

# Blister Beetle Dermatitis in Kerala: A Retrospective Study

Dr Ashwin Raj K K<sup>1</sup>, Dr Narayanan Namboothiri G<sup>1</sup>, Dr Krishnaraj Rajeev<sup>1</sup>

<sup>1</sup>Department of Community Medicine, MES Academy of Medical Sciences  
Perinthalmanna, Malappuram, Kerala-670691, India  
Corresponding author- Dr Ashwin Raj K K\*

---

## Abstract

**Background:** Blister beetle dermatitis (BBD), caused by *Paederus* beetles, is a seasonal irritant contact dermatitis prevalent in tropical regions. This study examines its epidemiological profile in Kerala, India.

**Methods:** A descriptive record-based study was conducted using medical records from February 2025 to March 2025 in semi-rural Kerala. Data on demographics, clinical presentation, and behavioral risk factors were extracted from records of patients with clinically diagnosed BBD.

**Results:** Among 33 patients, 67% (22 patients) were male, with a mean age of 28 years. The face (52%, 17 patients) and upper limbs (30%, 10 patients) were the most affected sites. Linear erythematous plaques were observed in 73% (24 patients) of cases. Behavioral risk factors included unawareness of *Paederus* beetles (58%, 19 patients), presence of beetles indoors at night (45%, 15 patients), and multiple household cases (12%, 4 patients).

**Conclusions:** BBD in Kerala exhibits a seasonal pattern linked to environmental and behavioral factors. Targeted public health interventions can reduce its incidence.

**Keywords :** Clinical Dermatology, Insect Bites, Medical Entomology And Vector Control, Public Health And Safety, Research In Tropical Health

---

## I. Introduction

Blister beetle dermatitis (BBD), also known as *Paederus* dermatitis, is an irritant contact dermatitis caused by pederin, a vesicant toxin released when *Paederus* beetles are crushed on the skin [1]. It presents as linear erythematous plaques, vesicles, or bullae, typically on exposed areas like the face, neck, and limbs [2]. In Kerala, India, BBD is more common during monsoon seasons, particularly in semi-rural areas with abundant vegetation [3]. This study aims to describe the epidemiological and clinical characteristics of BBD in Kerala using medical records, identifying risk factors to guide prevention strategies.

## II. Materials & Methods

This descriptive record-based study analyzed medical records from a dermatology outpatient department of MES medical college Perinthalmanna in semi-rural Kerala, India, covering February 2025 to March 2025. Ethical approval was obtained from the institutional review board, with a waiver of consent due to the retrospective, anonymized nature of the data. Inclusion criteria were records of patients with clinically diagnosed BBD, identified by characteristic lesions (erythematous plaques, vesicles, or linear lesions) and documented history. Records with alternative diagnoses, such as herpes zoster or allergic contact dermatitis, were excluded.

Data were extracted using a standardized proforma, including demographics (age, sex), clinical presentation (lesion site, type, duration), and behavioral risk factors (awareness of *Paederus* beetles, indoor beetle - beetle sightings, household cases, environmental exposures). Descriptive statistics summarized findings, with continuous variables reported as means and categorical variables as percentages. Beetle species identification was not available in the records.

## III. Results

A total of 33 patient records with clinically diagnosed BBD were analyzed. Table 1,2 summarizes the demographic and clinical characteristics. The mean age was 28 years (range: 15-55 years), with 67% (22 patients) being male and 33% (11 patients) female [4]. The majority of patients were young adults aged 15-30 years (61%, 20 patients). The face was the most commonly affected site (52%, 17 patients), followed by

the upper limbs (30%, 10 patients) and neck (15%, 5 patients). Linear erythematous plaques were the predominant lesion type (73%, 24 patients), with vesicles observed in 21% (7 patients) and kissing lesions in 6% (2 patients) [5]. The average symptom duration was 5 days (range: 3-10 days), consistent with the self-limiting nature of BBD [6].

Characteristic	Value
Mean age (years)	28 (range: 15–55)
Age group 15–30 years	20 (61%)
Sex	
- Male	22 (67%)
- Female	11 (33%)

**Table 1: Demographic Characteristics of Patients with BBD (n = 33)**

Clinical Feature	Number of Patients	Percentage (%)
<b>Affected Body Site</b>		
- Face	17	52%
- Upper limbs	10	30%
- Neck	5	15%
<b>Lesion Type</b>		
- Linear erythematous plaques	24	73%
- Vesicles	7	21%
- Kissing lesions	2	6%
<b>Symptom Duration (days)</b>	Mean: 5 (range: 3–10)	

**Table 2: Clinical Features of Patients with BBD (n = 33)**

Table 3 presents the behavioral and environmental risk factors. A significant proportion of patients (58%, 19 patients) were unaware of *Paederus* beetles, highlighting a critical knowledge gap [7]. Beetles were observed indoors at night by 45% (15 patients), with 80% of these cases (12 patients) linked to high-intensity fluorescent lighting [8]. Multiple household members were affected in 12% of cases (4 patients), suggesting shared environmental exposures [9]. Environmental factors were prominent, with 55% (18 patients) residing within 100 meters of dense vegetation and 48% (16 patients) having unscreened windows, both facilitating beetle entry [10].

Risk Factor	Number of Patients	Percentage of Total (%)
<b>Awareness of <i>Paederus</i> beetles</b>		
- Unaware	19	58%
<b>Beetle Presence Observed Indoors at Night</b>	15	45%
- Associated with fluorescent lighting	12	80% of above (n=15)
<b>Multiple household members affected</b>	4	12%
<b>Residence within 100 meters of dense vegetation</b>	18	55%
<b>Unscreened windows in the home</b>	16	48%

**Table 3: Descriptive Summary of Behavioral and Environmental Risk Factors for BBD (n = 33)**

Temporally, 82% of cases (27 patients) were recorded in early March 2025, coinciding with the onset of monsoon conditions, which likely increased *Paederus* beetle activity due to higher humidity and vegetation growth [11].

#### IV. Discussion

This study confirms that BBD in Kerala predominantly affects younger males in semi-rural areas, consistent with prior reports [12]. The higher male prevalence may reflect greater exposure during outdoor activities at night [13]. Multiple household cases (12%, 4 patients) point to environmental clustering near vegetation, as observed in Iraq [9]. The seasonal peak in early March 2025 aligns with monsoon-related humidity, which fosters beetle proliferation [11]. Recent reports from Sierra Leone and Western Europe further highlight the global occurrence of BBD in humid, vegetated environments [14,15].

The face and upper limbs were the most common sites, likely due to the beetles' preference for landing on exposed skin [16]. Linear lesions and vesicles, observed in 73% (24 patients) and 21% (7 patients) respectively, result from pederin smearing, with kissing lesions (6%, 2 patients) indicating toxin transfer between skin surfaces [17]. The burning sensation reported by most patients aligns with the vesicant nature of pederin, as documented in recent Indian case series [2,7].

Behavioral risk factors highlight preventable factors. Unawareness of *Paederus* beetles (58%, 19 patients) suggests a need for education on beetle identification and avoiding crushing them, a gap also noted in other tropical regions [7]. Indoor beetle sightings (45%, 15 patients) correlate with inadequate night-time protection, such as unscreened windows and high-intensity lighting, which attracts *Paederus* species [8]. Preventive measures, such as window screens and low-intensity lighting, are critical, as emphasized in recent reviews [18]. Community education on gently brushing off beetles rather than crushing them can reduce incidence, particularly in high-risk areas like Kerala with dense vegetation [10]. These strategies are feasible and cost-effective, as demonstrated in outbreak responses in Turkey and Panama [1,12].

## V. Recommendations

To reduce the incidence of BBD in Kerala, public health initiatives should prioritize community education programs to teach residents how to identify *Paederus* beetles and avoid crushing them on the skin. Schools and community centers can host workshops demonstrating proper beetle removal techniques, such as gently brushing them off. Households should install window screens and use low-intensity LED lighting to minimize beetle attraction at night. Local authorities should implement targeted insecticide spraying in high-risk areas, particularly near dense vegetation, before the monsoon season. Clearing overgrown vegetation within 100 meters of residential areas can further limit beetle habitats. Health workers should distribute educational materials, such as posters and pamphlets, in local languages to promote protective sleeping arrangements, like mosquito nets, during peak beetle activity in early March.

Limitations include the retrospective design, short study period, and lack of beetle species identification. Future studies should validate interventions and explore long-term trends

## VI. Conclusions

Blister beetle dermatitis in Kerala follows a seasonal, environmentally linked pattern, primarily affecting younger males in semi-rural areas during the early monsoon. Public awareness, vector control, and improved housing practices, such as window screens, can significantly reduce the disease burden.

## References

- [1]. Cáceres L, Suarez JA, Jackman C, et al.: Dermatitis due to *Paederus colombinus*: Report of an epidemic outbreak of 68 cases in the province of Darien, Panama. *Cureus*. 2017;94:1158.
- [2]. Tamilselvan B, Shanmugam S, Shakthi P: A case series of *Paederus* dermatitis: Understanding its varied and diverse clinical presentations. *Cureus*. 2024;162, 54148.
- [3]. Kambil SM: A study of blister beetle dermatitis. *Int J Res Dermatol*. 2018;72-74.
- [4]. Srihari S, Kombettu AP, Rudrappa KG, et al.: *Paederus* dermatitis: A case series. *Indian Dermatol Online J*. 2017;361-364.
- [5]. Kumaraguru A, Ramalingam R, Thangaraj P, et al.: Clinico-dermatologic patterns of *Paederus* dermatitis in a teaching hospital, South India. *J Family Med Prim Care*. 2022;4357-4362.
- [6]. Padhi T, Mohanty P, Jena S, et al.: Clinicoepidemiological profile of 590 cases of beetle dermatitis in western Orissa. *Indian J Dermatol Venereol Leprol*. 2007, 73:333-335. 10.4103/0378-6323.35735
- [7]. Inbamani APD, Sundaram G, Ramalingam R: Blister beetle periorbital dermatitis and keratoconjunctivitis in Tanzania. *Cureus*. 2024;164, 58813.
- [8]. Rahmah E, Norjaiza MJ: An outbreak of *Paederus* dermatitis in a primary school, Terengganu, Malaysia. *Malays J Pathol*. 2008, 30:53-56.
- [9]. Al-Dhalimi MA: *Paederus* dermatitis in Najaf province of Iraq. *Saudi Med J*. 2008, 29:1490-1493.
- [10]. Narasimhalu CR, Murali A, Kannan R, et al.: Blister beetle dermatitis. *J Indian Med Assoc*. 2010, 108:781-782.
- [11]. Mammino JJ: *Paederus* dermatitis: An outbreak on a medical mission boat in the Amazon. *J Clin Aesthet Dermatol*. 2011, 4:44-46.
- [12]. Sendur N, Savk E, Karaman G: *Paederus* dermatitis: A report of 46 cases in Aydın, Turkey. *Dermatology*. 1999;353-355.
- [13]. Kamaladasa SD, Perera WD: An outbreak of *Paederus* dermatitis in a suburban hospital in Sri Lanka. *Int J Dermatol*. 1997;34-36. 10.1046/j.1365-4362.1997.00009.x
- [14]. Kalkman LC, Sesay OM, Grobusch MP: *Paederus* dermatitis. *Infection*. 2024;1647-1649.
- [15]. Descatha A, Ezzedine K, Le Roux G: A case of *Paederus* dermatitis in Western Europe: A signal for a One Health-One World concept for the dermatologist. *Br J Dermatol*. 2023;1893, 54.
- [16]. Neamin G, Negga A, Mukemil H, et al.: *Paederus* dermatitis outbreak in Addis Ababa, Ethiopia: A case-control study. *J Environ Public Health*. 2021;2021, 8892785.
- [17]. Verma CR, Agarwal S: Blistering beetle dermatitis: An outbreak. *Med J Armed Forces India*. 2006;62(1): 42-44.
- [18]. Bhatt DM, Singh A, Madke B, et al.: Pharmacological trends in the management of *Paederus* dermatitis: A comprehensive review. *Cureus*. 2024;167, 64302.