ORIGINAL ARTICLE

Paederus Dermatitis Amongst Medical Students in USM, Kelantan

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Summary

We report a retrospective review of 12 medical students with a peculiar erythemato-vesicular dermatitis entomologically caused by an endemic beetle *Paederus fuscipes.* The clinical features, outcome in these cases and treatment are discussed. The students were residents of hostels in the USM campus in Kubang Kerian, Kelantan. The causative agent in all these cases was found to be *Paederus fuscipes* (rove beetle). The most common site of involvement in all these cases was the face, followed by the neck. The average duration of symptoms was two days and pruritis was a common symptom. About 83% of the patients made a complete recovery. However two patients (16%) had residual pigmentation.

Key words: Erythemato-vesicular dermatitis, *Paederus fuscipes.*

Introduction

Paederus dermatitis is a erythemato-vesicular dermatitis that appears mostly on the exposed areas of the body. There are no, to our knowledge, reports of similar cases in Malaysia. The aetiological agent in the cases described was found to be *Paederus fuscipes.* The prevalent species of Paederus in Malaysia is *P. fuscipes.* It is distributed throughout the country and is commonly found in marshes and rice fields. The insects do not bite but are attracted to light and hence come into contact with humans. When the insects are crushed on the skin accidentally the hemolymph released causes a vesiculating dermatitis.

The 12 students described were residents of hostels in Universiti Sains Malaysia, Kubang Kerian. The location of the hostels close to a swamp and river (the breeding sites of the insects) favours the migration of the insects towards the light of the hostels at night. Many of the patients did not offer any significant clues as to the cause of the lesions. During one episode when there was a number of cases in the same hostels, the lesions were mistaken to be related to food or water contamination. The purpose of this article is to emphasize the widespread distribution of these insects, highlight their role as a cause of this peculiar dermatitis and make doctors aware of this disorder.

Patients and Methods

Forty three patients with *Paederus* dermatitis were seen by the above authors between October 1989 and November 1991. Amongst these, were 12 medical students from the School of Medical Sciences,

Universiti Sains Malaysia (USM), Kubang Kerian, Kelantan. Seven of the students were seen in the dermatology clinic USM and five were seen in the Department of Dermatology, General Hospital, Kota Bharu. The case records of these patients were reviewed with respect to the site, symptoms, duration of rash, therapy and outcome. Six of the patients could identify the insects when shown photographs of the insects.

Topical steroids were applied in 75% of the cases. To avoid skin atrophy of the face only hydrocortisone was applied, while moderately potent steroids were applied to the trunk and limbs. Topical gentamicin was prescribed to two patients with infected lesions. None of the patients needed oral medication.

Results

Table 1 presents a summary of the patients, their ages and details of the sites of attack and symptoms.

The most common site of involvement was the face (50%), followed by the neck and back (16%). The average duration of symptoms was two days (range 1 - 3 days). Pruritis was the most common symptom (30%), followed by pain (25%). However 16% of the patients were asymptomatic. Eighty three percent of the patients made a complete recovery and residual pigmentation was seen in only two cases (16%). Males (75%) outnumbered females (25%); this was probably related to the attire and lifestyle.

Discussion

Paederus dermatitis is a distinctive seasonal vesiculobullous skin disorder caused by contact with *Paederus* [1]. The genus *Paederus* belongs to the family Coleoptera. The Coleoptera with more than 100 families and at least 250,000 described species is the largest order of insects. Vesicant beetles occur in three families: Meloidae, Oedemeridae and Staphylinidae. The family Staphylinidae (rove beetles) has at least 26,000 described species worldwide and includes the Genus *Paederus* [2]. Species of *Paederus* are widely distributed throughout the world, and lesions produced by such species as *P. fuscipes, P. alternans, P. peregminus, P. goeldii, P. crebrepunctatus* and *P. colombinus* have been reported from five continents[1]. *Paederus fuscipes* has an especially wide distribution. From central Asia its range extends to Japan and Southeast Asia to Australia[3]. In Kelantan *P. fuscipes* is the prevalent species. It is commonly found in marshes, along riverbeds and in rice fields. The beetles are 6.5-7mm in length and have an orange coloured trunk with a black head. Their wings are short and blueblack in colour (Figure 1).

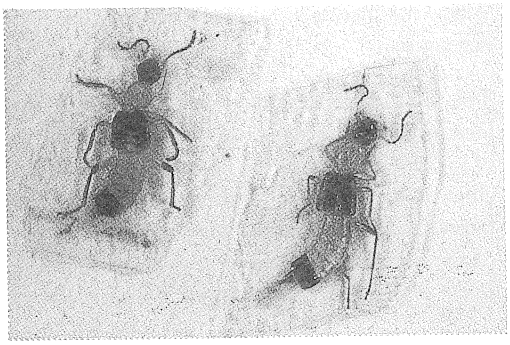

Fig. 1 : Rove beetle, Paederus species x 10.

Although these insects can fly, they prefer to run and are extremely agile[1]. The insects lay their eggs singly. They are yellowish white and spherical and are dropped onto a moist substrate. *P. fuscipes* develops from egg to adult in about 40 days.

Table 1
Summary of reported patients with Paederus Dermatitis

Patient	Age	Sex	Site	Duration in days	Symptoms	Therapy	Outcome
1	25	M	Face	1	Burning	3% Hydro-cortisone cream	Subsided
2	23	F	Face	2	Asymptomatic	3% Hydro-cortisone cream	Subsided
3	23	M	Face	1	Pruritis	3% Hydro-cortisone cream	Residual pigmentation
4	24	M	Thigh	1	Pruritis	Bethamet-hasone valerate	Subsided
5	24	M	Back	3	Asymptomatic	Aqueous cream	Subsided
6	26	F	Face	1	Pruritis	Gentamicin cream	Residual pigmentation
7	25	F	Back	2	Pain	Bethamet-hasone valerate	Subsided
8	24	M	Neck	2	Asymptomatic	Aqueous cream	Subsided
9	25	M	Arm	2	Tingling	Clobetasone butyrate	Subsided
10	25	M	Face	1	Pain	3% Hydro-cortisone cream	Secondary infection
11	26	M	Face	1	Pain	3% Hydro-cortisone cream	Subsided
12	27	M	Neck	2	Pruritus	Flucinolone Acetonide	Subsided

Development time of the immature stage of the insects is shorter at high temperatures. The adults are polyphagous, feeding mainly on insects, mites and soil nematodes but they also feed on decaying vegetables. They are beneficial to agriculture owing to their predation on insect pests. However they are highly susceptible to insecticides. In Kelantan most cases of *Paederus* dermatitis are seen during the monsoon months of October-January. This is because human contact with *Paederus fuscipes* is preceeded by rain showers or is associated with the rainy season. Another reason is the harvesting of padi and subsequent burning of the fields which drive the insects out of their habitats.

The insects come in contact with humans by attraction to light at night. They do not bite or sting. Hemolymph is released when the insects are crushed on human skin accidentally. The hemolymph contains the toxin paederin, which is the most complex nonproteinaceous insect secretion known[3]. Vesicating

dermatitis begins, most often within 24 hours after contact with the beetle. The lesions are usually linear, with vesicles during the early phase. The exposed areas of the body, especially the face are the sites most commonly affected. Kissing lesions may occur where there is approximation of skin surfaces. A characteristic feature is the necrotic appearance of the lesions which may give a diagnostic clue (Figure 2). At times the grouped erythemato-vesicular lesions may have a 'whiplash' appearance.

Fig. 2 : Typical lesions of Paederus Dermatitis, with a necrotic appearance on the face.

The skin lesions disappear in about two weeks but residual hyperpigmentation may persist for a few weeks and become a cosmetic problem especially when it occurs on the faces of women. Itching, tingling and pain are the chief complaints of many patients. However, the disorder may be asymptomatic. Involvement of the eye can occur presenting as conjunctivitis or keratoconjunctivitis[4]. When there is extensive involvement of the skin, patients may have associated fever, neuralgia, arthralgia and vomiting with erythema persisting for many months. Disorders that should be considered in the differential diagnosis include creeping eruption, dermatitis herpetiformis, erysipelas, herpes simplex, trichinosis, dermatitis atrefacta, urticating caterpillar dermatitis and phytophotodermatitis.

Several pharmaceutical preparations have been tried to treat the condition. However topical steroid with occlusive dressings give an excellent response. If a *Paederus* beetle is inadvertently smeared on the skin it should be immediately washed with soap and water to prevent a skin reaction. Other preventive measures include window screens with fine meshes and application of greasy ointments to the skin especially the face at nights. Clearing of grass and other vegetation, especially decaying matter from around dwellings to a distance of 50 meters may help to reduce the density of the insects[5].

Use of insecticides is impractical because it has to be applied to the natural habitat of *Paederus* and this may conflict with agricultural policies.

Acknowledgement

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