

## Prospective Observational Assessment of the Prevalence of Infectious Skin Disorders Encountered in Children

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Conflict of interest: Nil

### Abstract

**Background:** Infectious skin disorders (ISDs) are commonly seen in pediatric emergency departments (PED), however the exact frequency is unknown. Skin infections in pediatric age group have a different clinical course and treatment as compared to adult, so it is studied separately as Pediatric dermatology. **Aim:** The present study aims to determine the prevalence and types of infectious skin disorders (ISDs) seen among children attending the Department of Skin and VD, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India for 1 year. **Methods:** Prospectively, descriptive study of children evaluated in the PED with ISDs during 2020. ISDs were analyzed on the basis of their incidence, patient demographics, seasonal variations, and hospitalization rates. This is a prospective study; various dermatoses were studied in pediatric patients up to 14 years of age over a period of 1 year. All patients were divided into four different study groups: <1 month (neonates), 1 month to 1 year, >1 to 6 years and 7 to 14 years. **Results:** Among the 600 pediatric skin infection patients, bacterial infections (210, 35%) were highest in number followed by fungal (198, 33%) and viral infections (54, 9%). Of the bacterial infections, impetigo was the predominant one contributing to 134(22.33%) cases. Other bacterial infections were furunculosis (64, 10.67%) and pyogenic abscess (12, 2%). Dermatophytosis (102, 17%) attributed the major bulk of cases of fungal infections. Pityriasis versicolor (20, 3.33%) and candidiasis (76, 12.67%) were the other superficial fungal infections recorded in the study. Most prevalent viral infection was Molluscum contagiosum (33, 5.5%) followed by wart (12, 2%) and pityriasis rosea (9, 1.5%). Scabies (96, 16%) and pediculosis (42, 7%) were the two entities in the infestation group. **Conclusion:** Our data reveal the extremely high frequency of ISDs seen at the PED, underlying the need for closer cooperation between dermatologists and pediatricians.

**Keywords:** ISD, Fungal, Bacterial.

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### Introduction

Cutaneous problems occur frequently in children; up to 30 percent of pediatric primary care visits involve a skin-related problem [1]. Common among these problems are atopic dermatitis, seborrheic

dermatitis, contact dermatitis, and acne. Yet pediatric dermatology, first recognized in 2000 as a boarded subspecialty of dermatology, is in its infancy [2]. Dermatologic conditions constitute at least 30% of all outpatient visits to pediatricians

and 30% of all visits to dermatologists involve children [3]. The incidence of various dermatologic conditions varies according to age, race, geographic locations, climate, nutrition, hygiene, socio-economic conditions and heredity [4,5]. Several problems including lack of education, social backwardness, lack of health care facilities in the rural area, lack of sanitation, excess pollution and overcrowding contribute to more incidence of infectious disorders in developing countries like India.

The incidence of skin diseases among children in various parts of India has ranged from 8.7% to 38.8% in different studies usually school-based surveys [6]. Studies of pediatric population which constitutes the cornerstone of the community can play an important role in determining the policies of protective medicine and public health.

#### Objective:

To determine the prevalence and types of infectious skin disorders (ISDs) seen among children attending the Department of Skin and VD, Anugrah Narayan Magadh Medical College, Gaya, Bihar.

#### Methodology:

This is a Prospective descriptive study of children evaluated in the Department of Skin and VD, Anugrah Narayan Magadh Medical College, Gaya, Bihar. ISDs were analyzed on the basis of their incidence, patient demographics, seasonal variations,

and hospitalization rates. This is a prospective study; various dermatoses were studied in pediatric patients up to 14 years of age over a period of 1 year. All patients were divided into four different study groups: <1 month (neonates), 1 month to 1 year, >1 to 6 years and 7 to 14 years.

Patient's age, sex, address, religion and caste, nationality and socio-economic status were recorded. The diagnosis of dermatological condition was based on detail review of history, clinical features physical examination including skin. When necessary, diagnosis was confirmed by laboratory investigations such as KOH mount, gram's stain, Wood's lamp examination, diascopy, Tzanck test, hematological and biochemistry analysis, purified protein derivative and skin biopsy as needed. Dermatoses were classified according to the Tenth Revision of International Statistical Classification of Diseases (ICD-10) [7]. Patients with more than one dermatological condition were excluded from the study.

#### Results:

A total of 600 children were enrolled in the study. Total boys were 323 (53.83%) while girls were 277 (46.17%). The neonates constituted 91 (15.17%) of study population. 1 month to 1 year age group constituted 69 (11.50%) children. Pre-school group (1 - 6 years) is the largest group with 243 (40.50%) children. There were 197 (32.83%) children in school going age group of 7 to 14 years.

**Table 1: Age and sex wise distribution of children**

Variable		Number	%
Sex	Male	323	53.83
	female	277	46.17
Age	<1 month	91	15.17
	1 month – 1 year	69	11.50
	1-6 years	243	40.50
	7-14 years	197	32.83

Among the 600 pediatric skin infection patients, bacterial infections (210, 35%) were highest in number followed by fungal

(198, 33%) and viral infections (54, 9%). Of the bacterial infections, impetigo was the predominant one contributing to

134(22.33%) cases. Other bacterial infections were furunculosis (64, 10.67%) and pyogenic abscess (12, 2%).

Dermatophytosis (102, 17%) attributed the major bulk of cases of fungal infections. Pityriasis versicolor (20, 3.33%) and candidiasis (76, 12.67%) were the other

superficial fungal infections recorded in the study. Most prevalent viral infection was Molluscum contagiosum (33, 5.5%) followed by wart (12, 2%) and pityriasis rosea (9, 1.5%). Scabies (96, 16%) and pediculosis (42, 7%) were the two entities in the infestation group.

**Table 2: Pattern of various ISDs in neonates**

ISD		No.	%
Bacterial (210)	Impetigo	134	22.33
	Furunculosis	64	10.67
	Pyogenic abscess	12	02.00
Viral (54)	Molluscum contagiosum	33	05.50
	Wart	12	02.00
	Pityriasis rosea	9	01.50
Fungal (198)	Dermatophytosis	102	17.00
	Pityriasis versicolor	20	3.33
	Candidiasis	76	12.67
Infestations (138)	Scabies	96	16.00
	Pediculosis	42	07.00
Total		600	100

### Discussion:

Skin diseases are a major health problem in the pediatric age group and are associated with significant morbidity. Skin diseases in the pediatric age group can be transitory or chronic and recurrent. Cutaneous infections are common in children during school going years. Most of the cutaneous diseases that result from intrinsic genetic abnormalities also have onset in the pediatric age-group.

Our study reveals the findings from a tertiary care centre in Bihar, which showed a male predominance in the study population, alike studies by Roy et al [8]. and Sacchidanand S et al [9]. In our study, 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.[12] and Kartikayen et al.[13] Fungal and viral infections were found more in number than other infections by Reddy VS et al.[11] and Ngarajan et al.[10] respectively. Among bacterial infections

impetigo was most frequently encountered in our study as well as by many other authors[11, 12, 14]. Tropical climate, poor hygiene, breach in the skin often predisposes to this kind of bacterial infection.

Pediatric dermatophytosis is becoming a challenge for the treating dermatologist because of its widespread and atypical presentation. In our study 17 % cases of the study population were of dermatophytosis. Study by Reddy et al [15] from South India found approximately same percentage (16.2%) of dermatophytosis cases in their study population. Pityriasis versicolor cases were 3.33% of the study population which was slightly lower than studies by other authors [11, 13, 16] that ranged from 3.4 - 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 [11].

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 [17].

### Conclusion:

The study shows that infections and infestation disorders were more common in the pediatric age group that can be controlled easily by public awareness, proper sanitation and providing health care facilities by training the dermatologists, pediatricians and general practitioners about the management of common skin disorders. Early detection and initiation of treatment can break the chain of transmission and improve long term disease outcome.

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