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Case Report
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PAEDERUS DERMATITIS

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ABSTRACT

Paederus dermatitis is a distinct, inflammatory contact dermatitis characterized by a quick onset of maculoerythemobullous rash on exposed parts of the body. The disease is caused by a beetle of the genus *Paederus*. This insect beetle usually does not bite, but accidental crushing of the beetle over the skin brings about the release of its haemolymph, which contains a strong blistering agent called paederin. This article describes few cases of such dermatitis encountered in our OPD causing distress to many children and their parents. Proper identification of the condition, treatment and counseling about absence of systemic disease of parents play a pivotal role in management.

KEYWORDS: OPD, Erythemobullous, haemolymph.

INTRODUCTION

Paederus dermatitis is a type of contact dermatitis which has distinct and peculiar features. It is caused by an insect of a beetle family of genus Paederus. Once the beetle comes in contact with skin, it doesn't sting; however reflex brushing or crushing with hands cause it to release a fluid out of its coelomic fluid. This fluid is known as paederin. It has potent blistering activity which causes vesicle formation along with erythematous lesions and burning sensation. If not washed off promptly it leads to more erythematous bullous lesions. History from all patients reveals either a picnic near beaches or entertainment under lights with wide open windows. Most of the cases gave history of noticing rash in the morning after waking up from sleep.[1]

CASE REPORTS

Case 1: A 10-year-old boy presented to our OPD with an eruption around his right cubital fossa with stinging sensation. Erythematous line was connecting three lesions which had a whitish center. Other adjacent area was fairly asymptomatic. He didn't give any history of visible contact that would cause this rash. However, he had bath with other family members on the beach side late in the evening and after sunset. The next day followed by vesicles and a bulla appeared in the erythema. Characteristic lesion lead us to the diagnosis of Paederus dermatitis and local povidone iodine cream was given for application along with some anti-histamine and local antibiotic was followed for covering other infection. Lesions last around 8 to 10 days. Hypopigmentation around a fairly melanotic zone was seen at day 10. (Figure 1)

Case 2: A 4 year old female child presented to OPD along with her mother with eruption on her right thigh. Mother was worried as the rash was more extensive than the usual Paederus dermatitis rash. Erythema and blistering were in a stellate configuration and measuring 8cm in the largest dimension. (Figure-II) She had no fever and any other systemic features of any other disease. Mother gave history of sleeping in the open where various insects were hovering around the white lights. Mother was properly counseled about the diagnosis. Treatment was given with local application of povidone. Fusidic acid cream application was prescribed. Oral anti-histamine and Paracetamol was helpful in alleviating symptoms. Lesions lasted more than a week and left behind hypo and hyper pigmentation.

Case 3: A 7 year old male child presented to OPD with erythematous rash involving right side of the face having bullae and some necrotic patches at the center of each

lesion. (Figure-III) He gave history of contact with the beetle which was crushed and brushed against the skin the moment it landed on to his face. Rash developed after a day of the incident and he found it the next day when he woke up from sleep. There was severe burning sensation and pain. Patient was counseled about the nature of disease. Oral acetaminophen and anti-histamine along with local application of iodine and fusidic acid cream gave him both symptomatic relief and protection from infection. Lesions dried up in approximately 1 week and left behind hypo and hyper pigmentation on the affected skin.

DISCUSSION

Paederus species of insects belong to the order Coleoptera (beetles) of the family Staphylinidae (rove beetles). There are estimated more than 600 species in genus, *Paederus* and their distribution is worldwide.[2] This beetle is known according to different regions of the world with many local names example in South America it is called as bicho de fuego, pito, potó, and podó.[3] Infact various outbreaks of dermatitis have been linked to this Paederus beetle in southern Turkey,[4] central Africa,[5] Okinawa,[6] and India.[7] It can reach a length of about 7 to 10mm and a width of 0.5 to 1mm once it grows to its adult size. They have a black head and a red thorax and the structure covering the wings is called elytra. (Figure-IV) Adult beetles are attracted to fluorescent white lights, and as a result, inadvertently come into contact with humans. If windows are left open with such lights on; these beetles can be troublesome. The beetle has no habit of biting or stinging, however accidental brushing against it or crushing it over the skin incites the release of its coelomic fluid from its haemolymph, which contains paederin, a strong blistering chemical.[8] Paederus dermatitis is due to paederin, a toxin produced by the endosymbiont pseudomonas bacteria inside the haemolymph of the female beetle. Pederin causes a release of epidermal proteases and a loss of intercellular connection, inhibiting protein synthesis, DNA synthesis, and mitosis.[9,10] Paederin is a potent toxin with vesicant properties and severity of dermatitis depends upon the amount of toxin released during the crushing of beetle on the skin. It ranges from slight erythema lasting a couple of days to erythema that evolves into vesicles and bullae followed by squamous stage. It dries out over a week and leaves behind hyper or hypo pigmented patches. Scarring does not occur usually. Severe cases, in addition to showing more extensive blistering, may demonstrate additional symptoms, such as fever, neuralgia, arthralgia, and vomiting. [9] In mild and moderate cases there is little discomfort from the dermatitis, however if there is secondary infection discomfort and duration of disease is more.[10,11] Treatment usually is symptomatic with Anti histamine and Paracetamol and local application of an anti-biotic hastens the process of healing. In certain cases where symptoms are severe hospitalization is required however that is rarely seen.

Differential Diagnosis

Paederus dermatitis is at times confused with:

- Herpes simplex
- Herpes zoster
- Acute allergic contact dermatitis or irritant contact dermatitis
- Phytophotodermatitis
- Bullous impetigo

Fig. I: Showing hypo-hyper pigmented lesions after 2 weeks of the dermatitis in case 1.

Fig. II: Stellate patch of erythema with central blisters of the right thigh in case 2.

Fig. III: Linear erythematous patches with central blisters on right side of face in case 3.

Fig. IV: Paederus Beetle (Courtesy: Internet).

CONCLUSION

Paederus dermatitis is broadly a clinical diagnosis which should not be confused with any systemic disease. Patient/Parental counseling and symptomatic treatment plays a pivotal role in management and local antibiotic fastens the process of healing. Paederus beetles are attracted towards white light; so sleeping with window panes open is not recommended.

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