



## A STUDY OF PAEDERUS DERMATITIS IN 200 PATIENTS AT A TERTIARY CARE CENTER

**Dr Anubhav Garg**

M.D. Associate Professor and Head, Dept of Dermatology, Venereology and Leprosy, G R Medical College, Gwalior-474001, M P

**Dr Sushma Garg\***

MBBS, Demonstrator, Dept of Dermatology, Venereology and Leprosy, G R Medical College, Gwalior-474001, M P \*Corresponding Author

**ABSTRACT** **BACKGROUND:** Paederus dermatitis (PD) is a peculiar, irritant contact dermatitis characterized by a sudden onset of erythematous-bullous lesions on exposed areas of the body. The condition causes significant morbidity and can be misdiagnosed.  
**AIM:** The study was conducted to know the clinical profile of paederus dermatitis and to increase awareness among general practitioner about this condition.  
**METHODS:** All clinically diagnosed cases of paederus dermatitis were included in the study and were evaluated by means of standard proforma. Clinical photographs were taken in all the cases.  
**RESULTS:** A total of 200 cases comprising of 138 males and 62 females were studied. The age of the patients ranged from 4 to 75 years. Majority of the cases presented during the rainy and post rainy months (July-October), indicating a distinct seasonal trend. Morphology of lesions was mainly bizarre, but linear, kissing lesions and Nairobi eye were also observed. Head, neck and upper limbs were most commonly involved.  
**CONCLUSION:** Paederus dermatitis should always be considered in differential diagnosis while examining erythematous lesions with vesicles of acute onset, particularly on exposed parts during rainy and post rainy season. Knowledge of this condition and its clinical features among the general practitioners will prevent misdiagnosis and unnecessary treatment. Closing windows and use of repellent should be taken as preventive measures.

**KEYWORDS :** Paederus dermatitis, Paederus, kissing lesion

### INTRODUCTION

Paederus dermatitis is a peculiar, irritant contact dermatitis caused by a beetle belonging to the genus *Paederus*. Beetles of the genus *Paederus* belong to the family *Staphylinidae* (rove beetles).<sup>1,2</sup>

*Paederus* dermatitis is not an insect bite reaction but a true dermatitis as it is produced by crushing and wiping the insect on the skin.<sup>3</sup> *Paederus* are nocturnal and attracted by incandescent lights and as a result, inadvertently come in contact with humans.<sup>4</sup> This insect does not bite or sting, but releases a fluid containing paederin, a potent vesicant agent. If not immediately washed off, the chemical leads to a linear dermatitis composed of erythematous-bullous lesions. The species commonly causing *Paederus* dermatitis are *Paederus melampus* in India.<sup>5</sup>

It has been demonstrated that the production of paederin relies on an endosymbiont (*Pseudomonas* species) within *Paederus*. The manufacture of paederin is largely confined to adult female beetles.<sup>6</sup>

### MATERIAL AND METHODS

Two hundred cases of paederus dermatitis were studied in the Department of Skin and VD, G R Medical College and Associated Group of Hospitals, Gwalior, Madhya Pradesh from July to October 2018.

Through clinical and epidemiological details were recorded of all cases. Photographs were taken wherever it deemed necessary. Diagnosis of paederus dermatitis was done clinically. Patients were treated according to severity of lesions.

### RESULTS

Two hundred cases of paederus dermatitis were included in this study comprising 138 (69%) males and 62 (31%) females with age ranging from 4 to 75 years. 158 (79%) patients showed lesions of less than one week duration. 165 (82.5%) patients had burning and itching at the site of lesion, while 35 (17.5%) cases were asymptomatic.

Systemic features such as fever and malaise were observed in 25 (12.5%) cases. Face was involved most commonly involved site in 84 (42%) patients. Other sites of involved were trunk, upper extremities and lower extremities (Table 1). 110 (55%) showed linear pattern (Table 2).

All cases were treated according to the severity and responded well to

therapy. Few patients develop post inflammatory pigmentation (Fig 4).

**Table 1: Site of involvement of paederus dermatitis**

Site of involvement	No. of cases	% (n=200)
Face	84	42%
Neck	37	18.5%
Trunk	32	16%
Upper extremity	35	17.5%
Lower extremity	12	6%
Total	200	100%

**Table 2: Pattern of lesions of paederus dermatitis**

Morphology of lesions	No. of cases	% (n=200)
Linear (Fig 2)	110	55%
Kissing (Fig 1)	46	23%
Bizzare	15	7.5%
Herpetiform (Fig 3)	29	14.5%
Total	200	100%

### DISCUSSION

*Paederus* dermatitis is a seasonal vesiculobullous disorder caused by three major groups of beetles i.e. Family *Oedemeridae*, *Meloidae* and *Staphylinidae*.<sup>1,2</sup> Beetles of the genus *Paederus* belong to the family *Staphylinidae* (rove beetles) which is the largest of all three families. *Paederus* genus comprising 600 species are found in tropical and temperate climates.<sup>7</sup> *Paederus* species are widely dispersed around the world.

It is caused when the beetle is crushed against the skin, even partially. Paederin once come in contact with the skin, it may also be spread elsewhere on the skin.<sup>8</sup> The lesions are commonly linear due to crushing and whipping an insect off the skin. "Kissing" or "mirror image" lesions where two skin areas come in contact (for example, the elbow flexure) are also seen oftenly.<sup>9</sup>

Initial skin contact with paederin shows no immediate result. Within 12–36 hours, an erythematous rash appears which develops into blisters.<sup>9</sup> Irritation, including crusting and scaling, may last for two to three weeks.

Adult *Paederus* beetles are usually 7 to 10mm long and 0.5 to 1mm wide. They have a black head, lower abdomen, and elytra (structure covering the wings) and a red thorax and upper abdomen.<sup>7</sup> The beetles

live in moist habitats and are often beneficial to agriculture because they will eat crop pests. Adults are attracted to incandescent and fluorescent lights, and as a result, inadvertently come into contact with humans. They can cause trouble, especially, if windows or doors are left open.

This beetle does not bite or sting, but accidental brushing against it or crushing it over the skin provokes the release of its coelomic fluid, which contains paderin, a strong blistering chemical causing linear dermatitis.

It is important to note that Paederus beetles are not “blister beetles,” which are of the family *Meloidae*. Blister beetles, which also are widely distributed, release a defensive compound, cantharidin, a bicyclic terpenoid, is quite different from paderin, an amide.

Exposed body parts such as head, neck and upper extremities were most commonly affected in our study. A similar observation was made in a study on 100 cases of beetle dermatitis in Rajasthan by Mittal et al<sup>10</sup> and in a study on 54 cases at Jodhpur by Kalla et al<sup>11</sup>. Most common pattern of lesions seen was linear in our study. Similar pattern has been reported in other studies also.<sup>5,6,8</sup>

Ocular involvement was seen in a few of our patients. If the peri-orbital area is affected, conjunctivitis may develop (referred to “Nairobi eye”). It is usually secondary to transfer of toxic chemicals by fingers from elsewhere on skin. Ocular involvement was also reported by Zargari et al.<sup>8</sup>

Clinically paederus dermatitis mimics herpes simplex, herpes zoster, thermal/ liquid burns, bullous impetigo, millipede dermatitis, phytophotodermatitis and acute allergic or irritant contact dermatitis.<sup>8</sup> Herpes zoster is particularly misdiagnosed with paederus dermatitis because of symptoms of burning, pain and vesico-bullous lesions. Grouped vesicles and bullae in a dermatomal pattern is characteristic of herpes zoster. A high index of suspicion should always be kept for paederus dermatitis in case of sudden onset of linear and mirror image lesions, predilection for exposed sites, seasonal incidence and occurrence of similar cases in a given area.

## CONCLUSION

Being aware of this beetle and the signs and treatment of its dermatitis can greatly aid a healthcare professional. Also it prevents persistent hyperpigmentation a common cause for agony amongst patient. In addition awareness among general public may also help in reducing the incidence of paederus dermatitis.

The patients should be counselled about the benign and self-limiting nature of the disease. Preventing human/beetle contact is the primary method of avoiding Paederus dermatitis. If a beetle lands on the skin, it should be blown off or encouraged to walk onto a piece of paper and then removed. The area in contact should be immediately washed with soap and water, and any clothes in contact with the beetle should be washed as well. Doors should be kept closed and window screening should be kept in good repair to help reduce entry of these insects into buildings. Since beetles are attracted to light, these should be switched off near areas where people sleep

## FIGURES:



Figure 1: Kissing Lesion over right upper limb.



Figure 2: Linear lesion over neck.



Figure 3: Paederus dermatitis mimicking Herpes Zoster.

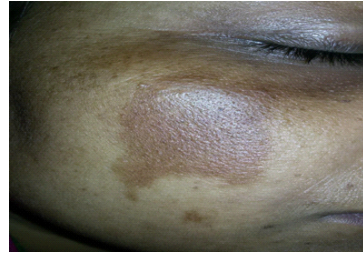


Figure 4: Persistent pigmentation after paederus dermatitis.

## REFERENCES

1. Nicholls DS, Christmas TI, Greig DE. Oedemerid blister beetle dermatosis: a review. *J Am Acad Dermatol* 1990;22 (5 Pt 1):815-9.
2. Alexander JO'D, ed. *Arthropods and Human Skin*. Berlin: Springer-Verlag; 1984, p.81-2.
3. Taneja A, Sudhir Nayak UK, Sheno SD. Clinical and epidemiological study of Paederus dermatitis in Manipal, India. *J Pak Asso Dermatol* 2013;23 (2):133-138.
4. Frank JH, Kanamitsu K. Paederus, sensu lato (Coleoptera: Staphylinidae): Natural history and medical importance. *J Med Entomol* 1987;24:155-191.
5. Parasitic infestations stings and bites. In: Arnold HL, Odum RB, James WD, eds. *Andrew's disease of skin*. 8th ed. WB Saunders's: Philadelphia; 1990, p.486-533.
6. Piel J. A polyketide synthase-peptide synthetase gene cluster from an uncultured bacterial symbiont of Paederus beetles *PNAS* 2002; 99:14002-14007.
7. R. Nikhita, R. Srithilak and M.V. Radhakrishnan. Prevalence of Paederus spp. (Coleoptera; Staphylinidae) and dermatitis in Annamalainagar, Chidambaram, Tamilnadu. *Journal of Entomology and Zoology Studies* 2014; 2 (4): 194-196.
8. Zargari O, Kimyai-Asadi A, Fathalikhani F, Panahi M. Paederus dermatitis in Northern Iran: a report of 156 cases. *Int J Dermatol* 2003; 42(8): 608-12.
9. Singh G, Ali SY. Paederus dermatitis. *Indian J Dermatol Venereol Leprol* 2007;73:13-15.
10. Mittal A, Mehta S, Garg A, Gupta L, Kuldeep CM, Khare AK, Nistha S. A study of blister beetle dermatitis. *Ind J Clin Prac* 2103; 24(1): 22-24.
11. Kalla G, Batra A. Blister beetle dermatitis. *Indian J Dermatol Venereol Leprol* 1996;62(4):267-8.