



PAEDERUS DERMATITIS: A CLINICAL STUDY OF 200 CASES

KEYWORDS

Dermatitis linearis, Kissing lesions, Paederus

Dr.Kommala Penchalaiah

Associate Professor, Department of Dermatology, Government Medical College, Anantapuramu, Andhra Pradesh, India.

Dr.A.Vijaya kumari

Assistant Professor, Department of Dermatology, Government Medical College, Anantapuramu, Andhra Pradesh, India.

Dr.R.Sreenivasulu Naik

Assistant Professor, Department of Dermatology, Government Medical College, Anantapuramu, Andhra Pradesh, India.

Dr.M.Deepthi

Senior Resident, Department of Dermatology, Government Medical College, Anantapuramu, Andhra Pradesh, India.

ABSTRACT

Introduction: Paederus dermatitis is peculiar irritant dermatitis seen in regions with warm, tropical and subtropical regions, like India, causes significant morbidity and can be misleading in diagnosis. The study was conducted to know the clinical profile of Paederus dermatitis and to create awareness among medical practitioners about this condition. **Materials & Methods:** All clinically diagnosed cases of Paederus dermatitis were included in the study. Detailed history was taken and a thorough clinical examination was conducted in all the cases. **Results:** A total of 200 cases comprising of 124 males and 76 females were studied. Morphology of lesions was mainly linear, but zosteriform, kissing and bizarre lesions were also observed. **Conclusion:** Paederus dermatitis should be included in differential diagnosis while examining erythematous-vesicular lesions of sudden onset, especially on exposed body parts during rainy and post rainy season. Awareness of this condition and its clinical features among the physicians and medical practitioners will prevent misdiagnosis.

INTRODUCTION:

Paederus dermatitis, also known as dermatitis linearis or blister beetle dermatitis is a peculiar, acute irritant dermatitis caused by a vesicant chemical present in the body fluid of the beetle belonging to the order coleopteron.

The disease is provoked by an insect belonging to the genus Paederus. They are also known as Rove beetles, these are slightly bigger than mosquitoes. The beetle does not bite or sting but accidental brushing against or crushing the beetle over the skin provokes the release of its coelomic fluid, which is a potent vesicant [1].

Paederus dermatitis is characterized by sudden onset of erythematous, vesiculobullous lesions on the exposed body parts and associated with burning, stinging and itching [2]. The dermatitis is most commonly seen in regions with warm tropical climate and is common in various parts of India, but may not be easily diagnosed by non dermatologists due to lack of awareness and familiarity about this condition. There have been reports of outbreak of beetle dermatitis from various regions of India [3,4].

Despite much research from other countries on this subject, few studies, mostly clinical, have been performed in Indian context. The condition causes significant morbidity and can be misleading in diagnosis.

We undertook this study to know the various clinical patterns of Paederus dermatitis and to raise the awareness about this entity among medical professionals.

MATERIAL AND METHODS:

This study was carried out at the Department of Dermatology, Government General Hospital, Anantapuramu, Andhra Pradesh. A total of 200 cases of Paederus dermatitis were selected to do this study over a period of two years from 2014 to 2015. Ethical Committee approval was taken before doing this study. Informed consent taken from all the patients who were participated in this study.

A detailed history was taken from all the paederus dermatitis patients including age, sex, occupation, locality (rural or urban),

socioeconomic status, duration of symptoms, symptoms like itching, burning, pain, fever, malaise, living conditions, sleeping habits, history of exposure to insects, etc.

A thorough systemic and local examination was done. On local examination of lesions features like site, distribution, size, morphology of lesions, residual post inflammatory pigmentary changes were noted. If any relevant systemic features were also noted. Clinical photographs of lesions of paederus dermatitis were taken.

All the results were entered into a spread excel sheet and tabulated. Varied clinical presentations of paederus dermatitis were reported in the form of percentages.

RESULTS:

A total of 200 cases of Paederus dermatitis were included in this study within the age group of 3 to 72 years. Out of 200 cases, 124 (62%) were males and 76 (38%) were females. Female to male ratio was 1:1.63.

Duration of lesions was less than one week in 184 (92%) patients.

Maximum number of patients 134 (67%) had stinging and burning at the site of lesion, while 118 (59%) cases had erythema and itching. Systemic features such as fever and malaise were observed in 32 (16%) cases.

Table 1: Characteristics of Paederus dermatitis

| Symptoms | Number (%) | Site | Number (%) | Morphology | Number (%) |
|-------------------------|------------|-----------------|------------|-----------------------|-------------|
| Stinging and Burning | 134 (67%) | Neck | 98 (49%) | Linear | 125 (62.5%) |
| Erythema and itching | 118 (59%) | Face and Eye | 63 (31.5%) | Geographical/ bizarre | 88 (44%) |
| Blistering | 75 (37.5%) | Upper extremity | 52 (26%) | Zosteriform | 41 (20.5%) |
| Pustules | 35 (18.5%) | Trunk | 32 (16%) | Kissing | 33 (16.5%) |
| Constitutional symptoms | 43 (21.5%) | Lower extremity | 27 (13.5%) | - | - |

Neck was the commonest site in 98(49%) patients. Other sites of involvement were face, upper extremities and lower extremities. Maximum number of patients 125 (62.5%) showed linear pattern.

Majority of the cases presented during summer (April and May), rainy (July and August) and the post monsoon months (September-November), indicating a distinct seasonal trend. All cases responded well to therapy; however, residual hyper pigmentation was seen in a few cases.

DISCUSSION:

Paederus dermatitis is a seasonal vesiculobullous disorder. This has a worldwide distribution but is mostly reported from hot tropical climate areas. Paederus bug belongs to order Coleoptera, family Staphylinidae. It lives in damp moist areas and is elongated 5-10 mm long with bright blue/black and orange sections (Figure 1).

Figure 1. Paederus insect



The genus paederus consists of more than 622 species, which are widely distributed. The species commonly causing Paederus dermatitis are *Paederus melampus* in India, *Paederus brasiliensis* in South America, commonly known as podo, *Paederus colombius* in Venezuela, *Paederus fusipes* in Taiwan and *Paederus peregrinus* in Indonesia [5].

The crushing and wiping of the Paederus beetle on the skin causes an acute dermatitis within 24 hours, corresponding in shape and dimension to the area affected by the release of the vesicating agent paederin found in the haemolymph of the beetle. Dermatitis is characterized by vesicle and pustules arising from intensely inflamed skin [2].

Paederus dermatitis may affect either sex. In present study males outnumbered females. Out of 200 cases 124 (62%) were males and 76 (38%) were females, the female: male ratio was 1:1.63. This could be because of wearing of minimum clothes like t-shirts and shorts in summer and keeping the lights on in the corridor and rooms.

Age of the patients in the study group ranged from 3 to 72 years with mean age of 32.45 years. Commonest sites affected were exposed body parts. The commonest site affected in our study was neck (49%) followed by face and extremities. Most common pattern of the lesions observed was linear (62.5%) in shape. Similar patterns has been reported in other studies also [2-5].

Our institute is located in the southern part of India. Though the disease is seen throughout the year, most of the cases observed during summer, rainy and post-monsoon (April to November) months.

The commonest symptoms produced are severe burning or itching whereas the signs commonly seen are vesicles or pustules on an erythematous and edematous base (Figure 2) were also reported. Mirror image or kissing lesions (Figure 3) and drip marks were occasionally seen. Commonly the exposed parts of the body are involved. A drip mark is occasionally seen when the toxin has run down the skin producing whiplash dermatitis (Figures 4). Ocular involvement in African cases has been referred to as Nairobi eye and is mainly due to the transfer of the toxin to the conjunctiva and periorbital areas by the hand [5-7].

Figure 2. Showing pustular lesions on erythematous base



Figure 3. Showing Kissing lesion in popliteal fossa



Figure 4. Showing Whiplash dermatitis on nape of neck



Extensive skin involvement has been produced systemic complaints in cases in New Guinea and Malaysia [8]. There may be associated edema Epidemics of Paederus dermatitis in Queensland Australia [9], Sri Lanka [10], and Nigeria [11] were all reported following heavy rainfall as is in the present study. Outbreaks of Paederus dermatitis have also been reported from Venezuela, Malaysia, Italy and the Mediterranean region of Turkey [12-15].

They are attracted to white light at night, a feature that commonly brings them into contact with humans. In our study, exposed body parts such as head, neck and upper extremities were most commonly affected. A similar observation was made in a study on 77 cases of beetle dermatitis in Punjab by Handa et al [3] and in a study on 54 cases at Jodhpur by Kalla et al [4]. The lesion usually resembles the accidental dropping of a caustic or hot liquid. The uncommon association of acute dermatitis with minimal or no complaints, which would be noteworthy in the case of chemical or thermal burns, facilitates diagnosis which is corroborated by the season and by the case history.

The lesions are commonly linear due to crushing and whipping an insect off the skin. Mirror image or 'kissing lesions' are seen in skin flexures where an insect has been inadvertently crushed with transfer of chemical to the opposing surface [5-7]. Ocular involvement was seen in a few of our patients. It is usually secondary to transfer of toxic chemicals by fingers from elsewhere on skin.

Ocular involvement as a relatively common finding was also reported by Zargari et al [2]. We observed diffuse and persistent exfoliation (desquamative lesions) as an uncommon finding in our patients. Such atypical variants of beetle dermatitis have been reported in other studies also [2,8].

Clinically beetle dermatitis mimics many common skin conditions like herpes simplex, herpes zoster, thermal burns, bullous impetigo, phyto-photodermatitis and acute allergic or irritant contact dermatitis [6-9]. The diagnosis of beetle dermatitis should be suspected by the sudden onset of linear and mirror image lesions, predominant involvement of exposed sites and seasonal incidence.

Recommendations:

Control measures during the time the beetle is active are: 1. Fitting houses with good insect screens, light-proof curtains and yellow light (which do not attract insects) 2. Constructing a light trap, consisting of an external floodlight to attract beetles away from the buildings, to be placed over a large container half filled with soapy water in which the insects are drowned. 3. Clearing decaying animal and vegetable matter from around the house to a distance of 50 m. 4. Dense vegetations near dwellings should be cleaned. 5. If contact with the beetle is suspected, immediately the area must be washed with soap and water. 6. Creating awareness of the condition among the local population and instructing them regarding the control measures.

CONCLUSION:

Awareness about this condition amongst the medical practitioner will aid in early diagnosis and prompt treatment and prevent the sequelae of persistent hyper pigmentation, which can be particularly distressing in some patients. Therefore, an early diagnosis and treatment would prevent this complication. In addition awareness among the public at large may also help decrease the incidence of *Paederus* dermatitis.

The patients should also be counseled about the benign and self-limiting nature of the disease. Various preventive measures like changing the light source, using kerosene or petrol to kill the larva in stagnant water and spraying pesticides and insecticides particularly in breeding areas are often helpful.

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. 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.
3. Handa F, Sharma P, Gupta S. Beetle dermatitis in Punjab: A study of 77 cases. *Indian J Dermatol Venereol Leprol* 1985;51(4):208-12.
4. Kalla G, Batra A. Blister beetle dermatitis. *Indian J Dermatol Venereol Leprol* 1996; 62(4):267-8.
5. Parasitic infestations stings and bites. In : Arnold HL, Odam RB, James WD, editors. *Andrew's Diseases of the skin*. 8th ed. WB Saunders's: Philadelphia; 1990; 486-533.
6. Fox R. *Paederus* (Nairobi fly) vesicular dermatitis in Tanzania. *Trop Doctor*. 1993; 23:17-9.
7. Poole TR. Blister beetle periorbital dermatitis and keratoconjunctivitis in Tanzania. *Eye*. 1998;12:883-5
8. Mokhtar N, Singh R, Ghazali W. *Paederus* dermatitis among medical students in USM, Kelantan Med J Malaysia. 1993;48:403-6.
9. Banney LA, Wood DJ, Francis GD. Whiplash rove beetle dermatitis in central Queensland. *Aust J Dermatol*. 2000;41:162-7.
10. Kamaladasa SD, Perera WD, Weeratunge L. An outbreak of *Paederus* dermatitis in a suburban hospital in Srilanka. *Int J Dermatol*. 1997;36:34-6.
11. George AO, Hart PD. Outbreak of *Paederus* dermatitis in southern Nigeria. *Int J Dermatol*. 1990;29:500-501.
12. Todd RE, Guthridge SL, Montgomery BL. Evacuation of an aboriginal community in response to an outbreak of blistering beetle dermatitis induced by a beetle (*Paederus australis*). *Med J Aust*. 1996; 164:238-40.
13. Sendur N, Savk E, Karaman G. *Paederus* dermatitis. A report of 46 cases in Aydin, Turkey. *Dermatology*. 1999;199:353-5.
14. Veraldi S, Suss L. Dermatitis caused by *Paederus fuscipes*. *Curt. Int J Dermatol*. 1994;33:277-8.
15. Uslar C, Kavukcu H, Alptein D et al. An epidemicity of *Paederus* species in the Cukurova region. *Cutis*. 2002;69:277-9.