

CONTACT POINTS

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Allergic contact cheilitis from pentaerythritol rosinate in a lipstick

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Key words: allergic contact cheilitis; cosmetics; lack of cross-sensitivity; lipstick; pentaerythritol rosinate.

Case Report

A 27-year-old woman developed erythema, papules and swelling on her lips 2 days after she started to use a new lipstick. She was patch tested to the standard series of the Japanese Society for Contact Dermatitis (JSCD) and the lipstick (as is). Only the lipstick was positive at 2 and 3 days. Further testing of the ingredients and related chemicals showed a positive reaction to pentaerythritol rosinate only at 2 and 3 days (Table 1). The eruptions disappeared quickly under treatment with corticosteroid ointment. She has remained free of symptoms since

using lipsticks without pentaerythritol rosinate.

Discussion

Pentaerythritol rosinate is an ester gum derived from rosin (mostly abietic acid) and pentaerythritol. There are many opportunities for exposure to rosin, and some individuals become sensitized to it. Abietic acid is the principal sensitizer in rosin. It often shows cross-reaction with balsam of Peru (Myroxylon Pereirae resin) (1). In our case, however, patch tests to rosin, abietic acid, balsam of Peru and ester gum were all negative, with only pentaerythritol rosinate being positive. To our knowledge, only two cases of allergic lipstick cheilitis due to pentaerythritol rosinate have previously been reported (2, 3).

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Airborne contact dermatitis induced by a neighbour's beehives

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Key words: airborne; allergic contact dermatitis; beehives; propolis.

There are many case reports in the literature of propolis inducing allergic contact dermatitis in beekeepers. At least 1 case of airborne contact dermatitis from propolis in a beekeeper has been reported. We report a case of airborne allergic contact dermatitis from propolis issuing from beehives in a neighbouring garden.

Case Report

A 62-year-old woman presented with a 30-year history of eczema of her arms, legs and back. She gave a clear history of exacerbations after gardening. She had mild chronic obstructive airways disease and allergic rhinitis. On examination, there was evidence of a resolving dermatitis affecting predominantly her arms, legs and back.

Table 1. Patch test results

	D2	D3
Lipstick (as is)	++	++
Lipstick ingredients		
Pentaerythritol rosinate 5% pet.	++	++
Pentaerythritol rosinate 2.5% pet.	++	++
Pentaerythritol rosinate 1% pet.	++	++
Pentaerythritol rosinate 0.5% pet.	++	++
Other ingredients	—	—
Rosin 20% pet.	—	—
Balsam of Peru 25% pet.	—	—
Abietic acid 2% pet.	—	—
Ester gum 2% pet.	?+	—
Other Japanese Society for Contact Dermatitis standard allergens	—	—

Patch testing was performed with the European standard series and Chemotechnique® (Malmö, Sweden) plants series. At 2 days, she showed a ++ reaction to propolis (10% pet.), which persisted at 3 days with a + reaction to Myroxylon Pereirae resin. On enquiry, she had no history of bee keeping, use of herbal remedies, royal jelly or contact with violin varnish. Her neighbour had 3 beehives in an adjacent garden. He coincidentally removed his beehives from his garden, and she has had no more dermatitis for 6 months.

Comment

Propolis is the material that bees use to cement honeycombs together and embalm intruding insects. Worker bees produce propolis by harvesting the resinous material from poplar, birch and willow in spring and autumn and mixing it with wax (1).

Over 200 cases of allergic contact dermatitis induced by propolis have been reported in the literature (1). Historically, these cases have involved beekeepers. Contact allergy to propolis has more recently been reported from cosmetics and herbal preparations (1). In 605 patients consecutively patch tested, 25 patients proved to be sensitive to propolis, with 13 of these patients demonstrating a cross-reactivity to Myroxylon Pereirae resin (balsam of Peru) (2).

In beekeepers, there are several reports of contact dermatitis mainly of the hands and even in workers just handling the wax (3). There is also 1 case report of airborne contact dermatitis in the literature manifesting as periorbital eczema (4). An earlier report alludes to dermatitis affecting a young beekeeper's hands and eyes which may also constitute an airborne contact dermatitis (5).

We conclude that our patient had airborne allergic contact dermatitis from propolis in her neighbour's beehives, given the clear history of flares when gardening, her positive patch test reaction to propolis and complete resolution of her symptoms on removal of the beehives.

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A modified human repeat insult patch test for extended mucosal tissue exposure

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Key words: extended exposure; human repeat insult patch test; mucosa; risk assessment.

We propose a modified human repeat insult patch test for products that involve repeated, prolonged and occluded contact with mucosal tissues. Although mucosal tissues are not expected to be more immunoresponsive, contact sensitization risk may be elevated by their heightened permeability (1).

As it is difficult to conduct patch testing in the oral cavity or on the vulvovaginal mucosa, we propose modifying our company's HRIPT. This traditionally used protocol is

optimized for the evaluation of products applied to keratinized skin (2). The induction phase comprises 9 24-h patches with 24-h rest periods (48-h on weekends). To address mucosal contact, we propose enhancing the sensitivity of the test by conducting daily 24-h applications for 5 days per week during the 3-week induction phase. This increases exposure from 9 to 15 applications and raises the cumulative exposure duration by 67%.

Kligman's work demonstrated that induction rates are a function of the dose and the number and duration of exposures (3). Increasing patch duration has been recommended to increase test sensitivity (4, 5). The Jordan-King protocol employs 9 applications, ×3 weekly for 3 weeks. Patches remain in place 48 h on weekdays and 72 h on weekends, thereby increasing cumulative exposure duration to 504 h and eliminating rest periods from the induction phase (6).

Our proposal, which raises both the number of applications and the cumulative exposure duration, may be advantageous when tissue penetration rates are relatively rapid. When this is the case, the proposed protocol should increase the amount of test material available for penetration. The benefit of the Jordan-King protocol may be greater when the tissue penetration rate is slow relative to a 24-h patch exposure.

Another advantage of the proposed protocol is that it maintains rest periods in the induction phase. Kligman demonstrated that continuous exposure during induction is less effective than allowing rest periods; he also showed that 3 repetitions of a 5-application induction course increased sensitivity to near-threshold concentrations of allergen (3). Finally, the pattern of repeated, daily exposure in our proposal is more representative of the way consumers use products.

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**Contact sensitization to
5-chloro-2-methyl-4-
isothiazolin-3-one and
2-methyl-4-isothiazolin-
3-one in children**

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Key words: allergic contact dermatitis;
children; cosmetics; emollients; MCI/MI;
preservatives; wet wipes.

5-Chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (MCI/MI) is a cosmetic preservative that has become a frequent cause of contact dermatitis not only among adults but also in children.

Patients and Methods

Over a 30-month period, from January 2001 to June 2003, 95 children (40 males and 55 females) were referred to our department for investigation of suspected contact dermatitis affecting the hands, face and trunk. 47 gave a history of atopic symptoms. The mean age was 8.4 years, ranging from 5 months to 12 years. 7 children were under 3 years.

All 95 children were patch tested with the SIDAPA standard series, using Finn Chambers[®] on Scanpor[®] (Epitest, Tuusula, Finland), modified with nickel sulfate 2.5% pet. The SIDAPA standard series includes MCI/MI 0.01% (100 p.p.m.) aq. Owing to the activity of isothiazolinones on the skin, use of an exact dosage is recommended when patch testing. The dose of MCI/MI for a standard Finn Chamber[®] was 20 µl. 1 child was patch tested with a plastics and glues series (Trolab[®], Hermal, Reinbek, Germany), and 10 of 95 children were also patch tested with their own products as indicated by their history. Readings were taken at D2 and D3.

Results

Patch tests showed a positive reaction to MCI/MI in 7 patients (7%), 2 boys and 5 girls, 3 of whom had a history of atopic symptoms. Their age ranged from 3 to 11 years, mean age 7.7 years. Personal products tested gave no positive reactions. MCI/MI was the 3rd most common allergen

after thimerosal (10 positive reactions) and nickel (7 positive reactions).

The distribution of patients with a positive reaction to MCI/MI between 2001 and the 1st half of 2003 was as follows: in 2001, 37 children were patch tested and 2 (5.4%) were positive to MCI/MI; in 2002, 40 patients were tested and 5 (12.5%) were positive; finally, in the 1st half of 2003, none of the 18 children tested was positive.

In 4 cases, clinical relevance was clear: 3 children with hand dermatitis used leave-on moisturizing creams, and 1 child with diaper and facial dermatitis was using wet wipes, all containing MCI/MI. In the remaining 3 children, clinical relevance was doubtful.

Discussion

In adults, MCI/MI sensitization is most common among females and in patients with facial and hand dermatitis (1). In our study, girls were more commonly affected than boys, and 6 of 7 patients had hand dermatitis. Most cases of contact allergy appear induced by leave-on cosmetics, especially moisturizing creams and wet wipes.

The frequency of MCI/MI sensitization in our study is higher than that reported in other studies on children (2–8) (Table 1). This variation may be explained by different patient selection and the varying use of the preservative in different countries. Our study included only children with a suspected diagnosis of contact dermatitis rather than non-eczematous children or children with other types of eczema (4, 8).

In Italy, there are still many cosmetic brands for babies and children containing MCI/MI as preservative, including wet wipes, protective creams, liquid soaps and shampoos.

Table 1. Results of other studies on children's sensitization to 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (MCI/MI)

References	Number of children tested	Tested children's age	Children positive to MCI/MI (%)
(8)	79	1–10 years	<3.8
(5)	95	<5 years	2.4
(6)	141	4–14 years	2.1
(2)	223	6–13 years	1.5
(3)	811	6 months–12 years	4.9
(7)	323	4 months–14 years	2.8
Our study	95	5 months–13 years	7.3

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Palladium allergy in an Israeli contact dermatitis clinic

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Key words: allergic contact dermatitis; concomitant positive reactions; nickel sulfate; palladium chloride.

Nickel and palladium are transitional metals that lie above one another in the periodic table of the elements. Although everyday exposure to

nickel in tools, jewellery, zippers, etc., is common, exposure to palladium increased only after the introduction of palladium-containing dental alloys in 1973 (1). Palladium allergy emerged in the literature soon after, yet is still considered a puzzle, and its relevance is difficult to assess. Concomitant allergic patch-test reactions to nickel and palladium have been reported in recent decades, with growing attention lately. Our study aimed to determine the frequency of allergic contact reactions to palladium in a typical contact dermatitis clinic in Israel.

Patients and Methods

This prospective study was conducted over a 12-month period in our contact dermatitis clinic that serves both urban and rural populations.

During that time, 216 consecutive patients with suspected allergic contact dermatitis were patch tested with palladium chloride 1% pet. added to the European standard series, using Finn Chambers[®] on Scanpor[®] tape. Readings were taken at days 2–4, according to the criteria of the International Contact Dermatitis Research Group (ICDRG).

Results

Of the 216 patients tested with the extended European standard series during the study period, 138 (64%) were female and 78 (36%) were male. 49 (23%) patients had positive reactions to nickel sulfate (+/++/+++). 29 (13%) patients were positive (+/++) to palladium chloride. 28 (13%) patients with positive nickel sulfate reactions developed similar reactions to palladium chloride, while 6 (3%) others showed doubtful reactions (?+). 95% of patients positive to palladium chloride were also positive to nickel sulfate. 1 patient showed a positive reaction to palladium chloride only, without a concomitant reaction to nickel sulfate. In 4 (14%) cases, the palladium chloride reactions were stronger than those to nickel sulfate.

Discussion

The frequency of nickel sensitivity in our study (23%) was similar to the rate of sensitization found in other studies (2–4). The frequency of palladium allergy in patch tests was

reported to be 8% in Austria (1, 3), 9% (2) in mainland UK, 9% (5) in Turkey and 2% (6) in Northern Ireland. We found it to be substantially more frequent, at 13% in our series, suggesting two possible explanations: (i) these are true results, reflecting a higher rate of palladium sensitization among the Israeli populations; (ii) biased over-reading by our investigators. Whichever the explanation may be, we believe that deviations in the frequency of positive reactions to palladium chloride, both in our series and in the Northern Ireland series, should be re-checked to establish their validity and causes.

The relevance of positive patch-test reactions to palladium chloride is bedevilled by the fact that positive palladium chloride patch-test reactors show also positive reactions to nickel sulfate. Two explanations offer a solution to this puzzle. (i) It is thought that contamination of patch-test material with small amounts of nickel may create an additive effect, so that two allergens at too low concentrations to elicit a reaction cause a greater reaction than to either one alone (7). Several studies, however, have disproved this theory (8). (ii) Nickel and palladium are both in group 10 of the periodic table and share similar chemistry and electron arrangement. Concomitant positive reactions of nickel-sensitive patients to palladium should be considered true cross-reactivity at the T-cell clone level (9).

Although researchers continue to debate whether positive patch tests to palladium reflect true allergic reactions to this metal, we would point out that: (i) cases exclusively positive to palladium do exist, though rarely (2, 10), as reflected in our finding of one single such case; and (ii) we have also found cases in which positive patch-test reactions to palladium exceeded in strength those to nickel. Exposure to palladium takes place mainly via dental alloys and jewellery, although it is used also in the electronics industry (8). In our palladium-positive reactors, all results were considered relevant to exposure via dental alloys and jewellery.

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Patch testing to FD&C and D&C dyes

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Key words: allergic contact dermatitis;
 cosmetics; dyes; patch testing technique.

Allergic contact dermatitis from cosmetics is commonly associated with fragrance and preservative allergy (1), based on patch test results in screening persons with contact dermatitis (2). Testing to all ingredi-

ents in a consumer product is seldom performed, except when ingredients found in a product are supplied by the manufacturer in persons found to be sensitive to that product. Even then, false-negative results can be a problem when the clinician cannot control concentration and vehicle.

Since the reports of allergy to D&C Yellow 11 (3–8), contact dermatitis from cosmetic dyes (9) has been reported uncommonly. There are several reports of cheilitis from colourants in lipstick, including D&C Yellow 11 (quinazoline yellow SS) (10–13), D&C Red 7 (14), D&C Red 17 (12), D&C Red 21 (eosin) (11, 13), D&C Red 19 (11), D&C Red 31 (11), D&C Red 36 (11) and D&C Orange 17. Overall, this type of sensitivity may be underreported as most colourants are not routinely tested. Therefore, I have reviewed test results of persons tested in my practice.

Patients and Methods

For more than a decade, four FD&C dyes (Reds 3 and 40 and Yellows 5 and 6) were tested as part of investigating persons with sore mouth. For about 2 years, testing has been performed to all of the D&C and FD&C dyes found in consumer products brought in by the patient, if

they were used in relevant areas. For persons with allergic contact dermatitis, dyes not found in the patient's products were not tested. A total of 1105 patch tests were performed using concentrations of the dyes in petrolatum (pet.) or water (aq.) as summarized in Table 1. They were applied in Finn Chambers and read first at 2 or (more commonly) 3 days and again at 4–7 days.

Results

Of the 1105 tests, there were 5 ++ responses, 16 + reactions, and 22 ?+ readings. For 13/25 dyes, there were no positive tests. However, there were 21 + or greater responses to the other 12 dyes, representing about 2.5% of tests performed with those products and 1.9% overall. No patient brought in products containing D&C Yellow 11 until 13 October 2003, after this series was completed, when it was found in a hair conditioner and a shampoo. Table 1 gives a summary of the positive and negative tests through 10 October 2003.

Discussion

Reports of reactions to these colourants have been somewhat less common since the many reports of allergy to D&C Yellow 11 when it was

Table 1. Patch test results for FD&C and D&C colourants

Antigen	Total tested	?+	+	++
D&C Ext. violet (2.2% pet.)	5	0	0	0
D&C Blue (6.1% pet.)	12	0	0	0
D&C Green (5.2% pet.)	22	0	0	0
D&C Green (6.1% pet.)	14	1	0	0
D&C Green (8.2% pet.)	9	0	0	0
D&C Orange (4.1% pet.)	37	0	0	0
D&C Red (6.20% aq.)	15	0	0	0
D&C Red (17.2% pet.)	16	0	1	0
D&C Red (22.50% pet.)	9	0	0	0
D&C Red (28.2% pet.)	9	0	0	0
D&C Red (30.2% pet.)	13	0	1	0
D&C Red (33.1% pet.)	59	4	0	2
D&C Red (34.1% pet.)	14	0	0	1
D&C Red (36.2% pet.)	14	0	0	0
D&C Violet (2.2% pet.)	27	0	0	0
D&C Yellow (8.1% pet.)	16	0	0	1
D&C Yellow (10.1% pet.)	43	0	0	0
FD&C Blue (1.2% pet.)	88	1	0	0
FD&C Blue (2.2% pet.)	21	0	0	0
FD&C Green (3.2% pet.)	29	0	0	0
FD&C Red (3.2% pet.)	117	3	5	0
FD&C Red (4.2% pet.)	52	1	2	0
FD&C Red (40.2% pet.)	141	8	2	0
FD&C Yellow (5.2% pet.)	179	1	1	1
FD&C Yellow (6.2% pet.)	144	3	4	0

commonly used (3–5, 7). No person in this series brought in a consumer product containing it. Testing to it carries some risk, because it is such a strong sensitizer (8, 15–18).

The large number of tests to four dyes, FD&C Red 3 and 40 and FD&C Yellow 5 and 6, is a result of their being used in the work-up of patients with sore mouth. However, these are commonly found in consumer products used on the skin. All of the recent positive responses are possibly relevant, as the materials were contained in one or more products used by the patient. Many of the reactions may possibly be caused by broadening of the allergic base, as they were contained in products used by persons with allergic contact dermatitis of long standing. The relevance of ?+ reactions might be questioned, but such reactions may well be additive to any other ingredient sensitivity present (19). Therefore, I ask patients to avoid these as well, until they have been clear for some time and a use test with the product can be performed on normal skin.

Although these results have to be considered preliminary, the number of possibly relevant positive tests to colourants found in personal-care products suggests that such testing may be a useful adjunct.

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Bromelain: an unusual cause of allergic contact cheilitis

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Key words: allergic contact dermatitis; bromelain; cheilitis; proteolytic enzyme.

Case Report

A 56-year-old woman with a past medical history of hay fever was referred because of cheilitis associated with perlèche for 2 months.

She wore no cosmetics at all, including lipsticks. She always used the same toothpaste but had also a mouthwash daily with a powder diluted in water called Bicare+ (Gifrer Barbezat, Décines, France) for the past 3 months. Previously, she had used a powder from the same manufacturer called Bicare without any problem.

Patch tests with the European standard series, the Chemotechnique (Malmö, Sweden) fragrance series and her own toothpaste (semi-open) were all negative at D2 and D3. On the other hand, patch tests were positive (++) at D2 and D3 to the powder Bicare+ diluted with water.

The powder Bicare+ contained sodium bicarbonate and bromelain, a proteolytic enzyme extracted from pineapple, whereas the powder Bicare contained only sodium bicarbonate. Thereafter, patch tests with sodium bicarbonate and bromelain were performed. Only the patch test with bromelain (2.5% pet.) was positive (++) after 3 days. Ten controls were negative to the same test. The patient was advised to avoid products containing bromelain and she has since been symptom-free.

Discussion

Bromelain is a plant-derived enzyme extracted from pineapple (*Bromeliaceae*). Because of its enzymatic activity, it is used by the food and pharmaceutical industries. Together with papain, bromelain is used in the processing of meat as a tenderizer and in brewing to clarify beer (1), and is also used as an anti-inflammatory drug marketed in France under the name of Extranase® (Rottapharm, Paris, France).

Bromelain allergy is most often an immunoglobulin E (IgE)-mediated reaction (1–5). Adverse reactions

reported in the literature are mainly occupational allergic asthma after inhalation of the substance (3–5), and cross-reactivity with papain, a proteolytic enzyme extracted from papaw, is possible (6). One case of acute urticaria from bromelain used as a drug has been reported, with positive prick tests and specific IgE (2).

To our knowledge, our case is the first of delayed-type allergy to bromelain to be reported in the literature.

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Allergic contact dermatitis due to crotamiton

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Key words: allergic contact dermatitis; crotamiton; Eurax; medicaments; Mohrus tape.

Table 1. Patch test results

	D2	D3
Crotamiton 5%	++	++
Crotamiton 10%	++	++
Glyceryl monostearate	–	–
Propylene glycol	–	–
Paraffin wax	–	–
Isopropyl myristate	–	–
Ketoprofen	–	–

Case Report

A 48-year-old woman was seen with an itchy dermatosis of the left leg. She had started using MohrusTM tape (Hisamitsu Pharmaceut, Inc., Tokyo, Japan), which contained ketoprofen, crotamiton and the base, for a sprain of her right ankle. 2 days later, she developed an acute dermatitis of her right ankle. She was advised by her family doctor to apply EuraxTM ointment. Her condition worsened, and erythema with vesicles developed on the treated skin. She was patch tested on the inner side of the upper arm. Both MohrusTM tape and EuraxTM ointment showed positive reactions after 2 and 3 days. A test with crotamiton 5 and 10% pet. was positive at days 2 and 3 after application. The other constituents, such as ketoprofen, which is a major ingredient of MohrusTM tape, were negative (Table 1).

Discussion

N-Ethyl-o-croton-o-toluidide (crotamiton) is a known scabicide and antipruritic (1). Crotamiton is widely used, but sensitization to it is rare (2, 3). In our patient, crotamiton, which was included in both EuraxTM and MohrusTM tape, was the causative ingredient of contact dermatitis. MohrusTM tape is a topical non-steroidal anti-inflammatory drug (NSAID) consisting of ketoprofen, crotamiton and the base. Crotamiton is also used as one of solubilizers and it is included in topical NSAIDs, antieczemotics, corticosteroids and others (4–6). We stress the presence of crotamiton as a possible ingredient included in commercial ointments, creams and lotions.

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Contact ulceration from the salting of ham

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Key words: irritant contact dermatitis; occupational; sodium chloride; ulceration.

Case Report

A 35-year-old man presented with round, reddish-pink erosive plaques with clearly outlined margins, 2–3 mm in diameter, covered in some areas by serous crusts (Figs. 1 and 2). The plaques had appeared about 1 week earlier and were scattered over the dorsum of the hands, fingers, wrists and forearms. The perilesional skin appeared erythematous with irregularly darkened rims, while the surrounding skin appeared moderately oedematous. In addition, small hyperpigmented scaling macules were noted on both upper limbs. We treated the patient topically with betamethasone for 15 days and recommended a temporary suspension from work. A few days later, the lesions began to heal, and after 15 days of treatment, only post-inflammatory hyperpigmentation persisted. However, once he resumed work, the lesions reappeared.

The patient was periodically assigned to salting ham. This process consists in stewing pork legs with a large quantity of coarse kitchen salt. Subsequently, these are transported and stored on special trolleys. This kind of processing is done manually, wearing protective rubber gloves. The above-described lesions always appeared 24–48 h after the salting work. Initially, they manifested themselves in the form of small erythematous papules, 2–3 mm in diameter, scattered over the dorsum of the hands, fingers, wrists and fore-

arms. After 1–2 days, they became capped with tense vesicles containing serum or blood. Successively, the vesicles would burst and be replaced by erosions capped with a serous crust. The perilesional skin was initially erythematous with irregular margins and darker compared to the surrounding skin. Without treatment, when the subject was off work, the lesions resolve in 2–3 weeks, first with the appearance of fine scales and then leaving post-inflammatory hyperpigmentation. Pruritus was present in the initial stage, immediately followed by painful burning that persisted up to the appearance of the crusty lesions.

Discussion

Pure or highly concentrated sodium chloride has an irritant effect on the skin, as it exerts osmotic pressure on the keratinocytes with a desiccating effect, particularly where the stratum corneum is damaged (1–2). Prolonged contact, as in the case of those employed in the salting of fish or meat or those working in salt mines, can cause a spectrum of signs that mainly affect the hands and upper limbs and that can vary from a reddish-pink or dark red erythema associated with suffusions, bullae, pustules and epidermal alterations, such as crusts, scales and erosions, up to the formation of slowly evolving ulcerating plaques (3).

In this case, the salt managed to penetrate through the upper part of

the gloves, which was wider than the circumference of the arm, and was then blocked at the wrist and hand level where the protective gloves tightened their fit. The contact ulcers were presumably caused by prolonged contact between the patient's skin and the granules of kitchen salt. Once inside the gloves, the salt would dissolve gradually, aided by means of perspiration, irritating the surrounding skin and leaving a 'punched-out' lesion at the site of contact.

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Fig. 1. Reddish-pink erosive lesions with clearly outlined margins.



Fig. 2. Detail of the lesions on the wrist.

Allergic contact dermatitis following airborne exposure to methacrylates used in the manufacture of artificial skin

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Key words: (meth)acrylates; airborne; allergic contact dermatitis; occupational.

Case Report

A 38-year-old factory worker presented with eczema initially localized to the face, wrists and dorsum of the hands, which subsequently spread widely. 6 weeks prior to the onset, he had started a new job as a model maker for a company manufacturing model body parts and surgical training devices. Vinyl gloves were first substituted for rubber gloves without improvement. He did improve with a 3-week course of oral prednisolone, betamethasone valerate 0.1% ointment and time off work. On returning to work, his skin flared, increasing the probability of an occupational allergic contact dermatitis. Because he had no direct contact with products during their manufacture, an airborne allergen was suspected.

He was patch tested to the British standard series, a cosmetic and preservatives series and a plastics and glues series. On D2 and D4, he showed positive reactions to 2-hydroxypropyl methacrylate 2% pet. (++) and 2-hydroxyethyl methacrylate (2-HEMA) 2% pet. (++) as well as to thiuram mix and carba mix. Prick testing to latex was negative. A thorough review of his working environment identified the artificial skin used in the surgical models to contain both methacrylates. The key property of the artificial skin was that it allowed the use of diathermy. This was identified as the potential source despite having been manufactured in an adjoining room. His positive reactions to rubber chemicals were thought to relate to direct rubber glove exposure.

Discussion

The (meth)acrylates are well-reported contact sensitizers causing allergic contact dermatitis in a variety of both occupational and non-occupational settings. Occupationally, dental staff are the most frequently affected, with the remainder arising from diverse fields including the cosmetic, printing, glass fibre, metallurgical and automotive industries. The 2 commonest (meth)acrylate sensitizers are ethylene glycol dimethacrylate and 2-HEMA (1). Kanazawa et al. (2) demonstrated that the sensitizing potential increases as the alkyl side-chain lengthens from C1 to C12. Fortunately, airborne sensitization problems for dental patients are rarely seen, presumably due to limited exposure: there is only 1 reported dental case of airborne allergic contact dermatitis from (meth)acrylates and, in this instance, the patient was already sensitized (3).

This case further supports the concept that airborne concentrations of (meth)acrylates should be kept to a minimum in order to reduce the risk of hypersensitivity (4). To the best of our knowledge, artificial skin has not previously been reported as a source.

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Allergic contact dermatitis from glycerin in a moisturizing cream

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Key words: allergic contact dermatitis; cosmetics; emollients; glycerin; hand cream.

Glycerin (glycerol) is used as a humectant in a number of pharmaceutical and cosmetic preparations.

Case Report

A 29-year-old woman presented with a 7-month history of patchy eczema of the eyelids, face, neck, scalp and axillae. Patch testing was performed to the European standard series, and bases, cosmetics and hairdressers series (Crawford Pharmaceuticals, Milton Keynes, UK) as well as her own toiletries and cosmetics. Positive reactions (+) were noted at D4 to dimethylaminopropylamine (1% aq.) and her own Atrix® Active Hand Care Enriched Moisturizing Cream (Beiersdorf UK Ltd, Birmingham, UK) (as is). Subsequent patch tests with the ingredients of this product showed a positive (+) reaction at D4 to glycerin (1% aq.) in the hand cream. Avoidance of this allergen resulted in resolution of her eczema.

Discussion

Glycerin has been a popular humectant, and allergic reactions are considered to be rare. Propylene glycol is a cheaper alternative with superior solubility properties and has therefore replaced glycerin in many pharmaceutical and cosmetic preparations (1). In comparison, propylene glycol has a greater risk of irritant and allergic skin reactions, and glycerin may still be used in its place in such instances (2). The therapeutic effect of glycerin, used in its own right as an active ingredient, has also been reported in both atopic eczema (3) and seborrhoeic dermatitis (4).

Previous reports of allergic contact dermatitis from glycerin appear to have been limited to just 1 author, who reported 2 cases of thousands

of patients with eczema tested with 50% glycerol (5) 20 years ago. In 1 of these cases, the apparent cause of the reaction was a mixture of glycerol (1 part) and 70% ethanol (9 parts) applied to the hands after washing with soap and water (6).

Our case demonstrates the continued use of glycerin in a popular UK household-brand formulation of hand moisturizer and confirms its ability to act as a contact allergen.

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Compound allergy to Vea Oil®

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Key words: compound allergy; contact dermatitis; cosmetics; Vea Oil®; vitamin E acetate.

Compound allergy is induced by a topical product whose single ingredients all give negative results on patch testing (1). We recently diagnosed compound allergy to vitamin E acetate in lipophilic gel base (Vea Oil®, Ulka, Rovigo, Italy).

Case Report

A 17-year-old male patient presented with an itchy skin eruption of the face, neck and hands, 3 days after using a lipophilic gel containing vitamin E acetate for the first time. On clinical examination, an acute reaction could be seen in areas where the gel had been applied, with erythema, exudation and marked oedema.

Patch testing showed a positive reaction to the cosmetic preparation as a whole, at D2 (++) and D3 (++), but negative results to its individual ingredients, vitamin E acetate (1% in pet.), hydrogenated castor oil, cyclomethicone dimethicone, cyclomethicone and octyl palmitate, all of which were also applied as is. Patch tests with both Vea Oil® and its constituents were negative in 20 controls at D2 and D3.

Comment

Various explanations have been suggested for this kind of dermatitis. Susceptibility to a product may just be an irritant effect in some patients. In other cases, patch testing with the separate ingredients at too low concentration might be the cause of false-negative results. New allergens might be formed by a reaction between 2 or more ingredients. Finally, allergens might be present as degradation products of topical active ingredients or vehicles (1, 2).

To date, compound allergy has been reported only rarely to antiseptics, wetting agents for soft contact lenses, miconazole nitrate-hydrocortisone cream and hirudoid cream (1, 3). To the best of our knowledge, compound allergy to a vitamin E preparation has never previously been described.

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