

CASE REPORT

OPHTHALMIC MANIFESTATIONS OF *PAEDERUS* DERMATITIS

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Abstract. A 30-year-old Chinese female presented with progressive periorbital swelling of unknown cause and redness of her left eye. She was given an antibiotic eyedrop and oral cloxacillin to treat periorbital cellulitis. The clinical picture did not improve and she returned with swelling of the fellow eye. We stopped the medication and sent her to a dermatologist because of the abnormal periorbital skin pattern. Her diagnosis was *Paederus* dermatitis. Intramuscular dexamethasone was administered due to severe periorbital edema. The skin lesion was improved one week later. The ophthalmic manifestations of *Paederus* dermatitis are periorbital dermatitis, conjunctivitis and persistent epithelial defects. The challenge in diagnosis of this condition is that it can mimic other diseases, such as infectious periorbital cellulitis and Herpes viral infection. Therefore, a clear appreciation of the clinical manifestations will lead us to the proper management of the condition and minimize complications.

Keywords: *Paederus fuscipes*, *Paederus* dermatitis, periorbital cellulitis, rove beetle

INTRODUCTION

Beetles of the large cosmopolitan genus *Paederus* (also known as “rove beetles”) (Coleoptera: Staphylinidae) are often found in tropical and subtropical countries, especially in wet seasons (Wilson and King, 1999; Canan *et al*, 2013; Veraldi *et al*, 2013). Outbreaks of dermatitis due to *Paederus* species have been reported worldwide; from Italy (Veraldi *et al*, 2013), Turkey (Canan *et al*, 2013), China (Huang *et al*, 2009), Malaysia (Rahmah

and Norjaiza, 2008) and Thailand (Saksirisampan, 2008). The major species found in Thailand is *Paederus fuscipes* (Saksirisampan, 2008) (Fig 1). The skin of any individual that accidentally contacts and crushes a *Paederus* beetle will become inflamed due to “paederin”, a toxin in the beetle’s body (Huang *et al*, 2010; Veraldi *et al*, 2013). Patients always present with acute, irritant contact dermatitis. Face and neck are the most common sites of inflammation. The ophthalmic manifestations of *Paederus* dermatitis are periorbital dermatitis, conjunctivitis and persistent epithelial defect. However, reports of ophthalmic involvement in *Paederus* dermatitis are rare (Poole, 1998; Huang *et al*, 2010; Canan *et al*, 2013).

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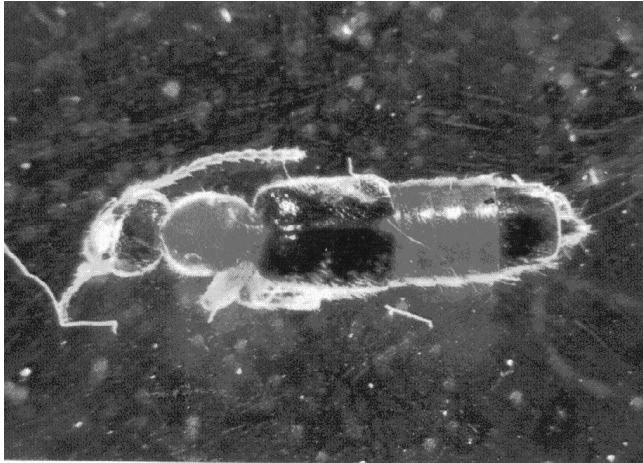


Fig 1—*Paederus fuscipes*.



Fig 2—Linear appearance of skin lesions with redness, swelling and vesicles at forehead and periorbital area.

Paederus dermatitis is always diagnosed by clinical presentation. The diagnosis may be difficult when patients have lesions that mimic other diseases, such as *Herpes zoster* ophthalmicus and bacterial preseptal cellulitis. Therefore, a familiarity and appreciation of the clini-

cal manifestations will lead us to the proper management and minimize any subsequent complications (Huang *et al*, 2010; Canan *et al*, 2013).

CASE REPORT

We report one case of periorbital dermatitis caused by *Paederus* sp. The patient presented to the Ophthalmologic Department of Khon Kaen University Eye Center in October 2013. The study protocol was reviewed and approved by the Institutional Review Board of Khon Kaen University (HE571061). A 30-year-old Chinese female presented with progressive periorbital swelling of unknown cause and redness of her left eye for two days. She was given an antibiotic eyedrop and oral cloxacillin to treat periorbital cellulitis. The clinical picture did not improve and she came to our department due to swelling of the fellow eye. The patient complained of mild irritation in her left eye. She did not have any prior history of trauma or foreign body contact. The visual acuity was 20/20 in both eyes. The preseptal areas of both eyelids were red and swollen. Skin lesions with a linear appearance were apparent between her forehead and left eye. Small vesicles were present on both upper eyelids (Fig 2). No abnormal discharge was found. The anterior segments of both eyes were normal. We stopped the medication and sent her to a dermatologist because of the abnormal periorbital skin pattern. The clinical diagnosis by the dermatologist was *Paederus* dermatitis. Intramuscular dexamethasone was administered due to severe periorbital edema. She was given oral prednisolone without antibiotics for one week. The skin lesion was improved

by a week later without scarring.

DISCUSSION

If patients accidentally crush a *Paederus* beetle on their skin, toxic "paederin" in the body fluid of these beetles can contact the skin. This fluid causes acute irritant contact dermatitis of the skin or mucosa (Borroni *et al*, 1991; Huang *et al*, 2010; Veraldi *et al*, 2013). A typical clinical presentation of *Paederus* dermatitis is acute irritation and inflammation. The most common sites of attack are the face and neck area. Periorbital dermatitis and conjunctivitis was found in 22.4% of cases (Wilson and King, 1999; Zargari *et al*, 2003). Clinical examination may reveal pain, stinging, itching, blister, hyperemia and edema (Gnanaraj *et al*, 2007; Canan *et al*, 2013). It has been reported that progression of the lesion depends on duration of the irritation. In the early phase, the skin appears edematous and hyperemic then develops vesicles. In the late phase, the vesicles become scales and hyperpigmentation can occur (Canan *et al*, 2013; Cressey *et al*, 2013; Veraldi *et al*, 2013). The characteristic skin manifestations of *Paederus* dermatitis are linear in appearance, and "kissing lesions" (Canan *et al*, 2013). Some reports also mentioned low grade fever and arthralgia (Cressey *et al*, 2013).

The Khon Kaen dermatologist who was consulted suggested that treatment of *Paederus* dermatitis should be the same as treatment of irritant contact dermatitis, that includes washing the lesion using clean water and soap. In addition, application of cold compresses, and administration of systemic antihistamine and topical corticosteroid are the initial treatments. Systemic antibiotic was considered to prevent secondary bacterial infection. Methylprednisolone injection was sug-

gested in severe cases or if the lesions do not respond to topical treatment.

Corticosteroid treatment is the most effective in suppressing the inflammation (Cressey *et al*, 2013). In this case, although this patient did not have any history of trauma or insect bite, there were some specific clinical manifestations of *Paederus* dermatitis. Fig 2 shows the linear appearance of skin lesions with redness, swelling and vesicles on the forehead and periorbital areas. The patient did not have any burning sensation. After using a topical eye drop, the redness and swelling of the skin lesion got worse and progressed to the fellow eye. Paederin can be spread to adjacent areas by liquid eye drops. After the patient stopped using topical eye drops and started systemic corticosteroid, the symptoms and skin lesions improved and disappeared.

Reports of *Paederus* dermatitis in the periorbital area are rare. Most such reports mention periorbital inflammation, conjunctivitis and rarely corneal involvement (Poole, 1998; Huang *et al*, 2010; Canan *et al*, 2013). A variety of treatments has been reported. Wet dressing of erythematous and swollen areas, and application of antibiotic eye ointment at scaly lesions have been suggested. Some cases were treated with steroid injection due to severe edema of the periorbital area. In most cases, antibiotics were not used (Canan *et al*, 2013). Use of autologous serum and a bandage contact lens were effective treatment in cases with corneal involvement (Huang *et al*, 2010).

In conclusions, *Paederus* dermatitis is a recognized clinical entity, the ophthalmic manifestations of which are periorbital dermatitis, conjunctivitis and persistent epithelial defect. The challenge in diagnosis of *Paederus* dermatitis is that it can mimic other diseases, such

as periorbital cellulitis and Herpes viral infection. Therefore, appreciation of the clinical manifestations of this condition will lead us to the proper management and minimize subsequent complications.

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REFERENCES

- Borroni G, Brazzelli V, Rosso R, Pavan M. *Paederus fuscipes* dermatitis. A histo-pathological study. *Am J Dermatopathol* 1991; 13: 467-74.
- Canan H, Altan-Yaycioglu R, Durdu M. Periorbital *Paederus* dermatitis mimicking preseptal cellulitis. *Can J Ophthalmol* 2013; 48: 121-5.
- Cressey BD, Paniz-Mondolfi AE, Rodríguez-Morales AJ, Ayala JM, De Ascensão Da Silva AA. Dermatitis linearis: vesicating dermatosis caused by *Paederus* species (Coleoptera: Staphylinidae). Case series and review. *Wilderness Environ Med* 2013; 24: 124-31.
- Gnanaraj P, Venugopal V, Mozhi MK, Pandurang CN. An outbreak of *Paederus* dermatitis in a suburban hospital in South India: a report of 123 cases and review of literature. *J Am Acad Dermatol* 2007; 57: 297-300.
- Huang FC, Chen WJ, Shih MH. *Paederus*-induced keratitis. *Cornea* 2010; 29: 941-3.
- Huang C, Liu Y, Yang J, et al. An outbreak of 268 cases of *Paederus* dermatitis in a toy-building factory in central China. *Int J Dermatol* 2009; 48: 128-31.
- Poole TR. Blister beetle periorbital dermatitis and keratoconjunctivitis in Tanzania. *Eye (Lond)* 1998; 12: 883-5.
- Rahmah E, Norjaiza MJ. An outbreak of *Paederus* dermatitis in a primary school, Terengganu, Malaysia. *Malays J Pathol* 2008; 30: 53-6.
- Saksirisampan B. *Paederus fuscipes* dermatitis. *Wkly Epidemiol Surveil Rep* 2008; 39: 309-10.
- Veraldi S, Cuka E, Chiaratti A, Nazzaro G, Gianotti R, Süß L. *Paederus fuscipes* dermatitis: a report of nine cases observed in Italy and review of the literature. *Eur J Dermatol* 2013; 23: 387-91.
- Wilson DC, King LE. Arthropod bites and stings. In: Freedberg IM, Eisen AZ, Wolff K, et al, eds. *Dermatology in general medicine*. 5th ed. New York: McGraw Hill Book, 1999: 2685-95.
- Zargari O, Kimyai-Asadi A, Fathalikhani F, Panahi M. *Paederus* dermatitis in northern Iran: a report of 156 cases. *Int J Dermatol* 2003; 42: 608-12.