

Reactivity to nicotine patches wrongly blamed on contact allergy

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Cases of contact allergy to nicotine used in transdermal therapeutic systems for smoking cessation have occasionally been reported (1–4).

Case Report

Our patient was a woman, 46-years-old, a receptionist and a heavy smoker. She had previously reacted to tapes and plaster, but was patch-test-negative to colophony. From October 1995, she had tried 3 types of nicotine patch on the upper arm and abdomen. Within a few hours of application of the various nicotine patches, itch and erythema had appeared, persisting for several days.

She was patch tested with the nicotine base (15 µl) in serial dilution (4), using Finn Chambers and filter papers, with the 3 types of nicotine patch (A, B, C) that she had used, and with placebo patches corresponding to A, B and C. At 20 min and on day (D) 3, erythema was observed where the higher concentrations of the nicotine base had been applied (Table 1). On D 3, erythema was seen from the nicotine patches but not from the placebo patches. On D 5, the erythema had disappeared, except from the site where 30% of the nicotine base had been applied.

Discussion

We believe that the patient's reactions were due to the pharmacological effect of nicotine (vasodilatation) (5) and not to contact allergy. Edema, papules or vesicles were not seen and the time course of the reactions at the further readings did not support the suspicion of contact

allergy. At follow-up, the patient reported that she had continued to use nicotine patches without skin problems. We think that batch-to-batch variation is unlikely, though this cannot totally be excluded.

Erythema is an often-reported side-effect from the use of nicotine-containing transdermal delivery systems (6–8) and is probably due to the vasodilating effect of nicotine (5). There are some well-documented cases of contact allergy to nicotine (1–4), while in other cases, the erythematous reactions observed might have been misinterpreted as a sign of contact allergy. In another study (7), 16 of 664 subjects (2.4%) were suspected of having contact sensitization to nicotine; this was confirmed by rechallenge (not patch testing) in 11 (1.6%). Elsewhere, in 3 of 186 subjects (1.6%), reactions were judged to be expressions of contact sensitization (erythema with or without infiltration), but whether this statement was based on patch testing is not clear (8).

It is essential to patch test patients who report skin symptoms after having used transdermal delivery systems, in order to diagnose or exclude contact allergy to components of the system. The nicotine patches had helped our patient's efforts to stop smoking, and she could wrongly have been prevented from using them if adequate patch testing had not been performed.

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Table 1. Results of patch testing with nicotine

Test preparation	Readings		
	20 min	D 3	D 5
nicotine patch A (5 mg/16 h)	ND	erythema	—
nicotine patch B (11 mg/24 h)	ND	erythema	—
nicotine patch C (7 mg/24 h)	ND	erythema	—
Placebos to A, B and C	ND	—	—
nicotine base 30% aq.	erythema	erythema	erythema
nicotine base 10% aq. ^{a)}	erythema	erythema (weak)	—
nicotine base 3% aq.	erythema (weak)	—	—
nicotine base 1% aq.	—	—	—
nicotine base 0.3% aq.	—	—	—
nicotine base 0.1% aq.	—	—	—

^{a)} 10% aq. is the recommended patch test concentration (2).

ND: not done.

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Simultaneous contact sensitivity due to lidocaine and crotamiton

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Key words: contact allergy; lidocaine; crotamiton; cross-sensitivity; medicaments. © Munksgaard, 1997.

A 48-year-old woman was seen in April 1996 with pruritic scaly erythema on the toes and dorsum of the right foot. In February 1996, she had started using 1% miconazole lotion (Dermarin[®], Taisho Pharmaceut. Inc., Tokyo, Japan), which also contained 2% lidocaine and 10% crotamiton, from a drug store. 1 month later, she had erythema and scaling on the toes and dorsum of the right foot. She was patch tested on the inner side of the upper arms with miconazole 1% and 10% pet., lidocaine 0.2% and 2% pet., crotamiton 1% and 10% pet., and 3 constituents of the base, dipotassium glycyrrhetinate 0.05% and 0.5% pet., dibutyl hydroxytoluene 0.005% and 0.05% pet., and macrogol 1% and 10% pet. and aq. Lidocaine 2% pet. and crotamiton 1% and 10% pet. were positive at 2 and 3 days after application. Patch tests

with lidocaine 0.2% and 2% pet. and crotamiton 1% and 10% pet. in 5 normal subjects showed no response at 2 or 3 days after application.

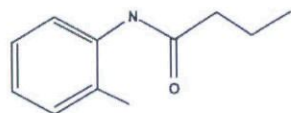
Discussion

Contact allergy to lidocaine, a local anesthetic, is rare (1–5) because of its low allergenicity (1). Crotamiton is known as a scabicide and antipruritic, to which sensitization is also rare (6, 7). No case of cross-sensitivity between lidocaine and crotamiton has been reported in the literature. This case showed simultaneous positive patch tests to the 2 constituents. 2 possibilities can be postulated: (i) sensitization to each of the 2 substances; (ii) sensitization to one substance and cross-sensitization to the other. Lidocaine and crotamiton have butanoyl toluidine in common between their structures (Fig. 1) and similar liposoluble constants (lidocaine 2.26, crotamiton 2.42), suggesting the possibility of cross-sensitization between lidocaine and crotamiton.

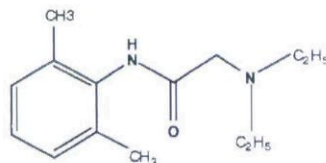
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butanoyl toluidine



lidocaine



crotamiton

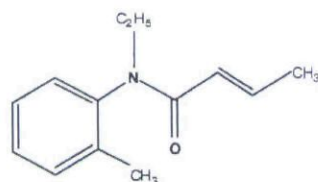


Fig. 1. Structural formulae of lidocaine and crotamiton.

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