

sitization to the paraben in topical therapeutic manufactures is not rare. We report a case of paraben allergic contact dermatitis in a patient with livedo reticularis.

Case Report

A 48-year-old man was examined in February 1996 with cutaneous lesions in the lower thighs. Past medical history included anaphylactoid purpura and acute pyelonephritis at 14 years of age. Leg lesions developed in 1986. Although topical application of corticosteroid ointment produced clinical resolution, new lesions developed several times over 10 years. Physical examination showed red-blue mottling in the lower thighs. Several ulcers with yellowish or blackish crust and dark reddish swelling were seen on both lower thighs and dorsal feet. An erythematous lesion showed perivascular lymphocytic infiltration and dermal vessels with a thickened wall. Livedo reticularis was diagnosed on the above findings.

Course and Patch Testing

He was hospitalized 3 times (1996, 1997, and 2005), when ulcers developed on the legs. During those hospitalizations, erythematous lesions developed around the ulcers several times (Fig. 1). Suspecting contact dermatitis to topical medicaments, we performed patch testing on each admission. Medicaments were applied on the back for 2 days, with vinyl plaster (Patch tester TORII®; Torii Pharmaceutical Co. Ltd, Tokyo, Japan). The results were read using

the International Contact Dermatitis Research Group scoring system, 2 and 3 days after application (1). In the first testing, only Reflap® ointment showed a positive reaction (Table 1). In addition to that ointment, positive reactions to other 3 medicaments were seen (Acuatim® cream, Geben® cream, and Olcenon® ointment) in the second testing (Table 1). The third testing with Reflap® ointment and 15% paraben [the standard series of the Japanese Society for Contact Dermatitis (2)] were patch test positive (Table 1).

Discussion

Parabens, including propyl, methyl, ethyl, butyl, and benzyl parabens are commonly used as topical medicament preservatives (3). Among topical medicaments patch tested in our patient, 4 contained parabens (Table 2). Based on these and patch test results, this case was diagnosed as contact dermatitis from methyl and propyl parabens in Reflap® ointment (Tables 1 and 2). Despite their extensive use of parabens, incidence of allergy to them is lower than other common preservatives (3). However, there is a well-known phenomenon called 'paraben paradox': although it is usually safe to use paraben-containing cosmetics, sensitization to the paraben in topical therapeutic manufacturers is not rare (4). The answer seemed to be derived from differences between normal and damaged skin (3). In particular, in ulcerative lesions, topical medicaments are common causes of allergic contact dermatitis (5). Therefore, we consider

Paraben allergic contact dermatitis in a patient with livedo reticularis

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Despite extensive use of parabens, incidence of allergy to them is lower than other common preservatives. However, there is a well-known phenomenon called 'paraben paradox': although it is usually safe to use paraben-containing cosmetics, sen-



Fig. 1. Dark reddish, erythematous lesions around an ulcer.

Table 1. Results of patch testing^{a,b}

Trade name	Ingredients	1996	1997	2005
Gentacin [®] ointment	0.1% Gentamicin sulfate	IR	—	—
Baramycin [®] ointment	Bacitracin + fradiomycin sulfate	—	—	ND
Acuatim [®] cream	0.1% Nadifloxacin cream	ND	+	—
Dalacin [®] T gel	0.1% Clindamycin phosphate	ND	ND	—
Geben [®] cream	1% Sulfadiazine silver	ND	++	—
Olcenon [®] ointment	0.25% Tretinoin tocoferil	ND	++	ND
Prostandin [®] ointment	0.003% Alprostadil alfadex	ND	ND	—
U-pasta [®] ointment	Povidoneiodine + sucrose	ND	ND	—
Actosin [®] ointment	3% Bucladesine sodium	ND	ND	—
Bromelain [®] ointment	50 000 Bromelain unit/g	ND	ND	—
Reflap [®] ointment	Lysozyme chloride	+	++	++
15% Paraben		ND	ND	++

ND, not determined; IR, irritant reaction.

^aReadings were performed 3 days after application.

^bIndividual parabens were not tested.

Table 2. Parabens in topical medicaments

Trade name	Results of patch testing	Methylparaben	Propylparaben	Butylparaben	Ethylparaben
Gentacin [®] ointment	—	*	*		
Geben [®] cream	++,-	*		*	
Olcenon [®] ointment	++	*	*		
Reflap [®] ointment	+++,+	*	*		*

*, Contained.

contact dermatitis seeing long-lasting exacerbation of cutaneous ulcers.

In our case, there were dissociations of patch testing results to 2 medicaments (Acuatim[®] cream and Geben[®] cream) between the second and third testing. We speculated the following 4 possibilities: (i) the dissociation was by immunological tolerance, (ii) positive reactions in the second patch testing were irritant reactions, (iii) conditions for patch testing were different between the second and third testing, and (iv) positive reactions in the second were caused by 'excited skin syndrome' (6, 7). We speculated that (iv) is the most likely because positive reactions in the second testing were strong (+). In addition, Acuatim[®] cream does not contain paraben (Table 2). In Geben[®] cream, however, (iii) could not be ruled out because it contains methylparaben and butylparaben (Table 2). In patch testing with paraben, false-negative reactions are seen because the paraben concentration is too low to give a positive reaction on normal skin. In this respect, Gentacin[®] ointment is also unavailable for further therapy in our patient.

This case emphasizes the value of patch testing with ingredients as well as 'as is' for adequate selection of topical medicaments for further treatment.

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