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Chemical burn from acetic acid with deep ulceration

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Key words: acetic acid; chemical burn; irritant contact dermatitis. © Munksgaard, 1997.

Case Report

A 59-year-old woman developed severe pain, after twisting her left ankle while mountain climbing. She applied a home-made poultice to the affected site under occlusion with gauze, consisting of a 50:50 mixture of flour and rice vinegar, containing 4.5% acetic acid. She felt severe pain in the treated area, but kept the gauze on for approximately 2 h. When she removed it, the color of the treated area had changed to dark reddish and partially brown-black, and was edematous. She immediately washed the area copiously with water. The next morning, she consulted a local doctor, but the necrosis and ulceration had gradually progressed despite treatment with topical 0.1% gentamicin sulfate. Approximately 1 month later, she was referred for treatment of the deep ulcer. Examination revealed a deeply ulcerated lesion, involving the entire dermis and adipose tissue, on the dorsum of the left foot, 7 cm in diameter, its surface covered with yellowish necrotic tissue (Fig. 1). She was hospitalized and successfully treated with full-thickness skin grafting.

Discussion

Organic acids may be caustic, for example, glacial acetic, trichloroacetic acid, formic acid, carbolic acid and cresol.

Coagulative necrosis occurs in the tissues together with thrombosis of the vessels. The depth of necrosis in chemical burns depends on the concentration, duration of contact, quantity and type of action, and whether early effective washing off with water and neutralization with sodium bicarbonate solution or milk of magnesia has been used (1). Long duration of exposure under occlusion, even if with a weak acid such as acetic, may lead to serious injury requiring skin grafting, as in the present case.



Fig. 1. Deep ulcer on the dorsum of the left foot.

We are not aware of previous descriptions of such a severe chemical burn by acetic acid, requiring skin grafting, as in this case. A previous description of a superficial chemical burn on the face from the use of vinegar was found in a case of pediculosis capitis (2).

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No evidence of cross-reaction between fepradinol and other phenylethanolamines

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Key words: fepradinol; phenylethanolamine; allergic contact dermatitis; cross-reaction; medicaments; non-steroidal anti-inflammatory drugs; NSAIDs; adrenergic drugs. © Munksgaard, 1997.

Patients and Methods

Case no. 1

A 50-year-old man presented with acute eczema on the left side of his back. For muscular pain in the left scapular area, Dalgen[®] spray had been applied 2–3× a day. 3 days later, without previous sun exposure, he developed intense pruritus due to acute exudative eczema in the area of application. After withdrawal of Dalgen[®] spray, he was treated with topical antiseptics and local and oral corticosteroids, with rapid improvement.

Case no. 2

A 71-year-old woman had rheumatoid arthritis, currently untreated, and asthma, which had been treated with Ventolin[®] (salbutamol) and Terbasmin[®] (terbutaline) for several years. After application of Dalgen[®] spray on her knees and dorsum of her left foot due to joint pain for 8 days, very pruriginous maculo-erythematous lesions with a tendency to scaling appeared. Previous sun exposure was ruled out. She presented with several erythematous-edematous patches, with a tendency to a slight superficial scaling, on her left knee, inner right

knee and dorsum of her left foot. The dermatitis rapidly improved after withdrawal of the spray and application of topical corticosteroids. The patient had used this spray, at least 4× before, without any trouble.

The GEIDC standard series, Dalgen[®] as is and Dalgen[®] constituents series were patch tested in both cases. In the 2nd patient, the concentration of fepradinol for patch testing was less than 1% aq. eth. or pet. An additional study with other phenylethanolamines (phenylephrine 1% and 10% in both aq. and pet., epinephrine 0.5% and 1% aq. and 1% pet., ephedrine 1% and 10% in both aq. and pet., salbutamol as Ventolin[®] as is, and terbutaline as Terbasmin[®] as is) was performed. Al-test[®] and Hypafix[®] were used for patch testing. Readings at 2 and 4 days were made according to the ICDRG criteria. Dalgen[®] as is, and fepradinol (0.01%, 0.1% and 1%) both aq. and eth., were also performed in 15 healthy controls.

Results

Dalgen[®] as is elicited a positive reaction at 2 and 4 days in both cases. As shown in Table 1, serial dilutions of fepradinol aq. eth. and pet. were highly positive in Case no. 1, while in case no. 2, positive patch tests only to fepradinol 0.01% and 0.1% eth. were found. No positive reactions were observed with Dalgen[®] as is or fepradinol in controls. The patch tests with other phenylethanolamines were negative in both patients.

Discussion

Fepradinol is a non-steroidal anti-inflammatory drug (NSAID) marketed in Spain since 1989 as Dalgen[®] and Flexidol[®] (6 mg of fepradinol per 100 ml) sprays. 2 cases of allergic contact dermatitis from fepradinol were reported in 1992 (1), and several since then (2–6). In another case, allergy was caused by one of the excipients of the spray (7). As fepradinol belongs to the phenylethanolamine group, it does not have any structural relationship with other NSAIDs. Adrenergic substances (phenylephrine, ephedrine, terbutaline, etc.) belong to this same group (Fig. 1) (8), though their pharmacological action is different. No cross-reaction between feprad-

Table 1. Results of patch tests

Allergens	Case no. 1		Case no. 2	
	D2	D4	D2	D4
Standard series				
caine mix	++	++	–	–
PPD	–	–	–	++
others	–	–	–	–
Dalgen [®] as is	+++	+++	+	++
Dalgen [®] spray constituents series				
fepradinol 0.01% aq.	+	++	–	–
fepradinol 0.1% aq.	+++	+++	–	–
fepradinol 1% aq.	+++	+++	NT	NT
fepradinol 0.01% eth.	++	+++	–	++
fepradinol 0.1% eth.	+++	+++	–	++
fepradinol 1% eth.	+++	+++	NT	NT
fepradinol 1% pet.	+++	+++	NT	NT
other constituents	–	–	–	–

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