

An epidemic of allergic contact dermatitis due to epilating products

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Over a period of 19 months, 33 cases of acute allergic contact dermatitis from Veet® epilating waxes and/or the accompanying tissue (Reckitt Benckiser, Massy, France) were observed in France and Belgium. The lesions started on the legs and spread to other parts of the body, especially the face, and were sometimes so severe that hospitalization and/or systemic corticosteroids were required. Primary sensitization occurred as early as after the first application in several patients. Patch tests were performed in 26 of the patients and produced strong positive reactions to the tissue (25 times) and/or the wax (13 times). The allergenic culprits in the wax were modified-colophonium derivatives (colophonium in the standard series testing negatively in all except 4 patients), while methoxy PEG-22/dodecyl glycol copolymer and to a lesser degree lauryl alcohol turned out to be the main causal allergens in the tissue.

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From June 2000 (the first patient observed in Besançon) through December 2001 (the last patient reported from Toulouse), Revidal, the system established by the French Contact Dermatitis Research Group (GERDA) to collect data on allergic reactions to environmental agents (1), received 33 reports (18 from Belgium and 15 from France), of acute allergic contact dermatitis from Veet® epilating products, manufactured by Reckitt Benckiser (Massy, France). The specific products to which the patients had become sensitized were Cire froide®, cold wax hair-removal strips, or Perfect Roll On®, a warm wax, and/or the accompanying tissue 'Lingette finition parfaite®'. 26 of these patients were further investigated and are reported on here.

Patients, Methods and Results

In all of the 26 patients, all women, the skin lesions started on the lower legs and spread in 18 of them

to other parts of the body. The symptoms of 10 of the patients were so severe that they were seen at the emergency unit of a hospital, where some needed hospitalization and/or 12 had to be administered systemic corticosteroids.

In most patients, the lesions on the lower legs presented with a follicular pattern. In patient no. 12, the lesions had an urticarial aspect, in patient no. 5 an erythema-multiforme-like aspect, and in patient no. 8 a purpura-like aspect. The lesions on the face were most often erythematous and oedematous, particularly on the eyelids. Patient no. 1 had pronounced urticarial butterfly shape lesions on the face (sparing the peri-oral area), which prompted a differential diagnosis of discoid lupus and for which several tests were conducted. This patient also suffered from general malaise and shortness of breath, symptoms which recurred during patch testing. Patient no. 9 presented with severe spread including a bullous eruption on the

Table 1. Clinical characteristics of the patients (all women)

Patient no.	Centre	Age	Secondary localization	Hospitalization	Systemic corticosteroids	Path Test Results Standard series	Veet [®] wax	Veet [®] tissue
1.	1	26	Face, neck	+	+	Myroxylon Pereirae resin, methylidibromoglutaronitrile, own perfume	++/+ +	++/+ +
2.	1	19	Face, arms	–	–	–	+/+	+/+
3.	1	32	Face, neck, arms, trunk	+	+	–	–/–	++/+ +
4.	1	30	Upper legs, thighs, face, ears	+	+	Colophonium, fragrance mix, Myroxylon Pereirae resin	++/+ +	++/+ +
5.	1	27	Upper legs, arms, trunk	–	+	–	–/–	+++ /+ +
6.	2	21	Face, abdomen	+	–	Nickel, own socks (contaminated?)-Nickel	++/+ +	++/+ +
7 ^a	3	21	–	–	–	–	–/+	+++ /+ +
8.	4	42	Thighs	–	+	–	++ /+ + +	++/+ +
9.	5	25	Face, ears, feet	+	–	Colophonium, Myroxylon Pereirae resin	NT*	NT*
10.	6	16	Generalized	–	+	Fragrance mix	+/+	++/+ +
11.	7	16	Face, earlobes, neck, forearms	–	–	–	–/–	++ /+ +
12.	7	18	–	–	–	–	/–	++ /+ +
13 ^a	8	27	Thighs, face, forearms	+	+	–	+ ?/ + +	+ ?/ + +
14.	8	14	Face	–	–	–	+ ^a	++ /+ +
15.	8	21	Face (r. cheek), right arm	–	–	Fragrance mix, nickel	+/+	+/+
16 ^a	9	16	Thighs, face, arms	+	–	–	++/+ +	+++ /+ +
17.	9	25	Arms	–	–	–	++/+ +	++/+ +
18.	10	25	Generalized	–	+	Colophonium, Me (chloro)isothiazol., PTBP resin	+ ^b	+ ^b
19.	11	16	–	–	–	–	NT*	NT*
20.	12	16	Thighs, abdomen, axillae	+	+	Nickel	–/–	+ ^b
21.	12	33	–	+	+	Fragrance mix	+ ^b	–/–
22.	12	24	–	–	–	Nickel, cobalt	–/–	+ ^b
23.	12	18	–	–	+	Colophonium, fragrance mix, Myroxylon Pereirae resin	+ ^b + ^b	–
24.	12	24	–	+	+	Nickel	–/–	+ ^b
25.	12	42	Forearms, axillae	–	–	Nickel	–/–	+ ^b
26.	12	18	–	–	–	–	–/–	+ ^b

^aPerfect Roll-on 'spécial poils courts'.^bDegree of reactivity not specified.

*Ingredients positive (cf. Table 2).

feet, and here a differential diagnosis of erythema multiforme or a viral skin eruption had been proposed. In many patients, the clinical history was misleading since they consulted because of a severe systemic eruption and had not mentioned that the lesions had first appeared on the lower legs. The clinical characteristics of the patients are given in Table 1.

Primary sensitization certainly occurred in at least 10 of the patients (nos. 1, 2, 7, 8, 10, 14, 15, 17, 18, 22), since the eruption started 2–3 weeks after the initial application of the products. Most of the other patients reported having used the products 2 or 3 times previously, during which some of them had felt a burning sensation, sometimes on the first use.

Of the 26 patients, all tested with a standard series, 23 were tested (as is) with both the wax they had used and the accompanying tissue; 1 patient who had used the cold wax was tested with the warm wax and with the tissue (patient no. 14) because the cold was no longer available. Of the 24 patients tested, 15 gave a positive reaction to the wax, and 23 reacted positively to the tissue. The patch test results are given in Table 1.

Of the patients, 21, including the 2 patients not tested with the products as is (patient nos. 9 and 19), were further tested with all or some of the ingredients, for which the test concentrations and vehicles as well as the patch test results are given in Table 2. In patient no. 6, methoxy PEG-22/dodecyl glycol copolymer was tested 20% pet., lauryl alco-

Table 2. Results of patch testing with the ingredients of both the wax and the tissue

Patient no.	TEG hydr. rosin 20% pet.		'Modified colophony' 20% pet.		Glyc.rosinate 20% pet.		Meth PEG 22 10% pet.		Meth PEG 17 10% pet.		Lauryl alcohol 10% pet.		Menthapi-perita 1% eth.		Parfume wax 1% eth.		Parfume tissue 1% eth.	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
1 ^b	++	++	—	—	—	—	++	++	+?	+	++	++	—	—	—	—	—	—
2.	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
3.	—	—	—	—	—	—	—	++	—	+	—	—	—	—	—	—	—	—
4.	+	+	—	—	—	+	+	+	—	—	—	+	—	—	—	—	—	—
5.	—	—	—	—	—	—	+	+	++	++	+++	++	—	—	—	—	—	—
6.	—	—	NT	NT	++	++	+	+	NT	NT	—	—	—	—	—	—	—	—
7 ^a	NT	NT	—	+ ^b	NT	NT	+ ^b	+ ^b	NT	NT	—	—	—	—	—	—	—	—
8 ^c	—	++	NT	NT	—	—	++	++	NT	NT	—	—	—	—	—	—	—	—
9.	—	—	+	+	—	+	+	+	—	—	—	+	+	—	—	—	—	+
10.	NT	NT	NT	NT	NT	NT	—	++	NT	NT	—	—	—	—	NT	NT	—	—
11.	—	—	—	—	—	—	+	++	NT	NT	—	—	—	—	—	—	—	—
12.	—	—	NT	NT	—	—	++	++	NT	NT	—	—	—	—	—	—	—	—
13 ^a	++	++	++	++	+	+	+	+	++	+	+	—	—	—	—	—	—	—
14.	—	++	—	++	—	—	—	—	—	—	+	+	++	NT	NT	NT	NT	NT
15.	+	++	+	+	—	—	—	+	—	+	—	+	—	—	—	—	—	—
16 ^a	NT	NT	+++	+++	NT	NT	++	++	NT	NT	—	—	++	++	++	++	—	—
17.	+ ^b	+ ^b	NT	NT	—	—	+ ^b	+ ^b	NT	NT	+ ^b	+ ^b	—	—	—	—	+ ^b	+ ^b
18.	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
19.	+++	++	NT	NT	—	—	—	++	NT	NT	++	I?	—	—	+	++	—	—
20.	—	—	—	—	—	—	+ ^b	+ ^b	NT	NT	—	—	—	—	—	—	—	—
21.	+ ^b	+ ^b	—	—	+ ^b	+ ^b	—	—	NT	NT	—	—	—	—	—	—	—	—
22.	—	—	—	—	—	—	+ ^b	+ ^b	NT	NT	—	—	—	—	—	—	—	—
23.	—	—	—	—	—	—	+ ^b	+ ^b	NT	NT	—	—	—	—	—	—	+ ^b	+ ^b
24.	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
25.	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
26.	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

^aPerfect Roll-on 'spécial poils courts'.^bDegree of reactivity not specified.^cFlare-up of previous complaints during patch testing.

hol 4% pet., and mentha piperita 8% pet. The latter substance was tested 10% pet., and the perfume in the wax was tested as is in patient no.16.

With regard to the ingredients present in the cold wax, out of 18 tested (1 of the patients had been sensitized by the warm wax) 9 reacted positively to triethylene glycol hydrogenated rosin, and 5 to glyceryl rosin. The 3 patients sensitized by the warm wax (patient nos. 7, 13, 16) all reacted to the 'modified colophonium' contained in it. This allergen was also tested in 12 patients who had been sensitized by the cold wax, and 3 gave a positive reaction. 2 patients out of 19 tested reacted to the perfume in the wax (cf. Table 2).

With regard to the ingredients present in the tissue, of the 21 patients tested, 19 reacted positively to methoxy PEG-22/dodecyl glycol copolymer and 9 to lauryl alcohol; 3 out of the 20 patients tested had a positive patch test to the perfume.

Out of the 20 patients tested, 2 reacted to mentha piperita (peppermint oil), which was present in both the wax and the tissue.

Discussion

Contact allergy to rosin (colophonium) and derivatives in cosmetic (and many other) products, including depilatory waxes(2–5), is well known. Triethylene glycol hydrogenated rosin is the ester of triethylene glycol and the partially hydrogenated acids derived from rosin and is mainly used as a skin-conditioner and viscosity-increasing agent (6). Glyceryl rosin is the monoester of glycerin and mixed long chain acids derived from rosin and is used as a skin-conditioner and surfactant-emulsifying agent in eye make-up, hair-colouring preparations, blushers, foundations, and lipsticks (6). It is also referred to as ester gum and has been reported to be an allergen in, for example, adhesives (also the 'hypo-allergenic' varieties) (7) and lipsticks (4, 8), sometimes causing pigmentary changes (9). The allergic contact dermatitis observed in 3 patients, 2 of which were also caused by Veet® and ester gums in cold hair-removal strips, reported in Italy (4, and Angelini, personal communication) was very similar to what we observed.

As for the 'modified colophonium' listed on the packaging of the warm wax, this compound could not be found in the International CTFA Cosmetic Ingredients Dictionary (6).

Of the 13 patients who reacted to 1 or more of the modified-rosin derivatives, only 4 were positive to colophonium. This is in agreement with the literature (2, 4, 10–12) since tests with unmodified rosin (in the standard series) are most often negative in patients who react to modified-rosin derivatives, the latter probably being stronger sensitizers (2).

Methoxy PEG-22/dodecyl glycol copolymer, an alkoxyated alcohol and synthetic polymer present in the tissue and used as an emulsion stabilizer and a suspending and viscosity-increasing agent (6), is chemically closely related to methoxy PEG-17/dodecyl glycol copolymer, which has also a skin-conditioning function (6). The latter chemical has been reported to be an allergen in a skin-care cream by Le Coz (13). Of the 7 patients who reacted to the methoxy PEG-22 derivative, 5 also tested positively to the methoxy PEG-17 derivative. The methoxy PEG-17 compound produced 6 positive reactions in 8 patients tested with it and 5 also reacted to the methoxy PEG-22 derivative (Table 2). Thus, allergic reactions may be missed if only 1 component is tested.

Lauryl alcohol (syn: 1-dodecanol) is a fatty alcohol ($C_{12}H_{26}O$) widely used as an emulsion stabilizer, surfactant, skin-conditioning and viscosity increasing agent. In a comparative study testing several fatty alcohols including lauryl alcohol, the latter remained negative (14). This could be due to the high quality of the substances used (since impurities in fatty alcohols have been reported to be the actual sensitizers) or a too low a patch test concentration, i.e. 5% in petrolatum instead of 10% in our patients.

Conclusion

In the 26 cases of allergic contact dermatitis due to Veet® epilatory waxes and tissues, 25 reacted to ingredients of the tissue and 17 to components of the wax. Most of these patients had multiple sensitivities. This situation may have been aggravated by the irritant nature of one or both products used in combination, since many of them reported having noticed a burning sensation and slight rash as early as the first time they used the product. As stated previously (15), because of the widespread use of this type of epilating product, the short

sensitization period, and the severity of the symptoms, these patients merit the awareness of all practitioners. Moreover, all the components, even those not suspected or not known to be allergens, need to be considered when patch testing.

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