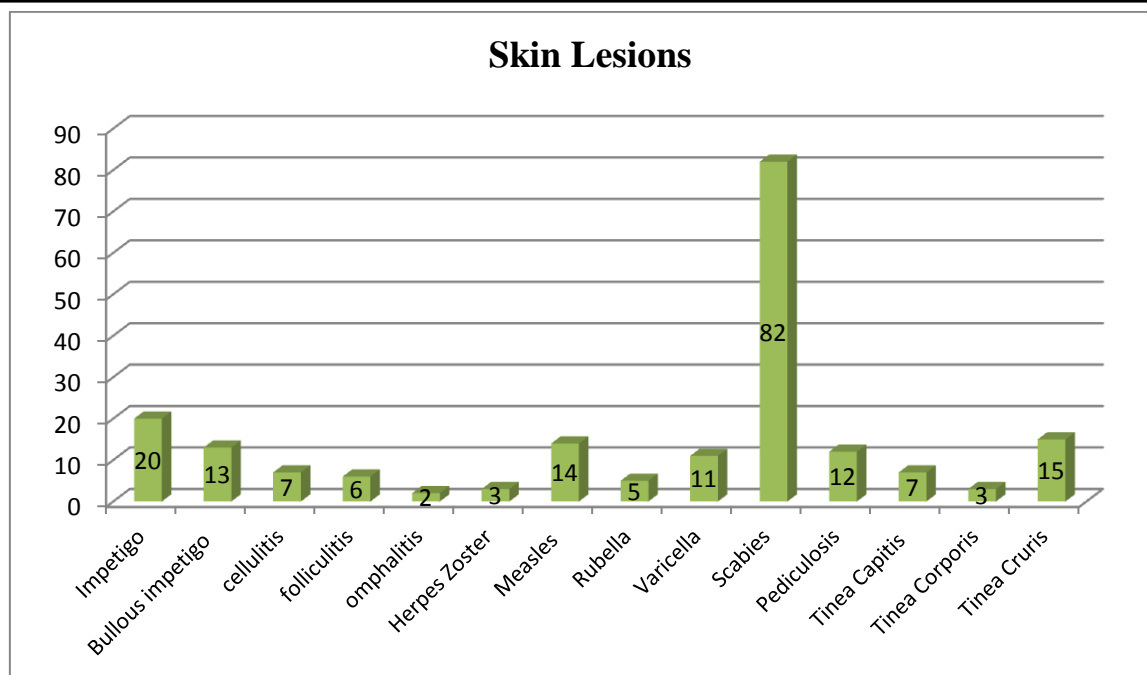
Presenting Complaint	No Of patients	Percentage
Skin Lesion	169	84.5 %
Itching	112	56 %
Pus Discharge	78	39 %
Fever	34	17 %
Lymphadenopathy	14	7 %

The analysis of the risk factors in the studied cases showed that the most common predisposing factors present was malnourishment which was seen in 36 children (18 %) followed by an affected family members (11 %), H/o contact with the person with similar lesions in school or friends (9 %) and children on long term steroid therapy due to nephritic syndrome (1.5 %). 2 (1 %) children were found to be having immunodeficient state due to HIV infection.



Finally an analysis of the confirmed diagnosis showed that the most common skin infection seen was scabies which was seen in 82 children (41 %) followed by impetigo (10%), tinea cruris (7.5 %) and measles (7 %).

	Type	No	Percentage
<b>Pyoderma</b>	Impetigo	20	10 %
	Bullous impetigo	13	6.5 %
	cellulitis	7	3.5 %
	folliculitis	6	3 %
	omphalitis	2	1 %
<b>Viral Skin Lesions</b>	Herpes Zoster	3	1.5 %
	Measles	14	7 %
	Rubella	5	2.5 %
	Varicella	11	5.5 %
<b>Parasitic Infections</b>	Scabies	82	41 %
	Pediculosis	12	6 %
<b>Fungal Infections</b>	Tinea Capitis	15	7.5 %
	Tinea Corporis	3	1.5 %
	Tinea Cruris	7	3.5 %



### Discussion:

Various dermatological conditions in children for which they are referred for dermatological consultation include infections (Bacterial, viral, parasitic and fungal infections), atopic dermatitis, non specific dermatitis, allergic conditions and drug rash. Infectious diseases affecting the skin are common in developing world. Overcrowded homes, schools and public places facilitate transmissions of infections from individual to individual. Children are more prone for these infections because of many factors that include immature immune mechanism, malnourishment and close contact with other children who might be infected<sup>10</sup>.

The skin infections seen in children may include bacterial, viral, parasitic or fungal infections. Age of the affected child is an important factor in type of infection they are likely to get. For example neonates are prone for developing superficial pyogenic infections like omphalitis, pyoderma or conjunctivitis while they are mostly immune for developing certain viral illnesses like chicken pox or measles because of the transplacentally acquired antibodies against these illnesses (if mother is immune)<sup>11</sup>.

In children older than 1 year of age the most common type of skin lesions found were due to

scabies. In most of the children scabies was associated with intensely pruritic papulovesicular rash. The most common site involved was found to be interdigital spaces, flexor surfaces of the wrists, genitalia and feet. In our study 41 % of the children were found to be having scabies and many of these children multiple family members were affected. Similar findings were seen in the study conducted by IJ Emdoi who in their study of 1506 children with skin diseases found scabies in 13.5 % patients. The percentage of patients with scabies was less in this study in comparison with our study because in this study authors included non infective conditions like allergic dermatoses and non specific dermatitis<sup>12</sup>.

The pyogenic infections like impetigo, cellulitis, folliculitis and omphalitis was seen in 24 % patients. Impetigo was found to be the most common pyogenic infection seen in 10.5 of the children presenting with infectious dermatoses. The children with impetigo presented with superficial skin lesions with golden crusting. Many of these children had history of contact with children with similar lesions either at school or at household. In a similar study Samson K et al in their study of 340 children with infective skin lesions found that impetigo was seen in 21 % of children. The other pyogenic infections found in



the study conducted by Samson K et al were furunculosis (3.2 %), folliculitis (2.1 %) and ecthyma (1.8 %). In many regards our study results were comparable with the study conducted by Samson K et al<sup>13</sup>.

The common superficial fungal infections seen in our study were found to be tinea capitis (7.5), tinea corporis (1.5 %) and tinea cruris (3.5 %). Many of the children with tinea capitis were found to be having associated bacterial infections and cervical lymphadenopathy. Rudy S J in her study found that the most common fungal infections seen in children were tinea capitis, tinea cruris, candidial infections and oral thrush. Immunodeficiency states due to any reason like prolonged steroid therapy, chemotherapeutic drugs and congenital or acquired immunodeficiency states predispose children for fungal infections<sup>14</sup>.

Lastly various skin lesions due to viral infections include Varicella, measles and less commonly erythema infectiosum and rubella infections. Though many of these viral illnesses are vaccine preventable majority of the children are not yet being routinely immunized against these vaccines and consequently there is still a large number of children presenting with skin lesion caused by these viral infections. Jin Han Kang in his study found that the common febrile illnesses with skin rashes are usually caused by measles, Varicella, herpes virus 6 and parvovirus B 19. The author concluded that a detailed history regarding appearance and progression of rash and investigations (if required) can diagnose the etiology of viral illness in majority of the children<sup>15</sup>.

**Conclusion:** Infectious skin lesions are one of the common causes of pediatric referral to a dermatologist. The fact that many of these skin lesions are similar in appearance makes it necessary that dermatologists should be well aware of the causes of such lesions. Appearance and progression of the rash, presence of similar lesions in other family members and characteristic

signs and symptoms may finally clinch the diagnosis.

**Conflict of Interest: None**

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