Blistering Beetle Dermatitis: An Outbreak

Lt Col Rajesh Verma*, Maj Sunil Agarwal⁺

Abstract

Background: Blister beetles, which are abundant in Madhya Pradesh and Punjab cause peculiar skin lesions. We came across large number of such cases.

Method: This descriptive study comprised 46 cases of Blistering beetle dermatitis who presented to skin OPD, over a period of one month from 17 April to 15 May 2002.

Result: All cases belonged to one company of soldiers deployed near an agricultural land. Of the total of 245, 46 personnel suffered from blistering beetle dermatitis with an incidence of 18.7%. A thorough epidemiological investigation was undertaken and beetles of *Paederus Fucipes* were found incriminating. Further spread was effectively controlled by timely spray of Baygon and Malathion over the infested land.

Conclusion: In an outbreak of bizarre dermatitis, diagnosis of blistering beetle dermatitis should be kept in mind. Timely diagnosis, epidemiological investigation and insecticide spraying brings down the incidence of new cases.

MJAFI 2006; 62 : 42-44

Key Words: Blister beetle; *Paederus dermatitis*

Introduction

Blistering beetle dermatitis is caused by three groups of beetles of the order Coleoptera [1]. In India they are abundant in Punjab and Madhya Pradesh. Dermatitis is due to an irritating toxic principle in their body fluid which is released when the beetle is crushed, pressed or comes in contact with the skin. The beetles do not bite or sting. The beetles mature in summer and disappear in winters, accounting for a seasonal incidence [2]. We present a descriptive study of 46 cases of blistering beetle dermatitis, occurring among troops deployed in Punjab near an agricultural land.

Material and Methods

The study population comprised of 46 males who presented to the skin OPD of a service hospital with vesicating dermatitis between 17 April and 15 May 2002.

On 17 April 2002, the first three cases presented with bizarre shaped oozing and crusted skin lesions on face, upper extremities and trunk (exposed areas). Sudden onset of stinging and burning often occurred at night, followed by appearance of lesions the next morning. Dermatological examination revealed multiple bizarre shaped, polysized eczematous lesions on face, trunk and upper extremities. 'Kissing lesions' were observed in the flexures in some patients (Fig 1). They responded satisfactorily to cool compresses with potassium permanganate solution, application of mild topical steroid cream and oral antihistaminics.

We kept on receiving 1-2 similar cases per day with peak incidence of 11 cases on 05th May 2002. They all belonged to one company with a strength of 245. This unusual occurrence was reported to the preventive medicine specialist who carried out an epidemiological and entomological investigation. Beetles were caught and species identified in consultation with the Entomology Wing, Department of Preventive and Social Medicine, Armed Forces Medical College. A spot map was made for time and place distribution.

On 07th May 2002 the first round of insecticide spray was carried out with a combination of Baygon 20% and Malathion 50%. Second round of spray was carried out after a gap of 7 days. The incidence after the spray of insecticide declined.

Results

Of 245 persons deployed in a particular area, 46 (18.7%) developed skin lesions. Age ranged from 20 to 48 years.

The rank wise distribution is given in Table 1. 23 cases (50%) had lesions on the face followed by neck in 32%, trunk 26%, upper extremities 22% and lower extremities 4%. In many cases more than one site were involved. The site wise distribution is given in Table 2.

A total of 16 patients (34.7%) had "kissing lesions" involving the flexures e.g. axillae and cubital fossae. 5 (10.8%) had linear lesions and 4 (8.6%) had generalized involvement of face. All patients responded satisfactorily to therapy given and lesions healed within one week, in most cases. However, 5 (10.8%) patients had residual hyperpigmentation.

The captured insects belonged to Coleoptera class,

*Classified Specialist (Skin and STD), CH (SC) Pune, ⁺Graded Specialist (Preventive and Social Medicine), OIC, Station Health Organization, Ferozpur Cantt.

Fig. 1 : Typical kissing ulcers in cases of blistering Beetle dermatitis

Staphylinidae family, *Paederus* genus and *Fuscipes* species (Fig 2).

Epidemiological survey revealed that this particular company made their underground bunkers next to the agricultural land which was highly infested with beetles. They were using generator lights in the night, which attracted beetles and due to severe heat and humidity, people were not using proper clothing or mosquito nets while sleeping.

Field sensitivity testing of insecticides found combination of Baygon 20% (carbamate group) and Malathion 50% (organophosphorus group) to be most effective. The incidence of fresh cases fell rapidly after second round of spray and after 15th May, no fresh case was reported.

Discussion

In India blister beetles are abundant in Madhya Pradesh and Punjab. There are more than 30 species belonging to genus *Paederus* which can cause dermatitis. The important Indian species are *Paederus fuscipes*, *P. irritans*, *P. sabacus*, *P. himalayicus*, etc. The toxic principle in genus *Paederus* is pederin pseudopederin and pederone [2,4].

These beetles are active from May to July. In most of the reported outbreaks from Iran, Turkey, Australia, Malaysia and Sri Lanka maximum cases occurred between May to July [5,8]. Maximum incidence in our area was also in May. The beetles are attracted by artificial light and breed in damp places [2,3]. The humidity during April to July is very high in Punjab

Fig. 2 : *Paederus fuscipes*

Table 1

Rank wise distribution of cases

Rank	Affected No (%)	Not Affected No (%)	Total No (%)
Officers	5 (2)	—	5 (2)
JCOs	3 (1.2)	7 (2.8)	10 (4)
ORs	38 (15.5)	192 (78.3)	230 (93.8)
Total	46 (18.7)	199 (81.3)	245 (100)

Note : Figures in parenthesis denotes percentage

Table 2

Site wise distribution of cases

Sites involved	Affected No (%)
Face	23 (50)
Neck	15 (32)
Trunk	12 (26)
Upper Extremity	10 (22)
Lower Extremity	2 (4)
Total	62 (134)

Note : Figures in parenthesis denotes percentage. Total percentage is more than 100 as many patients had more than one site involved.

thereby providing ideal conditions for breeding.

In all reported outbreaks, the skin lesions were present on uncovered parts of the body usually the face, neck and upper extremities [6,7]. The clinical appearance of this vesicant dermatitis is often confused with burns by liquids, herpes simplex, herpes zoster, periorbital cellulitis and allergic contact dermatitis [7].

Similar outbreaks of *Paederus* Dermatitis have been reported from Central Africa, Guinea, South Nigeria, Sri Lanka, Uganda, Thailand and Nairobi [7,8]. In none of these studies, preventive aspects regarding use of insecticides has been touched upon. To the best of our knowledge no such outbreak has been reported from the services till date.

Based on the field survey and findings of our study

we recommend following measures:

1. High index of suspicion during deployment of troops in hot and humid climate along the western sector.
2. Health education of troops about the signs and symptoms of disease, bionomics of beetles and its remedial measures.
3. Regular preventive sprays of Baygon 20% and Malathion 50% on the infested land.
4. Detailed study of insect repellants effective against these beetles.
5. Surveillance network of Blistering beetle dermatitis.

References

1. Grekin RC, Samalaska CP, Vin-Christian K. Parasitic infestation, stings and bites. In: Odom RB, James WD, Berger TG, editors. *Andrew's diseases of skin*. 9th ed. Philadelphia : WB Saunders, 2000; 526-73.
2. Hati AK. Beetles. In: Hati AK, editor. *Medical Entomology*. Kolkata : Allied book agency, 95-6.
3. Burns DA. Diseases caused by arthropods and other noxious animals. In: Champion RH, Burton JL, Ebling FJG, editors. *Textbook of dermatology*. 5th ed. Oxford : Blackwell Scientific, 1992; 1265-323.
4. Bland RG, Jaques HE, editors. *How to know the insects*. 3rd ed. William C Brown Company, 1978; 175-94.
5. Brazzetti V, Martinoli S, Prestinari F, et al. Staphylinid blister beetle dermatitis. *Contact dermatitis* 2002;46(3):183-4.
6. Sendur N, Savk E, Karaman G. Paederus Dermatitis: A report of 46 cases in Aydn, Turkey. *Int J for Clinical and Investigative Dermatology* 1999; 199: 353-5.
7. Kamaladasa SD, Perera WD, Weeratunge L. An outbreak of Paederus Dermatitis in a Suburban Hospital in Sri Lanka. *Int J Dermatol* 1997; 36(1): 34-6.
8. William AN. Rove beetle blistering Nairobi eye. *JR Army Med Corps* 1993; 139:17-9.