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"Assessment of Viral Skin Infections (Molluscum Contagiosum and Warts) in the Pediatric Age Group: A Hospital-Based Observational Study"

Dr. Ruchi Patwardhan

Head of Department & Professor, Department of Dermatology, Venereology and Leprosy
Venkateshwara Institute of Medical Sciences, Gajraula, UP

Dr. Ajay Patwardhan

Professor, Department of Pediatrics, Venkateshwara Institute of Medical Sciences, Gajraula, UP

Dr. Yogita Yadav

Post-graduate Junior Resident- 3 , Department of Dermatology Venereology and Leprosy,
Venkateshwara Institute of Medical Sciences, Gajraula, UP

Corresponding Author:

Dr. Yogita Yadav, Post-graduate Junior Resident-3, Department of Dermatology, Venereology and Leprosy, Venkateshwara Institute of Medical Sciences , Gajraula, UP
Email: yyogita97@gmail.com

Abstract

Viral skin infections such as molluscum contagiosum and cutaneous warts are common dermatological conditions in the pediatric population. Despite being generally benign, these infections may lead to cosmetic concerns, psychosocial distress, and transmission within communities. Hospital-based epidemiological data in Indian pediatric settings remain limited. To assess the clinical profile, distribution, and associated factors of molluscum contagiosum and warts among children attending a tertiary care hospital. A prospective observational study was conducted in the Department of Dermatology at VIMS over 12 months. Pediatric patients (≤14 years) presenting with clinically diagnosed viral skin infections were included. Demographic details, clinical features, lesion characteristics, and associated risk factors were recorded. Data were analyzed using descriptive and inferential statistics. A total of 152 pediatric patients were included. Warts were more prevalent (61.8%) compared to molluscum contagiosum (38.2%). The most affected age group was 6–10 years (45.4%). Male predominance was observed (M:F = 1.3:1). Common wart types included verruca vulgaris (48.9%) and plane warts (21.3%). Molluscum lesions were predominantly found on the trunk and face. A significant association was noted with overcrowding ($p < 0.05$) and history of contact.

Conclusion:

Viral skin infections are prevalent among school-aged children, with warts being more common than molluscum contagiosum. Early diagnosis and awareness regarding hygiene and transmission can reduce disease burden and recurrence.

Keywords Molluscum contagiosum; Cutaneous warts; Pediatric dermatology; Viral skin infections; Human papillomavirus; Poxvirus; Epidemiology

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Introduction

Viral skin infections represent a significant proportion of dermatological conditions encountered in pediatric clinical practice. Among these, molluscum contagiosum and cutaneous warts are particularly prevalent due to their contagious nature and frequent exposure in school and community environments (1). These infections are generally benign and self-limiting; however, their clinical significance lies in their transmissibility, chronicity, cosmetic impact, and occasional complications. Molluscum contagiosum is caused by a DNA poxvirus belonging to the Molluscipoxvirus genus. It typically presents as small, dome-shaped, pearly papules with central umbilication (2). The infection is primarily transmitted through direct skin-to-skin contact or fomites, and its incidence is notably higher in children due to immature immune responses and close-contact environments (3). The prevalence is estimated to range between 2% and 8% in pediatric populations globally (4). Cutaneous warts, on the other hand, are caused by various strains of human papillomavirus (HPV). These lesions can manifest in multiple forms, including common warts (verruca vulgaris), plantar warts, flat warts, and filiform warts, depending on the HPV subtype and site of infection (5). The transmission occurs through direct contact or microtrauma to the skin, facilitating viral entry (6). Warts are particularly common in school-going children, with prevalence rates ranging from 10% to 20% (7).

The epidemiology of these infections is influenced by multiple factors such as age, gender, hygiene practices, immune status, socioeconomic conditions, and environmental exposure (8). In developing countries like India, factors such as overcrowding, limited awareness regarding personal hygiene, and delayed healthcare access contribute significantly to the disease burden (9).Several studies have evaluated the clinical patterns of viral skin infections in children; however, most data are derived from Western populations or community-based surveys. There remains a paucity of hospital-based observational studies focusing specifically on pediatric patients in Indian tertiary care settings (10). Furthermore, variations in clinical presentation, distribution, and associated risk factors necessitate region-specific research to guide effective management strategies. Understanding the clinical profile and epidemiological characteristics of molluscum contagiosum and warts is essential for early diagnosis, prevention of transmission, and appropriate therapeutic interventions. Additionally, these infections may have psychosocial implications, especially when lesions are visible or persistent, affecting a child's quality of life and self-esteem (11). The present study was undertaken to bridge this gap by assessing the prevalence, clinical patterns, and associated factors of molluscum contagiosum and warts in pediatric patients attending a tertiary care hospital in Uttar Pradesh. The findings aim to contribute to existing literature and provide insights into disease trends in this population.

Objective:

To evaluate the clinical and epidemiological characteristics of molluscum contagiosum and cutaneous warts in the pediatric age group in a hospital-based setting.

Materials and Methods

This prospective observational study was conducted in the Department of Dermatology, Venereology and Leprosy at VIMS, Gajraula, over a period of 12 months. Pediatric patients aged

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0–14 years presenting with clinically diagnosed viral skin infections, specifically molluscum contagiosum and warts, were included in the study. The sample size consisted of 152 patients who met the inclusion criteria. Patients with immunocompromised status, chronic systemic illness, or those already receiving treatment for viral skin infections were excluded to maintain uniformity in clinical evaluation. Data collection was carried out using a structured proforma that included demographic details (age, gender), clinical characteristics (type, number, size, and location of lesions), duration of disease, history of recurrence, and possible risk factors such as overcrowding, sharing of personal items, and family history.

Diagnosis was primarily clinical, based on characteristic morphology and distribution of lesions. Dermoscopy was utilized in selected cases to confirm diagnosis. No invasive diagnostic procedures were performed. Ethical approval for the study was obtained from the Institutional Ethics Committee of VIMS. Written informed consent was obtained from parents or guardians prior to enrollment. Statistical analysis was performed using SPSS software version 25. Descriptive statistics such as mean, standard deviation, and percentages were calculated. Chi-square test was used to determine associations between categorical variables, with a p-value <0.05 considered statistically significant.

Results

A total of 152 pediatric patients were included in the study.

Table 1: Demographic Distribution of Patients

Variable	**Frequency (n=152)**	**Percentage (%)**
Age 0–5 years	32	21.1%
Age 6–10 years	69	45.4%
Age 11–14 years	51	33.5%
Male	86	56.6%
Female	66	43.4%

The majority of cases were observed in the 6–10 years age group, with a slight male predominance.

Table 2: Distribution of Viral Skin Infections

Condition	**Frequency**	**Percentage (%)**
Warts	94	61.8%
Molluscum contagiosum	58	38.2%

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Warts were significantly more common than molluscum contagiosum.

Among wart cases, verruca vulgaris was the most common subtype (48.9%), followed by plane warts (21.3%) and plantar warts (17.0%). Molluscum contagiosum lesions were predominantly located on the trunk (36.2%) and face (29.3%).

A statistically significant association was observed between overcrowding and infection prevalence ($p = 0.03$). Additionally, 28% of patients reported a history of similar lesions in family members.

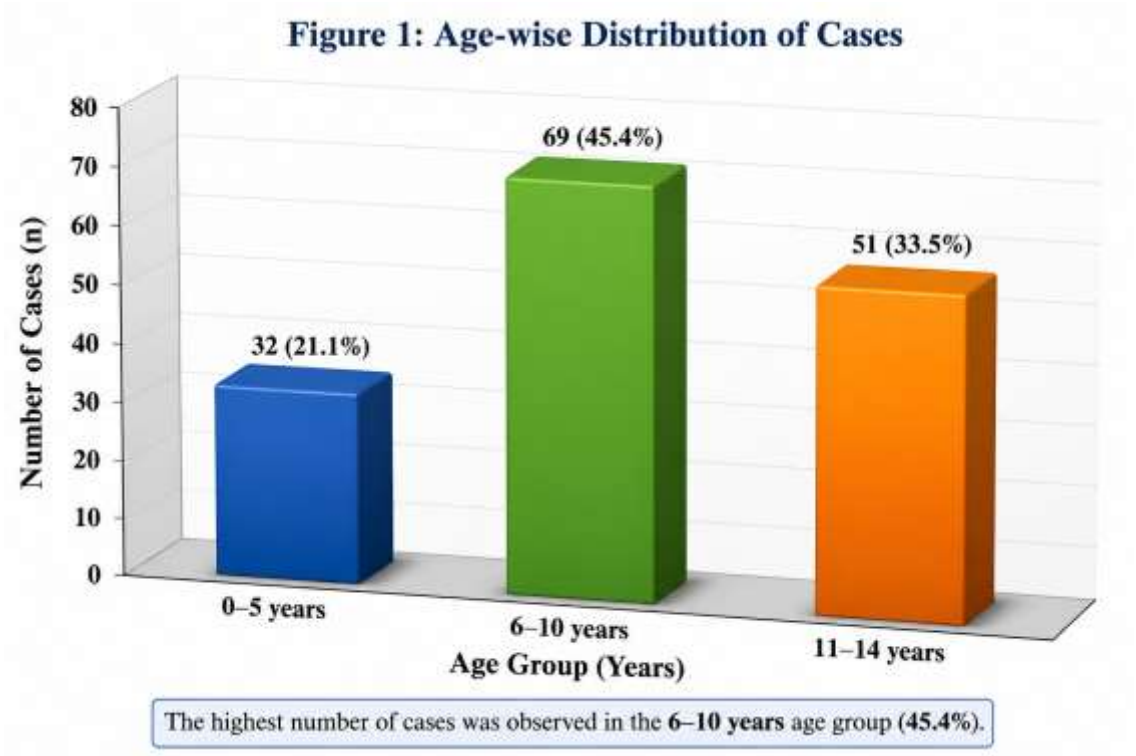

Figure 1: Age-wise Distribution of Cases

(Bar graph showing highest prevalence in 6–10 years age group)

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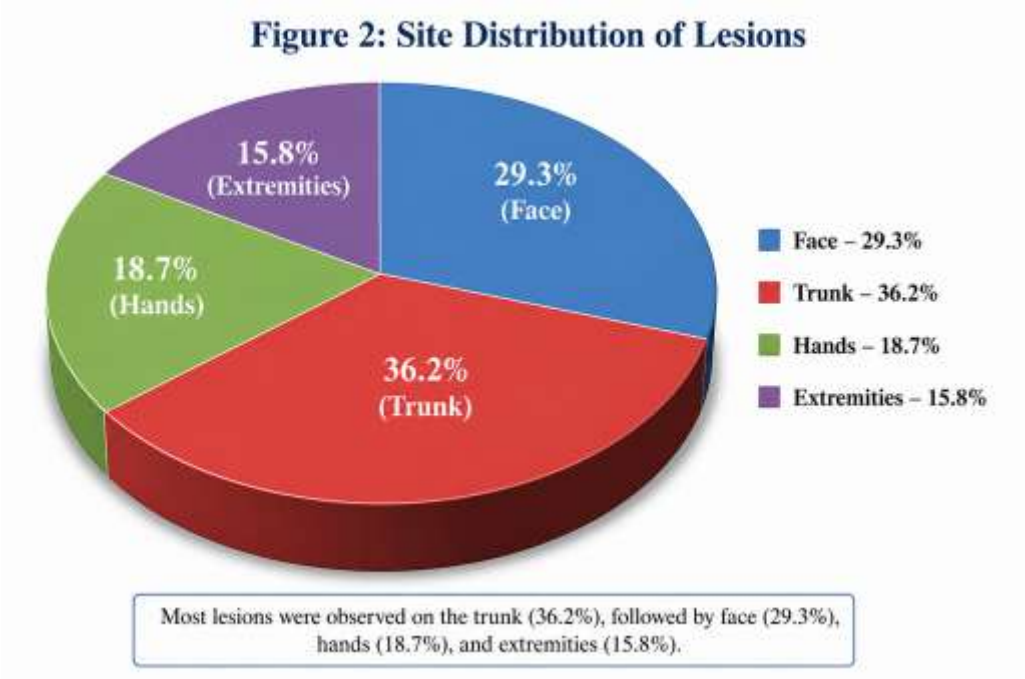

Figure 2: Site Distribution of Lesions

(Pie chart showing face, trunk, hands, and extremities involvement)

Discussion

The present study highlights the clinical and epidemiological characteristics of viral skin infections in the pediatric population, emphasizing the predominance of warts over molluscum contagiosum. The findings are consistent with previous studies that report higher prevalence of HPV-related infections in school-aged children (12). The peak incidence observed in the 6–10 years age group can be attributed to increased exposure in school environments and frequent minor skin trauma, which facilitates viral entry. Similar age distribution patterns have been reported in studies by Kilkenny et al. and Sterling et al. (13,14). Male predominance observed in this study aligns with earlier research, possibly reflecting increased outdoor activity and exposure to environmental risk factors among boys (15). However, gender differences are generally not considered a strong determinant in viral skin infections. The higher prevalence of verruca vulgaris among wart cases is consistent with the known epidemiology of HPV types 2 and 4, which commonly infect children (16). The predominance of molluscum lesions on the trunk and face is also in agreement with established literature, reflecting areas of frequent contact and autoinoculation (17). Overcrowding emerged as a significant risk factor, highlighting the role of environmental and socioeconomic determinants in disease transmission. This finding is particularly relevant in developing countries where population density and shared living conditions contribute to the spread of infections (18). The study also underscores the importance of family transmission, as evidenced by a considerable proportion of patients reporting similar lesions among household members. This emphasizes the need for education regarding hygiene practices and early treatment.

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From a clinical perspective, although these infections are self-limiting, they often require intervention due to cosmetic concerns, discomfort, and risk of spread. Treatment modalities such as cryotherapy, curettage, and topical agents are commonly used, but recurrence remains a challenge (19). The strengths of this study include its prospective design and comprehensive clinical assessment. However, limitations include its hospital-based nature, which may not reflect community prevalence, and the absence of virological confirmation.

Conclusion

Viral skin infections, particularly warts and molluscum contagiosum, are common in the pediatric population, with a higher prevalence among school-aged children. Environmental factors such as overcrowding and close contact play a significant role in transmission. Early diagnosis, awareness, and preventive measures are essential to reduce disease burden and recurrence.

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