

Paederus dermatitis: An observational study

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Abstract

Aim: Paederus dermatitis (PD) is a form of irritant contact dermatitis caused by Paederus spp. It can mimic many dermatological conditions. In this study, we aimed to evaluate clinical characteristics of the cases with Paederus dermatitis.

Material and Methods: The study included the patients with PD who admitted to our outpatient clinic between May 2017 and November 2018. The study was carried out in a private hospital at Batman province, a city in the southeast Anatolia region of Turkey. Clinical and demographical features of all the cases were retrospectively reviewed.

Results: A total of 44 patients were enrolled in the study. The mean age of the patients was 25.2 years. The disease peaked in August and September. The most common localization was head-neck region. On the dermatologic examination, three main clinical patterns were observed: dermatitis linearis (n=31, 70.4%), localized pustular dermatosis (n=4, 9%) and kissing dermatitis (n=7, 15.9%). Two (4.54%) cases showed a combination of two patterns. Three cases (6.8%) had periorbital involvement.

Conclusion: Paederus dermatitis is a form of irritant contact dermatitis which can easily be misdiagnosed. Awareness about the clinical patterns of the disease and its typical features is essential for true diagnosis and management.

Keywords: Contact Dermatitis; Dermatitis Linearis; Irritant Dermatitis; Paederus Dermatitis.

INTRODUCTION

Paederus dermatitis (PD) is a form of irritant contact dermatitis. The entity is caused by contact exposure with a potent toxin known as pederin which is found in some species of the Paederina in the Staphylinidae family of beetles. The vesicant chemical in the body fluids of these species are associated with an acute irritant contact reaction. The clinical table is characterized by vesicular lesions on an erythematous base accompanied with burning sensation on exposed skin (1,2).

It is remarkable that Paederus spp. does not bite or sting. Humans are exposed to pederin when the insect is crushed on the skin causing characteristic clinical presentation (2,3).

The entity has a typical course. Initial erythematous phase is followed by vesiculation and subsequent crusting and desquamation. Mild cases with only erythema heal within 2 days. Moderately severe cases with remarkable vesiculation may exfoliate in 7–8 days. Postinflammatory hyperpigmentation may last up to a month. Severe cases show a more extensive cutaneous involvement and systemic manifestations like fever, rhinitis, arthralgia

and tympanitis. Erythematous appearance may last for months. Cutaneous necrosis may also be seen but it is rare (4).

Herpetic and bacterial infections, pemphigus, and other forms of contact dermatitis are the main differential diagnoses. (2-4). In this study, we aimed to evaluate clinical characteristics of the cases with Paederus dermatitis.

MATERIAL and METHODS

The study included the patients with PD who admitted to an outpatient dermatology polyclinic of a private hospital in one of the provinces of the south east Anatolia between May 2017 and November 2018. Clinical and demographical features of all the cases were retrospectively reviewed. Clinical parameters included a detailed history, elementary lesions, localizations and durations of the lesions. The diagnosis was based on the typical clinical features and course of the disease along with the excluding of the similar conditions like herpes simplex and other causes of contact dermatitis. All the procedures followed were in accordance with the Helsinki Declaration and the study was approved by the local clinical research ethic committee.

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RESULTS

22 patients were males (50%) and 22 (50%) were females. The mean age was 25.2 years (range 1 to 70 years). The mean duration of the lesions was 3 days (1 to 5 days). Forty-two percent of the patients applied during the summer. The disease peaked between August and September. The most common localization was head and neck region with 29 (65.9 %) patients followed by extremities (n=10, 22.7%), trunk (n=10, 22.7%), periorbital region (n=4, 9%) and genital region (n=2, 4.5%). 21 (47.7%) patients applied in August, 12 (27.2%) in September, 7 (15.9%) in July, 2 (4.5%) in April and 2 (4.5%) in October.

On the dermatologic examination three main clinical patterns were observed: dermatitis linearis (n=31, 70.4%) (Figure 1), localized pustular dermatitis (n=4, 9%) (Figure 2) and kissing dermatitis (n=7, 15.9%) (Figure 3). 2 (4.5%) cases showed a combination of at least two patterns. Three cases (6.8%) had periorbital involvement (Figure 4). 6 (13.6%) cases showed "whiplash" appearance (Figure 5). Clinical and demographic characteristics of the patients were detailed in Table 1.



Figure 3. Kissing dermatitis



Figure 1. Dermatitis linearis



Figure 4. Periorbital involvement



Figure 2. Localized pustular dermatitis



Figure 5. Whiplash appearance

Table 1. Clinical and demographic characteristics of the patients with Paederus dermatitis

Age Range (year)	Sex		Site						First application day after noticing the lesion				Clinical pattern				Application time (month)			
	M	F	B	B	P	H	E	G	1	2	3	4>	D	L	K	O	J	A	S	O
	A	E	R	A	E	E	X	E					L	P	D	T	U	U	E	T
	L	M	E	C	R	A	T	N						D		H	L	G	P	H
	E	A	A	K	I	D	R	I								E	Y	U	T	E
		L	S		O	&	E	T								R		S	E	R
		E	T		R	N	M	A								S		T	M	S
			&		B	E	I	L											B	
			A		I	C	T												E	
			B		T	K	E												R	
			D		A		S													
			O		L															
			M																	
			E																	
			N																	
<10	3	1	1	2		2	1			1	2	1	3		1			3	1	
11-20	3	8	1	2	1	6	4	1		4	4	3	6	3	2		2	6	3	
11-20	3	8	1	2	1	6	4	1		4	4	3	6	3	2		2	6	3	
21-30	5	8				9	3	1		6	5	2	9	1	2	1	1	7	3	2
31-40	8	2	1	1	2	7	2				6	4	8		2		3	4	3	
41-50	3	2	2			4				1	2	2	4			1		1	2	2

Abbreviations: DL: Dermatitis linearis, LPD: Localized pustular dermatitis, KD: Kissing dermatitis

12 (27%) patients were living in rural areas and 32 (73%) were living in cities. The main complaint was burning sensation followed by itching and pain. No any patient showed any systemic manifestation like fever or arthralgia.

The beetles collected from the living area of three patients were consulted to a private medical biologist. The samples identified as Paederus genus (class Coleoptera, family Staphylinidae, genus Paederus and Fuscipes species).

All the patients received a combination of topical betamethasone dipropionate and gentamicin sulfate twice and a single dose of levocetirizine 5 mg tablet daily. All the lesions became crusted within a few days and resolved in 7 or 8 days with mild hyperpigmentation. Only two cases had permanent hyperpigmentation which was not resolved in a month period.

DISCUSSION

Paederus dermatitis is a self-limited cutaneous condition involving both genders and all ages. Patients are usually unaware of contact with the beetle as it often occurs at night during sleep when the beetles are crushed. Lesions are usually noticed on awakening in the morning. That's why it is known to be "wake and see" disease in Nigeria and "night burn" disease in Turkey. The time between the first exposure of skin with the pederin and the appearing earliest erythematous lesion is described as the latent period. Pederin can be transferred by sheets or clothing and involve remote areas of the body. The most common localizations are face, neck and arms which are not covered by clothes. Palmoplantar region and mucosal

areas are usually spared. The incidence of the entity increases in the rainy seasons (4). Therefore, the cases are usually seen in May-Jun (5).

In a study conducted by Erdoğan et al. in Denizli and around, the patients were mostly admitted in July (6). In another study involving the agricultural workers gathering hazelnuts around Giresun, the patients were admitted mostly in September (7). In our study which was conducted in one of the provinces of south east Anatolia, the disease peaked in August. We foresee that this difference may be related to the increase in humidity caused by corn fields which are quite common in the region and require excessive watering in August and September. Otherwise, we didn't found an association between paederus dermatitis with a particular plant.

Zargari et al. reported 156 cases of Paederus dermatitis in northern Iran (8). There were 70 males (45%) and 86 females (55%) patients. Their ages ranged from 6 months to 74 years (mean age 31.3 ± 16.4 years, median age 32 years). The most common site of involvement was face (42.3%) followed by neck (33.3%), upper extremities (23.7%) and periorbital areas and/or conjunctivae (22.4%) (7). In the present study, the disease was seen equally in both sexes. Similar to Zargari's study, the most common affected sites were head, neck, face and, extremities.

Karthikeyan and Kumar (4) described some criteria for the diagnosis of PD based on history and clinical features. Histopathological examination was not accepted diagnostic and not included in the criteria. These criteria were as follows;

1. Sudden eruption with burning or itching sensation
2. Dermatitis showing linear or streaky morphology with or without kissing lesions
3. A history of contact exposure to Paederus or living in an endemic region.

In the present study, the final diagnoses of all the cases were also based on above mentioned criteria.

All the cutaneous conditions with vesiculations including herpetic, bacterial and fungal infections, pustular psoriasis, dermatitis herpetiformis, pemphigus, subcorneal pustular dermatosis, other forms of contact dermatitis, thermal and chemical burns, phyto photo dermatitis, cutaneous larva migrans, caterpillar dermatitis, artifactual dermatitis, and insect bites should be included to the differential diagnosis. (2-4).

The patient's history is a very important point in the differential diagnosis. In south east Anatolia the habit of sitting and sleeping outside is common due to extreme heat weather in the summer. Almost all of our patients had a history of gardening in the last 1 week or a history of outdoor sleeping resulting in an increased risk of encountering the beetle.

Preventing contact exposure with the beetle is the main way of avoiding Paederus dermatitis. Learning to recognize paederus beetles and avoiding from crushing them may help to prevent the disease. Paederus dermatitis should be managed as an irritant contact dermatitis. Removal of irritant must be the first step. Washing with soap and water, application of cold wet compresses may also be helpful. Topical corticosteroid is the treatment of choice (9).

CONCLUSION

In conclusion, Paederus dermatitis is a form of irritant contact dermatitis which can easily be misdiagnosed.

Awareness about the clinical patterns of the disease and its typical features is essential for true diagnosis and management. Basic measures may be undertaken based on the behavioral characteristic of this nocturnal insect.

Competing interests: The authors declare that they have no competing interest.

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