

An Epidemicity of *Paederus* Species in the Çukurova Region

Canan Uslular, MD; Hasan Kavukçu, MD; Davut Alptekin, PhD; M. Alpaslan Acar, MD; Y. Gül Denli, MD; Hamdi R. Memişoğlu, MD; Halil Kasap, PhD

Two hundred four patients (117 females, 87 males; age range: 3–80 y) were admitted to our facility between May 1995 and June 1997 and studied to determine the endemicity of the *Paederus* species, which has been increasing for the last 6 years (especially in May and June) in the Çukurova region of southern Turkey. Clinically, infection with the *Paederus* species mimics contact dermatitis, herpes zoster, bullous impetigo, and phytophotodermatitis. Definitive diagnosis is made by historical and clinical findings. To determine the main histopathologic features of this infestation, biopsy specimens were obtained from 9 patients and stained with hematoxylin and eosin (H&E). In most patients, the skin lesions were located on the exposed parts of the body. Clinically, these lesions were linear, vesicular, bullous, and/or pustular on erythematous bases and resembled either phytophotodermatitis, herpes zoster, or impetigo rather than classic insect bites. Pederin, which is released from the *Paederus* species, may cause these lesions. The number of cases has increased markedly during the last 5 years. In the coming years, we expect this number to increase significantly.

P*aederus* dermatitis is a self-healing skin disease with linear or nummular vesiculobullous lesions on erythematous bases.^{1,2} The dermatitis occurs within 24 hours after the crushing of the beetle over the skin and heals with slight hyperpigmentation within 7 to 8 days.³ Because so many patients presented with similar lesions—especially in May and June—we were compelled to examine this outbreak. Although no studies have been done in our country on the epidemicity of



Figure 1. *Paederus* species.

the *Paederus* species, studies have been conducted in other countries.

Materials and Methods

Two hundred four patients (117 females, 87 males; age range: 3–80 y) admitted to our facility between May 1995 and June 1997 were included in this study. Definitive diagnosis was made by historical and clinical findings. Our medical biology department conducted the parasitologic investigations. *Paederus* (class Insecta, order Coleoptera, family Staphylinidae) was found either in the vicinity or in the residences of our patients (Figure 1). Its species was not identified, but studies are still ongoing.

To determine the main histopathologic features of this infestation, biopsy specimens were obtained from 9 patients and stained with hematoxylin and eosin (H&E).

Results

Of the 204 patients treated, 69 (34%) were living in rural areas. The remaining 135 (66%) were living in

Drs. Uslular, Kavukçu, Acar, Denli, and Memişoğlu are from the Department of Dermatology, and Mr. Alptekin and Mr. Kasap are from the Department of Medical Biology, Çukurova University Medical School, Adana, Turkey.

Reprints: Canan Uslular, MD, Çukurova University, Faculty of Medicine, Department of Dermatology, 01330 Adana, Turkey (e-mail: cudermadana@hotmail.com).

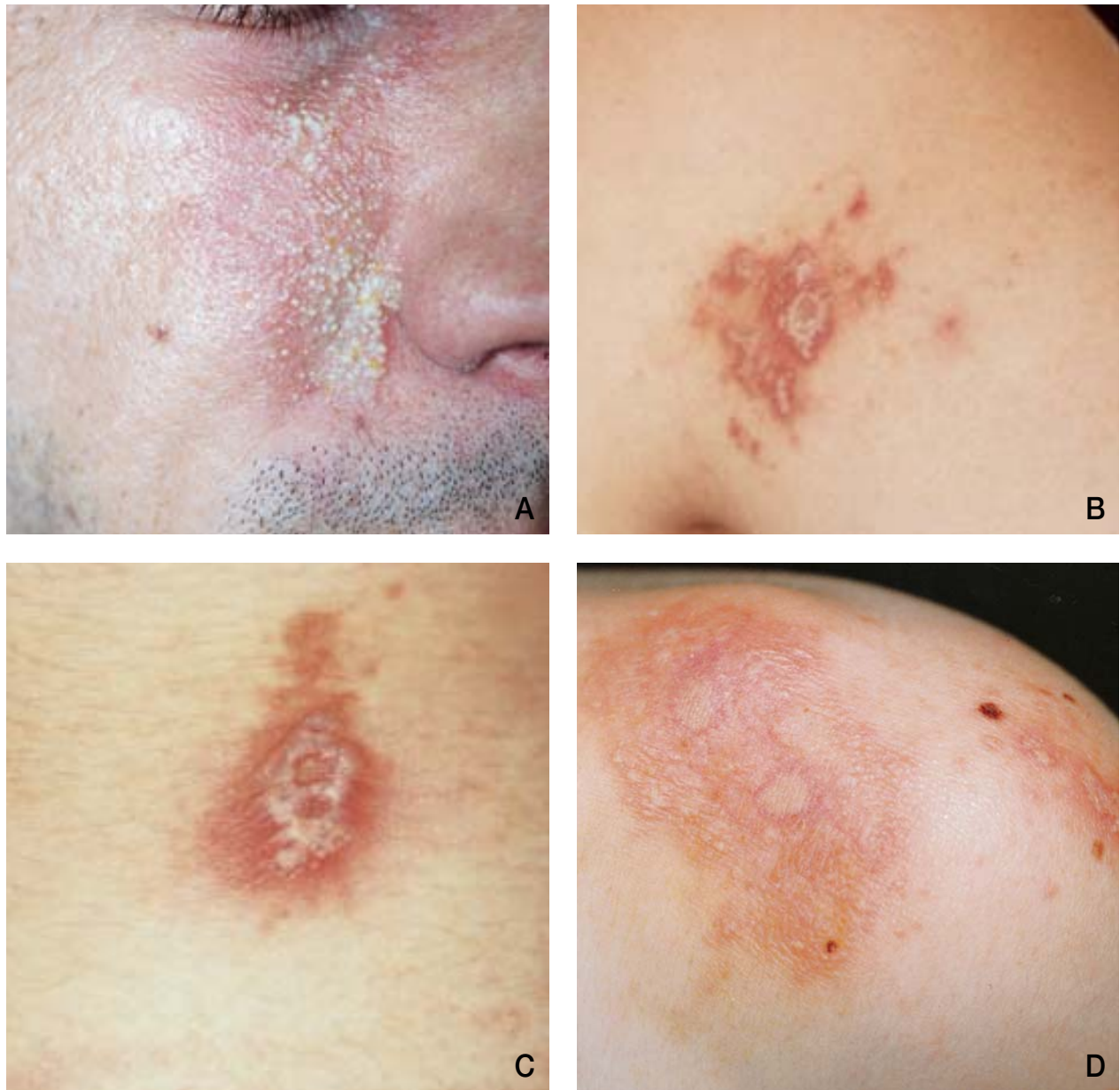


Figure 2. *Paederus* dermatitis (A through D).

cities, and 25 (19%) of these 135 patients were living in rural areas during or before the onset of the lesions. All the lesions were of short duration (eg, some for just one night).

In 187 of the 204 patients (92%), the lesions were located on exposed parts of the body. Dermatologic examination revealed that the morphology and arrangement of the lesions were linear or kissing, vesicular, bullous, and/or pustular on erythematous bases (Figure 2). The lesions became crusted within a few days and healed in 7 to 8 days with slight hyperpigmentation. A burning sensation was the main patient complaint.

Common histopathologic features found in biopsy specimens were parakeratosis, subcorneal bulla formation, spongiosis, basal hydropic degeneration, edema, and vasodilation in the upper dermis. Also, an infiltration containing many lymphocytes, mononuclear cells, histiocytes, and, in a lower ratio, eosinophils, was discovered (Figure 3).

The uncommon features found in biopsy specimens were subepidermal cleft and bulla formation; epidermolytic keratosis; dermal lymphoid infiltrations (which mimic cutaneous leishmaniasis); and in one biopsy specimen, hyperkeratosis, acanthosis, and papillomatosis.

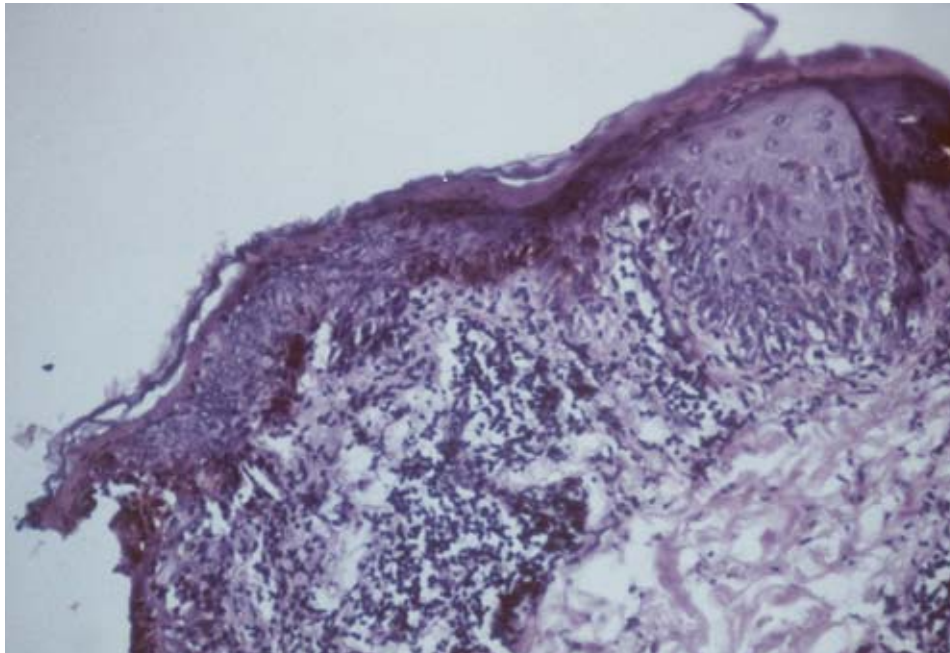


Figure 3. Histopathology of a skin biopsy with *Paederus* dermatitis (H&E, original magnification $\times 200$).

Comment

The epidemicity of *Paederus* has been in our region for the last 6 years and is spreading. The largest proportion of the cases appeared at the beginning of the summer and decreased in later months. Outbreaks of similar vesicating dermatitis are distributed widely throughout the world, especially in warm and moist climates. Many studies have been done, especially in the southwest and southeast United States, Hawaii, Italy, Nigeria, Sri Lanka, Venezuela, and Tanzania, where the species was found.¹⁻⁹ The beetle lives on moist and rotten leaves and on the organic parts of the soil, causing it to multiply on rainy days.^{2-4,10} This explains the outbreak of the infestation in May and June, after the spring rains.

Paederus usually appears in the evening and gather around the light.^{1,4} Because the weather is very hot in the Çukurova region, residents spend their evenings and nights in the gardens and on the balconies of their homes. For an even cooler place, residents often sleep on the roof. The *Paederus* species does not sting or bite—accidental brushing against or crushing the beetle over the skin, provokes the release of pederin, a potent vesicant agent contained in the body fluids of the beetle, thereby causing the dermatitis.^{1-4,10}

The clinical appearance of the lesions mimics phytophotodermatitis, herpes zoster, or impetigo rather than classic insect bites. Patient history is the most important factor in making a differential diagnosis. Most cases involve bodily contact with the beetle.

Paederus dermatitis is differentiated from impetigo and herpes zoster by the short healing

period, absence of pain, linear localization, and localization of the lesions out of the neurotomies. The substantial increase of cases within a 6-year period makes this epidemicity a serious problem for our region.

REFERENCES

1. Kardel-Vegas F, Golhman-Yahr M. *Paederus* dermatitis. *Arch Dermatol.* 1966;94:175-188.
2. Borroni G, Brazzelli V, Rosso R, et al. *Paederus fuscipes* dermatitis. a histopathological study. *Am J Dermatopathol.* 1991;135:467-474.
3. Veraldi S, Suss L. Dermatitis caused by *Paederus fuscipes* Curt. *Int J Dermatol.* 1994;33:277-278.
4. Kamaladasa SD, Perera WD, Weeraratunge L. An outbreak of *Paederus* dermatitis in a suburban hospital in Sri Lanka. *Int J Dermatol.* 1997;36:34-36.
5. Burnett JW, Calton GJ, Morgan RJ. Blister beetles: "Spanish fly." *Cutis.* 1987;40:22.
6. Samlaska CP, Samuelson GA, Faron ME, et al. Blister beetle dermatosis in Hawaii caused by *Thelyphassa apicata* (Fairmaire). *Pediatr Dermatol.* 1992;9:246-250.
7. Till JS, Majmudar BN. Cantharidin poisoning. *South Med J.* 1981;74:444-447.
8. George AO, Hart PD. Outbreak of *Paederus* dermatitis in southern Nigeria: epidemiology and dermatology. *Int J Dermatol.* 1990;29:500-501.
9. Fox R. *Paederus* (Nairobi fly) vesicular dermatitis in Tanzania. *Trop Doct.* 1993;23:17-19.
10. Gelmetti C, Grimalt R. *Paederus* dermatitis: an easy diagnosable but misdiagnosed eruption. *Eur J Pediatr.* 1993;152:6-8.