

Allergic contact dermatitis from fluocortolone, fluocortolone pivalate and fluocortolone caproate

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Two patients with contact allergy to Ultralan® preparations are reported. Each Ultralan preparation contains two of three related fluocortolone derivatives. The first patient reacted to all three derivatives. The second patient reacted to fluocortolone and when retested 4 months later also to fluocortolone pivalate but not to fluocortolone caproate. The negative reaction to fluocortolone pivalate at the first examination was probably false negative due to a too low test concentration. In order to avoid false negative patch test reactions the fluorinated steroids should possibly be applied in concentrations higher than 1 %. No cross sensitivity to the other steroids for topical use was found.

Key words: Contact allergy – corticosteroid sensitivity – fluocortolone allergy – fluocortolone caproate allergy – fluocortolone pivalate allergy.

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Contact allergy to topical steroids should be considered in longstanding resistant eczema. In one prospective study sensitivity to hydrocortisone was found in 6 of 1830 consecutive patients. Even fluorinated steroids may sensitize (Alany & Alany 1972). Tegner (1976) has recently reviewed the literature.

Allergy to Ultralan preparations has been reported only once by Van Ketel (1974), who did not analyze which of their three fluocortolone derivatives were responsible. This report adds two additional cases. The Ultralan preparations differ from most of the other marketed topical steroids in two ways. They have a higher concentration of fluorinated steroids (0.2 %–0.5 %) and each preparation contains two of the three related fluocortolone derivatives (Table 1.)

Case 1

A 68-year old female with a 7-year history of nickel allergy had intermittent eczema of the hands and buttocks. She had been treated with triamcinolone acetonide, betamethasone valerate and hydrocortisone butyrate preparations without any adverse effect. After changing to Ultralan fatty ointment the eczema became worse a few days later. Patch tests revealed positive reactions to all Ultralan preparations but not to the vehicles. Patch tests with fluocortolone, fluocortolone pivalate and fluocortolone caproate each 1 % pet. were positive (Table 2). Patch tests with other steroids were negative. The series of standard allergens of the International Contact Dermatitis Research Group revealed sensitivity to nickel and subsequent testing also to para-tertiary butyl phenol and a lacquer

Table 1. Steroid ingredients in Ultralan preparations

	Fluocortolone	Fluocortolone pivalate	Fluocortolone caproate
Ultralan cream 0.2 %	—	0.1 %	0.1 %
Ultralan ointment 0.2 %	—	0.1 %	0.1 %
Ultralan cream 0.5 %	—	0.25 %	0.25 %
Ultralan ointment 0.5 %	0.25 %	—	0.25 %
Ultralan fatty ointment 0.5 %	0.25 %	—	0.25 %
Ultralan liniment 0.5 %	—	0.25 %	0.25 %

from an armchair and a toilet seat. After the suspected objects at the patient's home were painted with an epoxy lacquer, the eczema healed.

Case 2

A 53-year-old female had recurrent genito-femoral eczema for 3 years. In 1974 she used some Ultralan ointment on the face and 24 h later developed a severe eczema on the face and neck. In February 1977 she used a topical steroid of unknown brand on the genital eczema. During the following 2 days she developed a widespread acute eczema located on the body and face. She was treated with sedatives, emollients and bedrest in a local hospital, which later referred her for allergological evaluation. Patch tests were performed twice with a 4-month interval. The first time she reacted to Ultralan cream, ointment, fatty ointment, and fluocortolone 1 % in petrolatum, while the fluocortolone esters were negative (Table 2). The second time she showed the same positive reactions and also a positive reaction to fluocortolone pivalate 1 % in petrolatum. Patch tests with the other steroids were negative. The standard series of patch testing further revealed a positive reaction to potassium dichromate, a finding of unknown relevance. She now avoids Ultralan preparations and is free of eczema.

Discussion

Contact allergy to topical steroids seems to be uncommon, and their sensitizing potential is probably low. Seventeen of the 23 patients reported by Alani & Alani (1972) had eczema of the legs and were particularly susceptible to sensitization. The preliminary testing with topical medicaments used by our two patients showed positive reactions to the different Ultralan preparations, and when a positive test is produced by both a steroid ointment and a steroid cream, sensitivity to the steroid itself must be suspected (Cronin 1968). The reason why both patients were sensitized to the fluocortolone derivatives and not to the other topical steroids they had used might be the relatively high concentration of fluorinated steroids in the Ultralan preparations. The first patient reacted to the three fluocortolone derivatives tested. At the initial examination the second patient reacted to Ultralan cream, but had negative reactions to the two fluocortolone esters it contains. Fluocortolone which is not an ingredient gave positive reaction. Because of these contradictory results testing was repeated 4 months later and the patient reacted to fluocortolone pivalate. Of all the positive test Ultralan ointment showed the strongest reaction (Table 2). Since the patient reacted to Ultralan cream, the

Table 2. Patch test reactions to fluorinated steroids and hydrocortisone

Test substances	Case 1			Test 1		Case 2	
	48 (h)	72 (h)	96 (h)	48 (h)	72 (h)	96 (h)	Test 2 48 (h)
Ultralan cream 0.5 %	+	+++	*	++	++	++	++
Ultralan ointment 0.5 %	+	+++	*	++	++	++	+++
Ultralan fatty ointment 0.5 %	+	+++	*	++	++	++	++
Ultralan cream vehicle	--	--	-- *	--	--	--	NT
Ultralan ointment vehicle	--	--	-- *	--	--	--	NT
Ultralan fatty ointment vehicle	NT	NT	NT	--	--	--	NT
Fluocortolone 1 % pet.	+	++		+++	+++	+++	++
Fluocortolone pivalate 1 % pet.	+	++		--	--	--	++
Fluocortolone caproate 1 % pet.	--	++		--	--	--	--
Synalar cream 0.02 %	--	--	--	NT	NT	NT	--
Dexamethasone 1 % pet.	--	--	--	NT	NT	NT	--
Flumethasone 1 % pet.	--	--	--	NT	NT	NT	--
Triamcinolone 1 % pet.	--	--	--	NT	NT	NT	--
Betametasone-17-valerate 5 % pet.	--	--	--	NT	NT	NT	--
Betametasone Dipro- pionate 5 % pet.	--	--	--	NT	NT	NT	--
Hydrocortisone-17-butyrate 10 % pet.	NT	NT	NT	NT	NT	NT	--
Hydrocortisone 25 % pet.	--	--	--	--	--	--	NT
Others							
Potassium dichromate 0.5 % pet.	--	--	--	+	++	++	NT
Nickel sulfate 5 % pet.	--	+++		--	--	--	NT
Peracit 7010 (p-tert-butylphenol) 50 % acetone	++	++	++	NT	NT	NT	NT

* Tested at the Municipal Hospital Copenhagen.

negative reactions to the fluocortolone esters might have been false negative at the initial examination, due to a too low test concentration. This suggests that fluocortolone and its derivatives penetrate the skin better from the commercial vehicle than from the petrolatum preparation made up at the laboratory. In earlier reports a concomitant sensitivity to various fluorinated steroids and to hydrocortisone has been des-

cribed (Alani & Alani 1972, 1976). Our patients revealed no cross sensitivity between fluocortolone and the other steroids for topical use. Calnan (1962) and later Alani & Alani (1972) used 25 % hydrocortisone for patch testing. Possibly even the fluorinated steroids should be used in concentrations higher than 1 % in order to avoid false negative reactions.

References

- Alani, M. D. & Alani, S. D. (1972) Allergic contact dermatitis to corticosteroids. *Annals of Allergy* 30, 181-185.
- Alani, S. D. & Alani, M. D. (1976) Allergic contact dermatitis and conjunctivitis to corticosteroids. *Contact Dermatitis* 2, 301-304.
- Calnan, C. D. (1962) Unpublished data.
- Cronin, E. (1968) Unpublished data.
- Tegner, E. (1976) Contact allergy to corticosteroids. *International Journal of Dermatology* 15, 520-523.
- Van Ketel, W. G. (1974) Allergy to Ultralan preparations. *Contact Dermatitis Newsletter* 15, 427-428.

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