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Case series

SKIN'S FIERY FOE: A CASE SERIES ON PAEDERUS DERMATITIS

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ABSTRACT
The Blister Beetle or Paederus Dermatitis (PD) was first reported by Vordermon (1901). PD is a skin disorder, occurs due to toxins released by blister beetles. The body fluid of these insects has a chemical, which causes inflammation characterized by erythematous and vesicular lesions. We conducted an one year observational study (Jan – Dec 2024) with an aim to understand the clinic-epidemiological & morphological pattern of PD. Total of 23 patients were diagnosed with PD. Males were predominantly affected and the most common age group was between 21 – 30 years. Majority of the cases were reported from the month of June – September. The most common cutaneous presentation was linear erythematous plaques followed by kissing lesions. PD has varied clinical presentation; understanding its morphological pattern helps in preventing misdiagnosis. Patients has to be educated about preventive measures to avoid recurrence of PD.
Keywords : *Skin's fiery foe , Paederus dermatitis*

INTRODUCTION

Around 250 paederus beetle species has been described in the literature. These species varies in color, shape and structure. In India 43 species has been identified to cause PD by Cameron in 1931, of which *Paederus melampus* is the most common species causing PD. The body fluids of these species have a vesicant chemical and it causes acute irritant contact dermatitis especially in exposed body parts. Knowledge about various clinical presentation of this beetle induced dermatitis is important in diagnosing and ruling out other clinical mimickers. In this case series we aim at discussing clinical, epidemiological, therapeutic and preventive aspect of dermatitis linearis/Paederus dermatitis.

CASE SERIES

We report a case series of 28 patients of PD or blister beetle dermatitis (BBD). [Table 1] Twenty (20) were males and eight (8) were female patients. The most common age group was between 21–30 years. Youngest age presented with PD was 3 years male child and the oldest age of presentation was 41 years Japanese migrant worker. These cases were reported in semi – urban area, in and around Kanchipuram district. Almost two – third of cases were presented to the hospital between Sep – Nov month. All patient in this case series had the classical presentation of sudden onset of itchy, burning skin lesions. The skin lesions were seen predominantly in exposed parts of body like face and neck. [Figure -1] Rest of the patient had lesions over arms, shoulder, thigh, chest,[Figure-2] back and abdomen. This could be attributed varied dress patterns used at night time by these patient like vest and shorts. The average duration of reporting to hospital from onset of lesion was 2-3 days. Out of 28 patients, only two of them

were able to correlate their skin lesions with beetle encounter. The most common clinical presentation was linear erythematous plaques with vesiculation. The other morphological patterns seen were bulla (1), pustules (1), necrotic lesions (3), ulceration (3) annular (1) morphology, hyperpigmented scaly plaques (2), and bizarre erythematous (2) lines. Eight (8) patients had kissing regions around the cubital fossa (7) and popliteal fossa (1) involving both the arm, forearm and thigh and leg respectively. Around 8 patients had multiple lesions at multiple body parts like chest, back and arms and face. Two patients had recurrence of similar lesions in one month interval time during the rainy season. Around 42.8 % patients gave history of sleeping on the floor and 57.1% have kept their windows and doors open during night time. All patient in this case series had classical history of acute onset of burning sensation and development of characteristic cutaneous lesion of PD. Hence the diagnosis was made clinically and patients were treated symptomatically with steroids (oral & topical), antibiotics and antihistamines. In addition to medical treatment, preventive measure like avoidance of use of neon lamps during night time and resting in open areas and usage of protective clothing were also encouraged

DISCUSSION

The insects causing PD belongs to order Coleoptera and family Staphylinidae. Paederus beetle (rove beetle) and blister beetle are not the same. The distinguishing points has been mentioned in the [Table 2][1]. Another beetle causing dermatological complaints is carpet beetle. The common species are *Attagenus megatoma* and *Anthrenus scrophulariae.* Contact with these carpet beetle larvae on wool, carpet and clothing causes allergic papulovesicular dermatitis.[2]

The production of paederin is mainly confined to adult female insect. Adult insects are usually 7 -10mm long and 0.5 – 1mm wide. They have head, thorax, abdomen, front and hind wings. [3] These beetles survive in moist habitats, this correlates with various outbreaks reported during rainy reason in various part of India similar to our study.[4,5] They are also attracted to fluorescent lights, and this accounts for the encounter of human during night and sudden onset of symptoms the next day morning. Hence the patient has to be educated with closing doors and windows, reducing the use of fluorescent lamp in rooms where they sleep. Tying a net or mesh below lights to prevent the insect from falling on to human skin. Protective clothes and sleeping in bed covered with net (pyrethrin treated) are also encouraged in places with frequent recurrence of PD.[3,4] Setting out sticky traps , glue boards and water filled container mixed with few drops of detergent beneath the bright light source at night time will attract the adult beetles. Cleaning of decaying vegetations around buildings also reduces the larval breeding. The most common clinical presentation in our study was linear erythematous plaques with vesicular lesions. [Figure 3] Similar presentation was reported by Tamil selvan B et al, Sriharis et al, Palaniappan V et al. [6,7,8] The linear appearance corresponds to the direction of crushing /rubbing the beetle containing the vesicant fluid on the skin surface. The next common presentation in our study were kissing lesions [Figure-4], necrotic ulcers, hyperpigmented scaly plaques [Figure-5], and bizarre lesions (multiple criss cross linear lines) [Figure -6].

CONCLUSION

The increasing incidence of PD has been attributed to urbanization and globalization leading to shift of human community and invasion into habitat of these beetles.[10] Though the clinical lesions of PD look fiery, early diagnosis and treatment result is healing of PD without residual scar. Physician must aware of all clinical aspects of PD and should consider this in the differential diagnosis of vesicating linear dermatoses. Awareness and education about paederus beetle and paederus dermatitis among public will prevent recurrence of lesions and also reduces the morbidity.

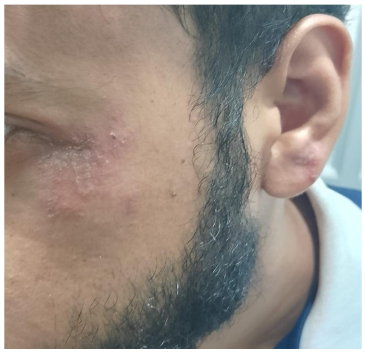

Figure 1 –Erythematous and edematous plaque near lateral canthus of left eye with few red papules over left ear lobule

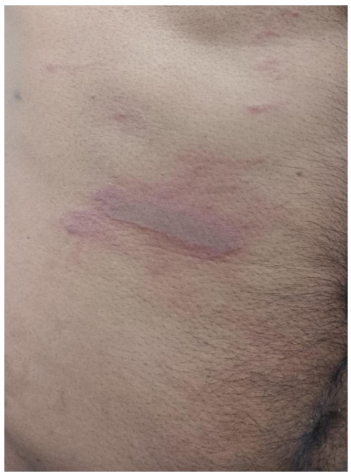

Figure 2 –Linear erythematous plaques over right side of chest with scattered erythematous papules

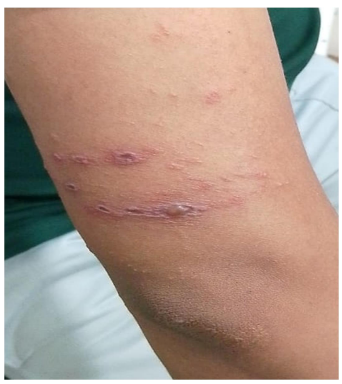

Figure 3 –Linear erythematous plaques with vesicles, bulla over right arm

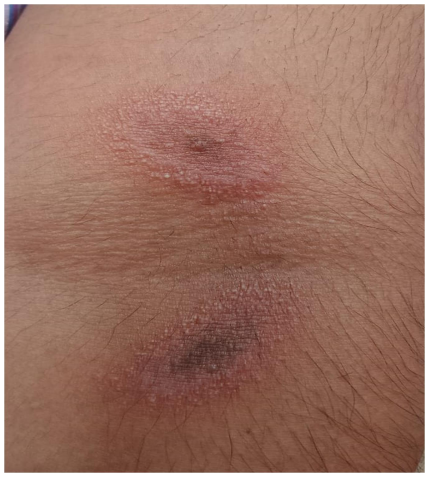

Figure 4 – Kissing lesions – Annular erythematous plaques with papules and central necrosis on both sides of left cubital fossa

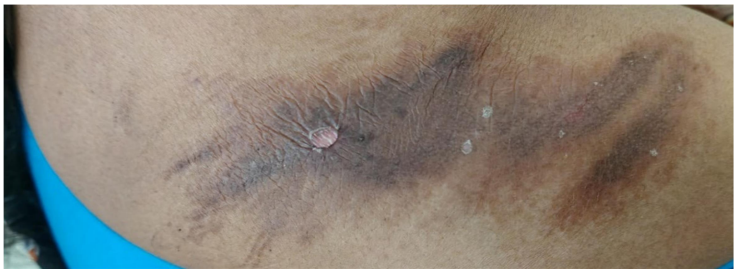

Figure 5 : linear and ill -defined hyperpigmented scaly plaque over right upper back

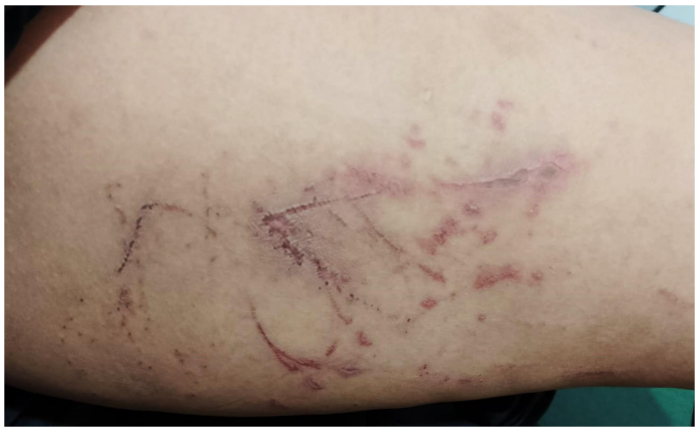

Figure 6 – Multiple linear erythematous lines in criss cross pattern giving a bizarre clinical presentation over left thigh

S.no	Gender	Age	Site	Clinical feature	Slept in floor/ window and doors open (Y/N)*
1	Male	30	Face – bilateral eyes	Linear erythematous	Y/N
2	Male	33	Arm -right	Linear erythematous+ Vesicles	N/N
3	Male	25	Cubital fossa-left	Kissing lesions	Y/Y
4	Male	25	Arms, neck, chest	Multiple linear erythematous +vesic	Y/Y
5	Male	30	Chest ,abdomen,arm	Multiple linear erythematous +vesic	N/N
6	Female	23	Thighs	Multiple linear bizzarre Erythematous lesions	Y/Y
7	Male	24	Chest, arms	Multiple linear erythematous +vesic	N/N
8	Male	21	Shoulder	Linear erythematous	Y/N
9	Male	21	Neck	Hyperpigmented scaly plaques	Y/N
10	Male Child	3	Popliteal fossa -left	Edematous erythematous Kissing lesions + vesicles + oozing/crusting	N/N
11	Male	40	Chest	Linear erythematous plaque with ulceration	Y/N
12	Female	35	Cubital foss – left	Kissing lesions – erythematous Crusting plaque	Y/N
13	Female	30	Cubital fossa – left	Kissing lesions - Edema erythematous,+ vesicles/ Ulceration	N/Y
14	Female	25	Cubital fossa – left	Kissing lesions - Edema erythematous/scaly plaques	N/Y
15	Male	20	Face – near right eye	Linear erythematous scaly plaque	N/Y
16	Female	28	Cubital fossa – left	Kissing lesion – erythema, edema, vesicles, Necrosis, dripping lesion	Y/Y
17	Male	30	Forearm – left	Linear necrotic ulcer with surround Erythema, edema and vesicles	N/Y
18	Male Japanese migrant worker	32	Thigh – right	Indurated erythematous pustular lesions	N/Y
19	Male	30	Face , thighs, cubital fossa	Recurrent presentation – mu erythematous Vesicular lesions, kissing lesion (cubital fossa)	Y/N
20	Male	28	Abdomen, wrist, Ankle	Multiple linear and annular erythematous plaques	N/N
21	Male	28	Axilla, arms	Multiple erythematous and necrotic	Y/N

				Plaques	
22	Male Japanese migrant worker	41	Face and neck	Linear erythematous plaques	N/Y
23	Male	22	Wrist, chest, back	Multiple linear erythematous	N/Y
24	Female	35	Cubital fossa – left	Kissing lesion, linear erythematous Plaque + bulla	N/Y
25	Male	25	Face – near eyes	Linear erythematous plaque	N/Y
26	Male	28	Neck and shoulder	Linear, bizzarre erythematous plaqu	Y/Y
27	Female	38	Neck	Erythematous scaly plaque	N/Y
28	Female	30	Upper back – right	Hyperpigmented linear and irregula Scaly plaque with ulceration	N/Y

Table 1 – Clinico epidemiological presentations of patients in our case series
***Y -yes, N-no**

	Paederus beetle	Blister beetle
Family	Staphylinidae	Meloidae
Most common species	*Paederus melampus*	*Lytta vesicatoria*
Chemical released	Paederin	Cantharidin
Chemical compound	Amide	Bicyclic terpenoid
Clinical feature	Cause profound inflammation. Erythematous vesicular plaques in 24 – 36 hours, kissing lesions, Nairobi eye	Non-inflammatory bullous lesions occurs in 12-24 hrs
Histopathology	Suprabasal acantholysis, reticular degeneration, necrosis of epidermis with neutrophilic inflammatory infiltrate.	Acantholysis in suprabasal layer

Table 2- Difference between paederus beetle and blister beetle

	Paederus dermatitis	Herpes zoster	Dermatitis Artefacta	Phytophotodermatitis
Site	Exposed body parts (not covered with clothes)	Dermatomal presentation	Accessible site to the dominant hand	Sun exposed Sites
History	Sudden onset burning sensation	Sudden onset of pain precedes the skin lesion	Detail narration of lesions but history don't correlate with lesion nature (labella Indifference)	Exposure to photo sensitizing compounds in Plants and exposure to sun light
Clinical features	Linear erythematous plaques+/- Vesicles, bullous eruptions, kissing lesions	Grouped vesicles on an erythematous base.	Bizarre with sharp angulation, Dripping lesions, geometric borders, surface necrosis, lesions in various stages of healing	Erythematous vesicles/ bulla or Hyper pigmented/ depigmented patches

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Treatment	Immediate washing of toxin with soap and water. Anti-inflammatory agents Antibiotics Antihistamines	Anti-viral drugs ± antibiotics	Antipsychotics + wound hygiene.	Sun protection Anti-inflammatory agents Antihistamines

TABLE 3– Difference in clinical presentation and management of Paederus Dermatitis, Herpes Zoster, Dermatitis Artefacta, Phytophotodermatitis

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