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Research Article

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Clinical Features and Epidemiological Characteristics of Scabies in Pediatric Patients: A Retrospective Study

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Abstract

Introduction: Scabies, a highly contagious skin infestation caused by Sarcoptes scabiei, affects approximately 200 million individuals globally, with a higher prevalence in socioeconomically disadvantaged populations. While adults typically present with intense pruritus and characteristic rashes, pediatric cases, especially in infants, present with more varied lesions and often lack typical pruritus.

Objective: This study aims to provide a comprehensive analysis of the clinical, epidemiological, and therapeutic aspects of pediatric scabies, focusing on age-related variations in presentation, diagnostic delays, and factors influencing treatment response.

Materials and Methods: A retrospective observational study was conducted over a six-year period (January 2018 to January 2024), analyzing pediatric scabies cases managed in dermatology consultations. Data collected included demographics, clinical presentations, diagnostic methods, treatment protocols, and outcomes. Statistical analyses were performed to compare differences between infants (<24 months) and older children (>24 months).

Results: A total of 148 pediatric cases were collected, with 50 infants (33.8%) and 98 older children (66.2%). The median age of patients was 6.2 years, and the male-to-female ratio was 1.15. The consultation delay ranged from 5 days to 7 months, with a family history of pruritus in 77.7% of cases, predominantly maternal in infants (84.5%). Infants exhibited more severe forms, such as pseudo-erythrodermic scabies (12%), while older children presented with classic scabies signs, including burrows (30.6%) and impetiginized scabies (24.5%). Diagnostic methods, including skin scrapings, tape tests, and dermoscopy, revealed varying sensitivities, with dermoscopy showing a Delta-wing sign in 67,3% in infants compared to 15.3% in older children. Benzyl benzoate was the primary treatment, with adjunctive therapies including antihistamines and emollients.

Conclusion: Pediatric scabies presents distinct diagnostic challenges, especially in infants, where atypical presentations and delayed diagnosis are common. Increased awareness, effective treatment protocols, and enhanced caregiver education are crucial to improving outcomes and preventing recurrences, particularly in socioeconomically disadvantaged populations.

Keywords: Sarcoptes Scabiei, Scabies, Benzyl Benzoate, Pediatric Dermatology.

1. Background

Scabies is a severely contagious skin infestation caused by the mite Sarcoptes scabiei, affecting an estimated 200 million people globally. This parasitic infection can occur sporadically or spread epidemically, particularly in socioeconomically disadvantaged populations [1].

While scabies is common in adults and typically presents with intense itching and characteristic rashes, it presents more complex diagnostic and therapeutic challenges in children, particularly infants, as scabies often presents with varied lesions and may not include the typical pruritus, making diagnosis more difficult and treatment delays more likely [2]. Lesions often affect the head, palms, soles, and ankles [3].

This study aims to provide a comprehensive review of the clinical, epidemiological, and treatment characteristics of pediatric scabies, with a focus on age-related variations, diagnostic delays, and

factors influencing therapeutic response.

2. Materials and Methods

2.1. Study Design

A retrospective observational study was conducted, analyzing all pediatric cases of scabies managed in dermatology consultations over a six-year period, from January 2018 to January 2024.

2.2. Data Collection

Data were extracted from medical records and included demographic details, clinical presentations, diagnostic methods, treatment protocols, and outcomes. Variables such as age, sex, pruritus history, lesion distribution, and associated family cases were systematically recorded.

2.3. Statistical Analysis

Descriptive statistics were used to summarize the findings, and subgroup analyses were conducted to identify trends and differences between infants (<24 months) and older children (>24 months).

3. Results

A total of 148 pediatric scabies cases were analyzed, including 50 infants (<12 months, 33,8%) and 98 older children (>12 months, 66,2%). The median age of patients was 6,2 years (range: 3 months to 15 years), with a male-to-female ratio of 1.15. The consultation delay ranged from 5 days to 7 months. A family history of pruritus was reported in 77,7% of cases, with maternal involvement being predominant in infants (84,5%). (**Table 1**)

Parameter	Median (Range)/ Percentage of Cases
Time to symptom onset	14 days (5-70 days)
Time to consultation	30 days (5-210 days)
Cases with >30 days diagnosis delay	45%
Family pruritus involvement	77,7%
Maternal pruritus (infants)	84,5%

Table 1: Clinical Timeline and Pruritus Involvement in Scabies Cases

All patients presented with significant discomfort, with agitation documented in 84% of cases. Lesions were predominantly found in the palmar-plantar region, the axillae region, the face, the scalp and the back **(Figure 1).**

Figure 1: Clinical Manifestations of Scabies in The Pediatric Population

Severe forms, such as pseudo-erythrodermic scabies, were noted in 12% of infant cases, often linked to corticosteroid self-medication. Older children displayed more classic findings such as burrows (30,6%), impetiginized scabies (24,5%) and eczematized scabies (22,5%) (**Table 2**).

Characteristics	Percentage %
Type of lesions	
Papules	84,3%
Pustules	72,1%
Burrows	30,6%
Vesicles	43,7%
Nodules	78%
Impetiginized areas	24,5%
Eczematized scabies	22,5%
Pseudo-erythrodermia	12%
Location	
Head	64%
Scalp	56%
Trunk	38%
Arms	52%
Folds	54%
Palms/soles	72%
Symptoms	
Pruritus	76%
Irritability	84%

Table 2: Clinical Characteristics and Distribution of Scabies Lesions in Patients

To assert the diagnosis, skin scraping and tape tests were conducted in 44,6% of cases, yielding a positivity rate of 20,3%. Dermoscopy was selectively employed, aiding in visualizing burrows and mites, particularly in infants: The Delta-wing sign was observed in 67,3% in infants while it was positive in 15,3% in older children (**Figure 2**).

Figure 2: Dermoscopic Signs of Scabies: ↙Scabious burrows★Delta-wing sign

For the treatment, benzyl benzoate was the primary treatment for all patients, with infants receiving a single 12-hour application (**Table 3**). Antihistamines and emollients were routinely prescribed as adjunct therapies.

Outcome	Infants (<24 months)	Older Children (>24 months)	Overall
Complete resolution	35	36	71 (47.9%)
Persistent nodules	10	15	25 (16.9%)
Lost to follow-up	15	37	52 (35.2%)

Table 3: Outcomes of Scabies Treatment in Infants and Older Children

4. Discussion

This study illustrates the complex and varied clinical manifestations of scabies in pediatric populations, particularly in infants, who present unique diagnostic challenges. The delay in diagnosis, which in some cases extended up to seven months, underscores a significant gap in recognizing the atypical presentations of scabies in this age group. These findings are consistent with prior studies that have reported diagnostic delays ranging from several weeks to months often attributed to misdiagnosis as eczema, psoriasis, or other inflammatory skin conditions [4-6].

Moreover, the subtle presentations such as palmar-plantar pustulosis or axillary scabietic nodules, were frequently misinterpreted as other dermatological conditions like infantile acropustulosis [7]. Furthermore, the significant role of intra-familial transmission, highlighted by maternal pruritus in 84.5% of cases, mirrors findings from the literature, where household transmission accounted for over 90% of pediatric cases [8]. These data collectively emphasize the need for heightened clinical vigilance and awareness of familial clustering to facilitate early detection.

The diagnostic limitations of tape tests and skin scrapings, which showed a sensitivity of just 20.3% in this study, reflect similar issues highlighted in the literature. For instance, a meta-analysis by Thomas et al. reported that skin scrapings, while specific, often fail to detect low-level infestations, particularly in atypical cases [9]. The growing interest in dermoscopy as a diagnostic tool is notable, as it allows for visualization of characteristic features like burrows and the Delta-wing sign. Multiple studies validated dermoscopy's diagnostic accuracy, reporting a sensitivity of 91% and specificity of 86% in scabies detection [10,11].

The observed age-specific differences in lesion distribution between infants and older children are a critical focus of this study. Scalp and facial involvement, documented in 56% and 64% of infants, respectively, were notably higher than in older children which corresponds to findings in the literature that attribute scalp and facial involvement in infants to anatomical and physiological factors, such as a thinner stratum corneum [12]. In contrast, older children in this cohort were more prone to secondary complications like impetiginization (24.5%) and eczematized lesions (22.5%). Similar studies have reported a high prevalence of secondary bacterial infections, reinforcing the need for timely diagnosis to prevent complications [13,14].

Benzyl benzoate was the primary treatment in this study and demonstrated high efficacy, with most cases resolving without recurrence. However, persistent nodules, observed in 16.9% of cases, were attributed to post-scabetic hypersensitivity rather than active infestation. These results mirror literature findings, which reported similar post-treatment nodular persistence in up to 20% of pediatric cases [15]. Other efficient treatments, such as permethrin and oral ivermectin, are also commonly used and have shown high efficacy in treating scabies [16]. Moreover, the study's focus on educating caregivers to prevent the misuse of corticosteroids is supported by research from Ozon et al., which identified corticosteroid overuse as a significant factor contributing to pseudo-erythrodermic scabies in pediatric patients [17].

A critical challenge highlighted in this study was the high rate of loss to follow-up, with over one-third of cases not returning for post-treatment assessment. This issue is not unique, as multiple studies, including a review by Turan et al., have documented similar challenges in maintaining follow-up care in socioeconomically disadvantaged populations [18]. Ensuring treatment adherence and preventing reinfestation are ongoing concerns, particularly in regions with limited healthcare access [19]. The broader implications of this study point to the disproportionate impact of scabies on children in socioeconomically disadvantaged settings, where overcrowded living conditions and limited healthcare access facilitate disease spread.

This is in line with global data presented by the World Health Organization, which identifies scabies as a major public health issue in low and middle-income countries [20]. Public health interventions, such as community wide treatment protocols and educational campaigns, have proven to be effective in similar settings [21]. Furthermore, integrating dermoscopy training into primary care, could further enhance diagnostic accuracy. A pilot program in Australia demonstrated that brief dermoscopy training for general practitioners significantly improved scabies detection rates, supporting the assessment of this approach [21].

5. Conclusion

Pediatric scabies presents unique clinical and diagnostic challenges that necessitate heightened awareness among clinicians. Early diagnosis through dermoscopy or parasitological examination is critical, particularly in atypical cases. When diagnostic uncertainty persists, a therapeutic trial with scabicides should be initiated to prevent complications and reduce the disease burden. Enhanced caregiver education and follow-up measures are essential to improve treatment outcomes and minimize recurrences.

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