

Blister beetle periorbital dermatitis and keratoconjunctivitis in Tanzania

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Abstract

Two cases of periorbital dermatitis and one case of keratoconjunctivitis following contact with blister beetle are presented. In Tanzania and Kenya the commonest blister beetle is known as Nairobi Fly and is of the genus *Paederus*. Ocular symptoms are common, usually secondary to transfer by the fingers of the toxic chemical involved from elsewhere on the skin. Blister beetle keratoconjunctivitis has not previously been described in detail.

Key words Blister beetle, Nairobi Fly, Dermatitis, Keratoconjunctivitis

Three major groups of blister beetle are found, all of the order Coleoptera. The best-known family is the Meloidae, which includes the notorious 'Spanish Fly' found in summertime in Southern Europe.¹ The smallest family is the Oedemeridae, and the third family is the Staphylinidae,² also known as Rove Beetles.³ Within this third family are species of the genus *Paederus*, including *P. sabeus*, commonly known in East Africa as Nairobi Fly (Fig. 1).

Paederus sabeus is frequently seen in the Kilimanjaro region of Tanzania during the rainy season. With the abundant rains in late 1997 and early 1998 (attributed to El Niño), their presence has been particularly widespread. They are often found in the shelter of buildings, including hospital wards, where several hundred can be seen at a time. The beetle is 5–7 mm long and recognisable by its striking colouring of red, black and dark green.

Case reports

Case 1

A 7-year-old girl was admitted to the eye ward of the Kilimanjaro Christian Medical Centre (KCMC). Her mother, a Maasai, while staying with her daughter on the ward, developed a painful oedematous blistering eruption of the left upper eyelid (Fig. 2). There was no conjunctival or corneal involvement and her vision was unaffected. No specific treatment

was given. The lesion showed signs of improvement after 3 days, and resolved completely over a 3 week period.

Case 2

A 20-year-old tanzanite miner presented to the KCMC eye department with a history of an insect falling into his left eye while he slept. He described an acutely painful eye and reduced vision. On examination the patient's Snellen visual acuity was 6/24 in the affected eye. He was in obvious pain. The lids and surrounding periorbital tissue were swollen, so that he was unable to open the eye. There was marked lacrimation. The conjunctiva was injected and chemosed. Fluorescein staining revealed a shallow corneal ulcer with well-defined edges, 3 mm × 2 mm. There was no stromal infiltration. The anterior chamber was quiet.

The patient was treated with g. prednisolone 0.5% q.d.s., g. chloramphenicol 0.5% q.d.s., and g. cyclopentolate 1% b.d. to the affected eye. After 2 days the periorbital oedema had improved a little (Fig. 3). The corneal epithelial defect had healed without scarring, but there was a filamentary keratitis and the conjunctiva remained inflamed (Fig. 4). This returned slowly to normal over the next 3 days, as did the visual acuity, and treatment was tapered. The periorbital swelling had gone after 3 weeks with no sequelae.

Case 3

A 58-year-old British teacher in Moshi, in the Kilimanjaro region, with a diagnosis of open angle glaucoma, was instilling his own beta-blocking eyedrops twice daily. At the time he had noticed many Nairobi Fly in his house. He developed a painful erythematous vesicular rash on both upper eyelids a few hours after instilling drops. There was no conjunctival or corneal involvement and his vision was unaffected. The lesions remained painful and erythematous for 4 days, and slowly resolved over 2 weeks. He did not use any skin treatment over this time.

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Fig. 1. *Paederus sabeus*, the Nairobi Fly.

Discussion

The *Paederus* genus of blister beetles produce the chemical paederin,³ which is responsible for the toxic effects to the skin and eye. In this the genus differs from other blister beetles, which produce cantharidin. The paederin is released if the beetle is accidentally touched or crushed (the beetles do not bite or sting). It causes a dermatitis characterised by a more violent cutaneous reaction than with cantharidin, with prominent urticaria and dermatitis prior to blistering.⁴



Fig. 2. Case 1. Blister beetle periorbital dermatitis in a Maasai woman.



Fig. 3. Case 2. Blister beetle induced periorbital oedema.

All three cases described occurred at a time when thousands of beetles could be seen in the hospital. At this time many other patients on the hospital wards suffered effects, often the so-called Nairobi Eye after touching their eyelids with fingers contaminated with the toxic chemical, as in case 3. Because of its delicate nature, the periorbital skin seems to be particularly susceptible. The contamination of fingers occurs from lesions elsewhere on the patient's body, or from surfaces directly contaminated by the beetle.

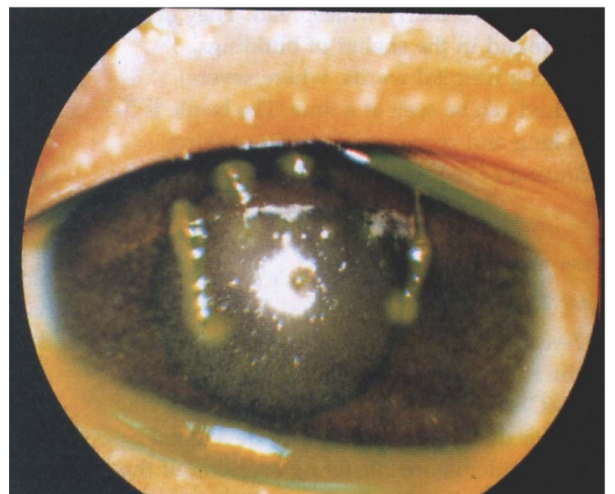


Fig. 4. Case 2. Blister beetle induced punctate and filamentary keratitis.

Local residents know not to crush the easily identifiable beetle, but simply to flick it off the skin. The application of toothpaste is the commonly recommended local treatment for the skin lesions; the basis and effectiveness of this treatment is unknown. Also unknown is the effectiveness of topical steroid creams; thorough washing with soap and water after contact with the insect appears to be beneficial.⁵

Ocular involvement is usually from finger contamination to eyelid skin. Direct inoculation of the toxin into the conjunctival sac produces more florid symptoms and signs, as in case 2, and can rarely cause corneal scarring and anterior uveitis.⁵ In case 2, a toxic corneal ulcer was followed by a filamentary keratitis. Topical steroid treatment proved effective. Although rare in Europe, ocular and periocular effects of the blister

beetle should be remembered in the occasional visitor returning from East Africa.

References

1. Swarts WB, Wanamaker JF. Skin blisters caused by vesicant beetles. *JAMA* 1946;131:594-5.
2. Nicholls DSH, Christmas TI, Greig DE. Oedemerid blister beetle dermatosis: a review. *J Am Acad Dermatol* 1990;22:815-9.
3. Fain A. Toxic action of rove beetles (Coleoptera: Staphylinidae). *Simposio internazionale sobre venenos animais. Mem Inst Butantan* 1966;33(Suppl):835-44.
4. Alexander JO'D. *Arthropods and human skin*. Berlin: Springer, 1984:81-2.
5. Fox R. *Paederus* (Nairobi Fly) vesicular dermatitis in Tanzania. *Trop Doct* 1993;23:17-9.