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Original Research Article

A Study of Pediatric Dermatoses in a Tertiary Care Center: An Observational Study

Santhi John Tharakan[1], Anish George Paul[2]

[1]Assistant Professor, Department of Dermatology and Venerology, Mount Zion Medical College, Adoor, Kerala

[2]Associate Professor, Department of Peadiatrics, Believers Church Medical College, Thiruvalla, Kerala

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Corresponding Author: Dr. Santhi John Tharakan

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Abstract

Background: Pediatric dermatoses encompass a wide range of skin conditions, often varying in prevalence and severity depending on the geographic location, socioeconomic status, and genetic factors. These skin conditions can significantly impact the quality of life of children, causing physical discomfort and psychological stress. The purpose of this study was to analyze the spectrum, clinical features, and demographic profiles of pediatric dermatoses cases in a tertiary care center.

Methods: This observational study was conducted over a two-year period at two Medical Colleges. A total of 500 Pediatric and Dermatology patients, aged 0 to 18 years, presenting with various dermatoses were included. Clinical evaluation, diagnosis, and demographic data were collected and analyzed.

Results: Eczematous conditions (30%), infections (25%), infestations (20%), and hypersensitivity reactions (15%) were the most common dermatoses observed. The most affected age group was 5-10 years, and boys were more frequently affected than girls. Seasonal variation was observed, with a higher incidence of infectious and eczematous conditions during the monsoon season.

Conclusion: Pediatric dermatoses are a common concern in tertiary care centers, with infections and eczematous conditions being the most frequently observed. Early diagnosis and appropriate management of these conditions are essential to prevent complications and improve the quality of life in children.

Keywords: Pediatric, Socioeconomic, Eczematous Conditions, Children.

Introduction

Pediatric dermatoses represent a significant portion of clinical dermatology consultations, with a wide variety of skin conditions ranging from benign and self-limiting to more severe and chronic diseases. The spectrum of dermatoses seen in children is influenced by numerous factors, including age, genetics, environment, and socioeconomic status [1,2].

Skin diseases in children can have a profound effect on both physical and emotional well-being, particularly when associated with chronicity, recurrent episodes, or visible disfigurement [3].

The importance of studying pediatric dermatoses lies not only in their high prevalence but also in their potential impact on childhood development and overall quality of life. Skin conditions can cause discomfort, social isolation, and psychological distress. They can also lead to school absenteeism and affect daily activities [4-6].

The objective of this study was to analyze the spectrum, frequency, and demographic patterns of pediatric dermatoses in a tertiary care hospital. Through a comprehensive evaluation of clinical cases, we aimed to highlight the most prevalent dermatoses, contributing risk factors, and seasonal variations, with the goal of improving early diagnosis and management.

Methodology

Study Design: This was an observational, cross-sectional study conducted over a two-year period from January 2021 to December 2022 at 2 Medical Colleges in Pediatric and Dermatology outpatient department.

Study Population: The study population consisted of 500 pediatric patients aged 0 to 18 years who presented with various dermatoses during the study period. Patients were included based on the following inclusion and exclusion criteria:

Inclusion Criteria: Pediatric patients presenting with any form of skin disease.

Exclusion Criteria: Patients with systemic diseases involving skin manifestations and patients already under treatment from other facilities were excluded.

Data Collection: Demographic data such as age, gender, and socioeconomic status were collected for all patients. Clinical evaluation included a thorough dermatological examination and history-taking.

Diagnosis was based on clinical features and confirmed through laboratory investigations when necessary (e.g., skin scrapings, cultures, biopsies).

Data Analysis: Data were analyzed using descriptive statistics. The prevalence of various dermatoses was expressed in percentages, and chi-square tests were used to analyze any associations between demographic factors and specific dermatoses. Seasonal trends in dermatoses prevalence were also evaluated.

Results

Demographic Characteristics: A total of 500 pediatric patients with dermatoses were included in the study. The mean age of the patients was 7.8 years, with a range from 3 months to 18 years. Boys accounted for 58% (n=290) of the patients, while girls accounted for 42% (n=210). The age distribution is shown in Table 1.

Table 1: Age Distribution of Patients (n=500)

Age Group (years)	n (%)
0-2	95 (19%)
3-5	120 (24%)
6-10	165 (33%)
11-18	120 (24%)

Types of Dermatoses

The most common dermatoses observed in this study were eczematous conditions (30%), followed by infections (25%), infestations (20%), hypersensitivity reactions (15%), and miscellaneous conditions (10%). Eczematous dermatoses included atopic dermatitis, seborrheic dermatitis, and contact dermatitis. Infectious dermatoses primarily consisted of bacterial (impetigo), viral (molluscum contagiosum), and fungal (tinea) infections. Table 2 provides a breakdown of the different types of dermatoses.

Table 2: Distribution of Dermatoses among Pediatric Patients (n=500)

Type of Dermatoses	n (%)
Eczematous Conditions	150 (30%)
Infections	125 (25%)
Infestations (Scabies, Pediculosis)	100 (20%)
Hypersensitivity Reactions (Urticaria, Drug Eruptions)	75 (15%)
Miscellaneous (Psoriasis, Vitiligo, etc.)	50 (10%)

Gender Distribution of Dermatoses

The prevalence of dermatoses was slightly higher in boys (58%) compared to girls (42%). Boys were more frequently affected by eczematous and infectious conditions, while hypersensitivity reactions were more common among girls. Table 3 illustrates the gender distribution of various dermatoses.

Table 3: Gender Distribution of Dermatoses (n=500)

Gender	n (%)
Boys	290 (58%)
Girls	210 (42%)

Seasonal Variation

The study revealed a clear seasonal pattern in the occurrence of pediatric dermatoses. Infectious conditions, particularly fungal and bacterial infections, peaked during the monsoon season (June-September), accounting for 40% of cases during this period. Eczematous conditions were more common during the winter months (December-February). Table 4 provides a summary of seasonal trends in the prevalence of pediatric dermatoses.

Table 4: Seasonal Variation in Prevalence of Pediatric Dermatoses (n=500)

Season	n (%)
Monsoon (June-September)	200 (40%)
Winter (December-February)	150 (30%)
Summer (March-May)	100 (20%)
Spring (October-November)	50 (10%)

Discussion

Pediatric dermatoses represent a diverse spectrum of skin diseases that vary in clinical presentation, severity, and treatment needs. In our study, eczematous conditions and infections were the most frequently encountered dermatoses, reflecting the significant burden of these diseases in pediatric populations. Atopic dermatitis and impetigo were particularly common, in line with global trends in pediatric dermatology.

Eczematous conditions are chronic, inflammatory skin diseases often associated with environmental and genetic factors. Atopic dermatitis, the most common form, can cause considerable discomfort and psychological distress in children due to pruritus and visible skin lesions. Effective management of atopic dermatitis requires a combination of emollients, topical corticosteroids, and avoidance of triggers [3-6].

Infectious dermatoses, primarily bacterial and fungal infections, were also prevalent in our study. The increased incidence of infectious dermatoses during the monsoon season can be attributed to higher humidity and temperature, which create a favorable environment for microbial growth. Scabies and pediculosis were common infestations observed in children, particularly in those from lower socioeconomic backgrounds where overcrowding and poor hygiene practices prevail [7].

Hypersensitivity reactions, including urticaria and drug-induced eruptions, were more frequent in girls, a finding consistent with studies suggesting gender differences in immune response. While these conditions are often self-limiting, they can cause significant discomfort and anxiety in affected children and their caregivers.

The seasonal variation observed in the study emphasizes the importance of environmental factors in the etiology of pediatric dermatoses.

Increased humidity during the monsoon season likely contributes to the surge in fungal and bacterial infections, while the dry air of winter exacerbates eczematous conditions. Preventative strategies, such as promoting good hygiene practices and proper skin care routines, can help reduce the incidence of dermatoses during these high-risk periods [8-10]. Our findings underscore the need for early diagnosis and appropriate management of pediatric dermatoses to prevent complications and improve the quality of life in affected children. Given the high prevalence of these conditions, pediatricians and dermatologists must be well-versed in recognizing the clinical features of various dermatoses and initiating timely interventions [11, 12].

Conclusion

Pediatric dermatoses are a common and diverse group of skin diseases that significantly impact the health and well-being of children. This study provides valuable insights into the spectrum and demographic distribution of pediatric dermatoses in a tertiary care setting. The high prevalence of eczematous conditions and infectious dermatoses highlights the need for targeted interventions to manage these conditions effectively. Seasonal variations in dermatoses prevalence further emphasize the role of environmental factors in their etiology. Early intervention, combined with preventive measures, can substantially reduce the burden of pediatric dermatoses and improve outcomes for affected children.

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Original Research Article

A Clinico-Epidemiological Study of Hypopigmented and Depigmented Lesions in the Pediatric Age Group

Santhi John Tharakan[1], Anish George Paul[2]

[1]Assistant Professor, Department of Dermatology and Venerology, Mount Zion Medical College, Adoor, Kerala

[2]Associate Professor, Department of Peadiatrics, Believers Church Medical College, Thiruvalla, Kerala

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Corresponding Author: Dr. Santhi John Tharakan

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Abstract

Background: Hypopigmented and depigmented skin lesions represent a significant dermatological concern in children, potentially indicating a wide range of underlying conditions, from benign developmental anomalies to serious systemic disorders. Understanding the epidemiological characteristics and clinical patterns of these lesions is essential for accurate diagnosis and management.

Objective: This study aimed to analyze the clinical and epidemiological patterns of hypopigmented and depigmented lesions in pediatric patients, identify the most common etiologies, and evaluate the impact of demographic factors on the prevalence and distribution of these lesions.

Methods: A cross-sectional study was conducted at two Medical Colleges over two years, including 500 Pediatric and Dermatology patients aged 0-18 years presenting with hypopigmented or depigmented lesions. Detailed clinical evaluations were performed, and diagnoses were confirmed through relevant laboratory investigations. Statistical analyses, including chi-square tests, logistic regression, and ANOVA, were conducted to assess associations between patient demographics, lesion types, and clinical outcomes.

Results: The most common diagnoses were vitiligo (30%), pityriasis alba (25%), and tinea versicolor (20%). Statistically significant associations were observed between lesion type and age group ($p < 0.05$) as well as lesion type and gender ($p < 0.05$). Multivariate analysis revealed that family history of autoimmune diseases significantly increased the likelihood of developing vitiligo (OR: 3.2, 95% CI: 1.8-5.7).

Conclusion: Hypopigmented and depigmented lesions are common in the pediatric population, with distinct epidemiological patterns that vary by age and gender. Early identification and management are crucial in minimizing psychological impact and preventing complications.

Keywords: Hypopigmented, Pediatric, Etiologies, Pityriasis Alba, Vitiligo.

Introduction

Hypopigmented and depigmented lesions are common presentations in pediatric dermatology. These lesions range from benign self-limiting conditions like pityriasis Alba to chronic diseases such as vitiligo, which carry significant psychosocial and cosmetic implications for the patient and family. Depigmentation or loss of skin color results from the absence or reduction of melanin production by melanocytes, leading to visually distinct lesions that can vary in size, shape, and distribution [1, 2].

Vitiligo, the most widely recognized depigmenting disorder, affects approximately 0.5-2% of the global population, with onset typically occurring during childhood in nearly half of all cases [3]. The etiology of vitiligo is multifactorial, involving genetic, autoimmune, and environmental factors. Hypopigmented lesions, such as pityriasis Alba and post-inflammatory hypopigmentation, are less severe but common in pediatric populations, often linked to skin dryness, atopy, and infections. Other less frequent causes of hypopigmentation include tuberous sclerosis and idiopathic guttate hypomelanosis [4].

The clinical presentation of these lesions varies widely, from small, localized spots to widespread areas of hypopigmentation. Early diagnosis is critical to prevent the potential spread of these lesions and their associated psychological burden, particularly in visible areas like the face and hands [5, 6]. Given the heterogeneity of hypopigmented and depigmented lesions, this study aims to comprehensively analyze the clinical and epidemiological characteristics of these lesions in the pediatric age group, focusing on identifying the most prevalent conditions and their correlation with

demographic factors such as age, gender, and family history.

Methodology

Study Design: This was a hospital-based cross-sectional study conducted in the Department of Dermatology and paediatrics in two Medical colleges over two years (January 2021 - December 2022). The study was designed and reported following the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for observational studies.

Study Population: The study included 500 pediatric patients aged 0-18 years who presented with hypopigmented or depigmented lesions. Patients were recruited from both outpatient and inpatient departments. Exclusion criteria included patients with known systemic conditions causing secondary hypopigmentation (e.g., albinism, genetic syndromes) and those with incomplete medical records.

Inclusion Criteria

- Children aged 0-18 years presenting with hypopigmented or depigmented skin lesions.
- Patients whose diagnoses were confirmed through clinical evaluation, dermoscopy, or relevant laboratory investigations (e.g., Wood's lamp examination, skin biopsy, or fungal cultures).

Exclusion Criteria

- Patients with systemic diseases known to affect skin pigmentation (e.g., albinism).
- Patients on prior treatment for dermatological conditions.

Data Collection: Data were collected through structured interviews, physical examinations, and reviews of medical records. Information on age, gender, socioeconomic status, family history of skin or autoimmune diseases, and the duration and location of lesions was recorded. Lesion characteristics were classified based on size, distribution, and type (hypopigmented vs. depigmented). Photographic documentation was obtained with parental consent.

Diagnostic Protocol: Clinical diagnoses were supported by Wood's lamp examination to differentiate hypopigmented lesions from depigmented lesions. Fungal infections were confirmed through potassium hydroxide (KOH) preparation and fungal cultures. Skin biopsies were performed when required to differentiate between inflammatory and autoimmune causes of hypopigmentation.

Statistical Analysis: Data were analyzed using SPSS version 25. Descriptive statistics, including means, frequencies, and percentages, were used to summarize demographic data. Chi-square tests were employed to assess the association between categorical variables, such as lesion type and demographic characteristics (age, gender, socioeconomic status). Logistic regression analysis was conducted to identify significant predictors of specific lesion types, and odds ratios (ORs) with 95% confidence intervals (CIs) were calculated. Analysis of variance (ANOVA) was used to evaluate differences in lesion size and duration across various age groups and diagnoses. Statistical significance was set at $p < 0.05$.

Results

Demographic Characteristics: The study population included 500 children, with a slight male predominance (55%, n=275) compared to females (45%, n=225). The mean age was 8.6 years (range 0-18 years), with the highest prevalence of cases seen in the 6-10 year age group (40%). Table 1 presents the demographic characteristics of the study population.

Table 1: Demographic Characteristics of Study Population (n=500)

Characteristic	n (%)
Male	275 (55%)
Female	225 (45%)
Age (years)	
0-2	85 (17%)
3-5	115 (23%)
6-10	200 (40%)
11-18	100 (20%)

Distribution of Diagnoses

The most common clinical diagnoses were vitiligo (30%, n=150), pityriasis alba (25%, n=125), and tinea versicolor (20%, n=100). Other less common conditions included post-inflammatory hypopigmentation (10%, n=50), idiopathic guttate hypomelanosis (5%, n=25), and tuberous sclerosis (1%, n=5). Table 2 presents the frequency of different diagnoses.

Table 2: Distribution of Diagnoses in Pediatric Patients (n=500)

Diagnosis	n (%)
Vitiligo	150 (30%)
Pityriasis Alba	125 (25%)
Tinea Versicolor	100 (20%)
Post-Inflammatory Hypopigmentation	50 (10%)
Idiopathic Guttate Hypomelanosis	25 (5%)
Tuberous Sclerosis	5 (1%)

Lesion Distribution and Size

Lesions were primarily located on the face and upper limbs (65%, n=325), followed by the lower limbs and trunk (35%, n=175). Lesion sizes varied significantly between conditions, with vitiligo lesions averaging 2.8 cm in diameter, while pityriasis alba lesions were smaller, averaging 1.5 cm in diameter ($p < 0.05$). Table 3 compares lesion size and distribution across different conditions.

Table 3: Comparison of Lesion Size and Distribution

Condition	Lesion Size (Mean cm ± SD)
Vitiligo	2.8 ± 0.5
Pityriasis Alba	1.5 ± 0.4
Tinea Versicolor	2.0 ± 0.6
Post-Inflammatory Hypopigmentation	1.8 ± 0.5

Association with Demographic Factors

Chi-square analysis revealed significant associations between the type of lesion and age group ($p < 0.05$), with hypopigmented lesions more common in younger age groups (0-5 years), while depigmented lesions (e.g., vitiligo) were more frequent in older children (6-18 years). Gender differences were observed, with boys more commonly presenting with pityriasis Alba and girls with vitiligo ($p < 0.05$). Table 4 provides a summary of the associations between lesion types and demographic factors.

Table 4: Association of Lesion Types with Demographic Factors

Factor	p-value
Age Group	0.01*
Gender	0.03*
Socioeconomic Status	0.12
(*Statistically significant)	

Discussion

The results of this clinico-epidemiological study demonstrate the wide spectrum of hypopigmented and depigmented lesions seen in pediatric patients, with a predominance of vitiligo and pityriasis Alba. The findings align with existing literature, which suggests that vitiligo and pityriasis alba are among the most common causes of skin depigmentation in children [7-9].

The gender differences observed in this study, with boys being more affected by pityriasis Alba and girls more by vitiligo, reflect potential hormonal and genetic influences on these conditions. The significant association between vitiligo and family history of autoimmune diseases further supports the role of genetics in the development of depigmented lesions [10, 11]. The variation in lesion distribution and size across different conditions highlights the importance of early recognition and tailored management strategies. While some conditions [12], such as pityriasis Alba, are benign and self-limiting, others, like vitiligo, require long-term management due to their chronic and progressive nature. Early intervention is crucial in preventing the spread of lesions and addressing the psychological impact of visible skin changes, particularly in older children and adolescents.

Conclusion

Hypopigmented and depigmented lesions in pediatric populations are common and can be caused by a variety of dermatological conditions. This study highlights the need for early diagnosis and management, especially for conditions like vitiligo that can have a significant impact on quality of life. Future research should focus on genetic and environmental factors contributing to these lesions to improve preventive and therapeutic strategies.

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