

## Rove Beetle Blistering — (Nairobi Eye)

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**SUMMARY:** 'Nairobi Eye' is a condition caused by a blister beetle, *Paederus eximius*, found in Northern Kenya. It has not previously been described as a hazard for troops exercising in this area. Four cases are described. Recommended management is to wash the contact area initially with soap and water, and to treat subsequent lesions with flomazine.

### Introduction

An unfortunate fact of medical life is that every now and again doctors misdiagnose conditions, give incorrect treatment and remain none the wiser. Medical Officers deploying to Kenya have probably been doing this regularly for lesions caused by a blister beetle resulting in a condition known locally as 'Nairobi Eye'.

The author too would have remained ignorant of the cause had the case not been discussed with a local expatriate doctor, who dismissed the matter with the casual comment 'well that's Nairobi Eye of course'. Four cases of blistering are described.

### Case Reports

#### Case 1

The first case involved a soldier working in the far north of Kenya who woke one morning with severe burning in his penis and scrotum (Fig 1). By the time he had reached the medical centre he had small blisters over several square centimetres and these coalesced to form shallow ulcers over the next two days. He was referred to a local GP who initiated treatment with steroid cream. The author saw him a day later by which time there was obvious secondary infection. Having been assured by the doctor that the condition was 'Nairobi Eye' which was explained, the condition was subsequently managed as a chemical burn using the only suitable treatment readily available — flomazine. Twenty four hours later the lesions were clean, much less painful and the surrounding erythema had subsided. The patient made an uneventful recovery over the next four days with no scarring.

#### Case 2

A soldier reported having been 'bitten' by an insect on the cheek. This was followed by intense burning over the area with blisters forming after 24 hours. Swelling and erythema developed 48 hours after the initial contact. He was seen at this point and treated with flomazine cream three times daily. The flomazine provided some immediate relief. The area remained blistered with no sign of any secondary infection and the lesion resolved over the next week. He had noticed a number of beetles about a centimetre long, black and bright red in colour. He thought it was one of these that had 'bitten' him.



**Fig 1.** Blistering over penis and scrotum from *Paederus eximius*.

#### Case 3

A soldier complained of a stinging pain over his left eye for the past 24 hours. He had noted insects similar to those seen by Case 2 on the ground around his sleeping area the night before. On examination the eyelids were slightly red and swollen. No blistering appeared until the following day when blistering followed by ulceration developed. A further lesion was noted on the neck at the same time. Again the lesions were treated with flomazine with some immediate relief. No secondary infection followed and resolution occurred within a few days.

#### Case 4

A soldier complained of 'scratches' over his left shoulder, neck and in his left armpit acquired the night





**Fig 2a. Blistering over shoulder from *Paederus eximius*.**

before last, having slept on the ground in the North. On examination he had linear areas of erythema, blistering and ulceration on his neck and shoulder and blistering in his armpit (Fig 2a and 2b). He had also noticed the black and red beetles. The lesions were treated with flomazine and resolved over the next week.

Following these cases, the remaining troops were warned of the beetle and advised, following contact, to wash the skin immediately with water and preferably soap if available. They were also advised not to brush or rub the beetles off, but to flick them or blow them away. No further cases were seen.

#### Discussion

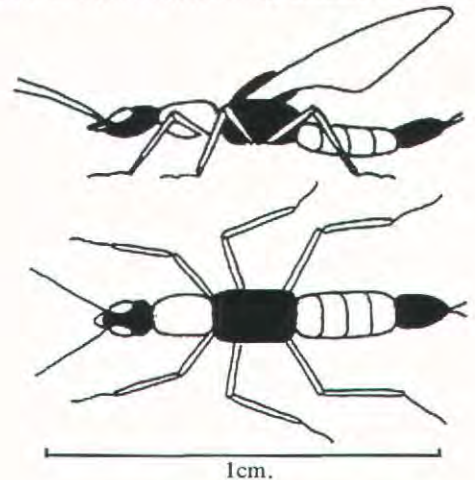
Examples of most categories of chemical warfare can be found amongst the insects and many beetles produce vesicating agents. The genus *Paederus* (family Staphylinidae or 'Rove Beetles') (Fig 3) contains numerous species with a worldwide distribution, all producing the toxin Pederin (1). Most of these are similar in appearance. They are small with narrow bodies. The head, mesothorax and distal tip of the abdomen are black and the prothorax and remaining abdomen red or orange. The wings are covered completely by the elytra when folded. The beetle in these cases was *P. eximius*, the 'Nairobi fly' found mostly in the dryer areas in the northern parts of Kenya. A number of papers record blistering from Rove beetles as a common occurrence in



**Fig 2b. Blistering in axilla from *Paederus eximius*.**

many parts of Africa (2), and several different species are responsible. Rove beetles have a worldwide distribution and cases have been reported from all but the polar continents (2).

Pederin is a crystalline amide soluble in alcohol and water (1). It is a DNA inhibitor and acts at the cellular level by blocking mitosis. It appears that pederin is not part of a defence mechanism, because of the delay



**Fig 3. The 'Nairobi Fly', *Paederus eximius*.**

appearance of symptoms, but is simply part of the hemolymph of the insect which is released when the insect is crushed against the skin. Lesions can vary in severity. They start with erythema and may progress with itching after 24 hours to vesical formation between 24 and 48 hours with or without pus, then sloughing and possibly depigmentation and scarring. Lesions are often linear because the beetle is brushed across the skin and the term 'linear dermatitis' may be used. The pederin may also be transferred by hand to other areas, notably the eyes. The palms and soles appear immune to the toxin.

The blistering has been frequently misdiagnosed in the past (3) leading to frustrated diagnostic efforts. Many different treatments have been suggested (1), which perhaps implies that none of them have much effect on the course of the condition. Steroid cream is sometimes advocated to relieve the erythema and itching, however it has no part to play in the management of the condition, mainly because of the risk of secondary infection. As the lesion is equivalent to a chemical burn the author decided

to use flomazine as this is readily available to medical officers in the field and has some bactericidal action. It relieves the symptoms to some extent, probably also preventing secondary infection.

It is very likely that many soldiers have been affected in the past on exercise in Kenya and that medical officers will see cases in the future. The condition can be avoided by following simple procedures, and if it does arise, flomazine appears to be the most practical remedy in the field.

#### REFERENCES

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