

Contact dermatitis from moss in a forestry worker

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Key words: allergic contact dermatitis; woodworker; moss; lichen; liverwort; *Hypnum cupressiforme*; *Parmelia caperata*; *Frullania*. © Munksgaard, 1997.

Robertson & Mitchell (1) first reported allergic contact dermatitis from mosses in 1967. The frequency of this sensitization in forestry and rural workers and the allergens involved are unknown, in contrast to the well-characterized contact dermatitis from lichens and *Frullania*, which is a major cause of skin disease in this occupational group (2–4).

Case Report

For 8 years, a 39-year-old forestry worker experienced bouts of hand dermatitis with erythema, swelling, vesicles and itching, evolving to xerosis and scaling. There was partial and temporary relief with topical corticosteroids and time off work. Throughout the year, he had felled, cut and carried logs of oak, chestnut and eucalyptus, since his teens. He was patch tested with the GPEDC standard series, woods and plants series and suspected plants. To prevent possible cross-contamination, all specimens were collected, at the patient's workplace, from sites where they grew alone and were carried away separately. Plant identification for moss and lichen disclosed the species *Hypnum cupressiforme* Hedw. var. *cupressiforme* and *Parmelia caperata* (L.) Ach., respectively. The positive reactions, shown in Table 1, were scored according to the method recommended by the ICDRG (5).

Comment

Among the most common causes of allergic contact dermatitis in forestry workers is exposure to *Frullania* and lichens (2, 4, 6–8). This is due to the strong sensitization capacity of the sesquiterpene lactones, mainly frullanoli-

de and alantolactone, presented in liverworts like *Frullania* and, to a lesser extent, due to the lichen acids, atranorin, usnic, evernic, perlatic and fumarprotocetraric (2, 4, 7, 9–11).

Contact allergy to lichens has been recognized since the first report by Tenchio in 1948 (12). The epiphytic lichens, i.e., growing on trees, like *Parmelia caperata*, coexist frequently on the same trunk with *Frullania* species. For this reason, simultaneous sensitization to both plants, which occurred in our patient, is not uncommon (3, 7–10, 13). This kind of co-reaction is not due to cross-sensitization, since the chemical structure of lichen allergens is quite different from those of *Frullania* (3, 9, 14).

Since a coincidental reaction to mosses and liverworts is possible, some believe that cross-sensitization occurs between the allergens of these bryophytes or contamination of mosses by sesquiterpene lactones during wet weather (9, 15). Nevertheless, it is not possible to exclude mosses causing their own specific contact allergy, as was demonstrated for lichens when they co-reacted with liverworts (3, 9, 13).

Acknowledgements

The authors are in debt to Dra. Sílvia Cabral of the Botanical Institute of Porto for the identification of moss and lichen.

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Table 1. Positive patch test results

		D2	D4
GPEDC standard series			
sesquiterpene lactone mix	0.1% pet.	++	+
Woods and plants series			
lichen mix		++	++
usnic acid	0.1% pet.	++	+
alantolactone	0.1% pet.	++	+
<i>Frullania dilatata</i> (extract)	1.0% pet.	++	+
<i>Diitrichia viscosa</i> (extract)	1.0% pet.	+	–
Own plants			
<i>Hypnum cupressiforme</i>	as is	++	++
<i>Parmelia caperata</i>	as is	++	+

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Patch testing with low concentrations of budesonide detects contact allergy

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Key words: allergic contact dermatitis; corticosteroids; budesonide; serial dilutions; patch testing technique.
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Corticosteroid contact allergy has been detected increasingly since the marker molecules tixocortol pivalate and budesonide were inserted into standard patch test series (1, 2). The patch test preparations internationally advocated are 0.1% in petrolatum (pet.) for budesonide and 1.0% pet. for tixocortol pivalate (3, 4). In a former study (5), budesonide tested at 0.1% pet. did not necessarily result in the highest number of positive reactions in patients allergic to budesonide, but lower concentrations (10–100 lower) resulted in a higher number of positive reactions in these patients. This led us to supplement our

standard test series with 3 concentrations of budesonide other than the standard 0.1% pet.

Materials and Methods

The concentrations used were 0.1%, 0.02%, 0.002% and 0.0002%. In Malmö, 532 consecutive dermatitis patients were tested with the 4 concentrations of budesonide during 1996 (Finn Chamber technique). In Leuven, 175 patients were tested in 6 months with the same concentrations of budesonide (van der Bend technique). Some of these patients were directly referred for testing with a corticosteroid series.

Results

In Malmö, 11 patients allergic to budesonide were detected and 3 of these tested negatively to 0.1%. In Leuven, 15 patients were found to be allergic to budesonide and 2 of these were negative to 0.1% (Table 1).

Discussion

Considering the 11 budesonide-allergic patients in Malmö, 0.02% ethanol picked up most allergic contact reactions, followed by both 0.1% and 0.002%, and last 0.0002% (Table 2). In Leuven, both 0.02% and 0.002% picked up 14/15 contact allergic reactions, followed by 0.1% and 0.0002%. The only patient not discovered with 0.02% in Malmö was patient no. 7, who would have been missed had 0.002% not been tested. In Leuven, nobody was missed when patients were tested with both 0.02% and 0.002%. Therefore, from this small study and our former study, it seems that budesonide contact allergy can be missed if 0.1% pet. is used solely and that concentrations around 0.02%–0.002% should be used instead.

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Table 1. Patch test reactions to budesonide in 5 patients testing negatively to budesonide at 0.1% pet.

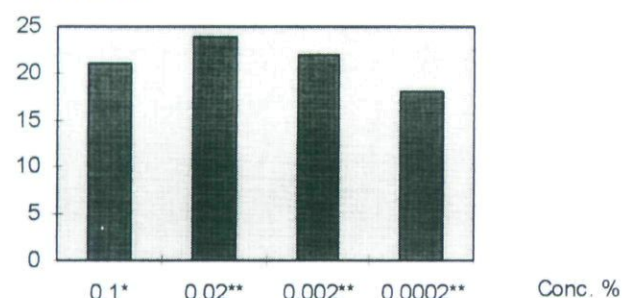
	Malmö						Leuven			
	1		2		3		4		5	
	D3	D7	D3	D7	D3	D7	D2	D4	D2	D4
0.1 ^{a)}	–	–	–	–	–	–	–	–	–	–
0.02 ^{b)}	++	–	–	–	–	+	–	–	–	+
0.002 ^{b)}	–	–	+	–	–	+++	–	+	–	–
0.0002 ^{b)}	+	–	–	–	–	–	+	+	–	–

^{a)} Petrolatum.

^{b)} Ethanol.

Table 2. Positive reactors to budesonide at different concentrations in 26 patients hypersensitive to budesonide

Pos. reactors



^{a)} Petrolatum.

^{b)} Ethanol.

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