

CONTACT POINTS

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Severe adverse drug reactions due to pseudoephedrine from over-the-counter medications

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Key words: acute generalized exanthematous pustulosis; cutaneous adverse drug reactions; médicaments; over-the-counter medications; positive patch test; pseudoephedrine.

Case Reports

Case no. 1

A 68-year-old man presented with a generalized papular eruption with oedema of the face and the hands, fever and pustulosis in intertriginous areas which had begun 1 day after starting treatment with Euvanol[®] nasal spray (plant extracts and benzalkonium chloride) and Dolirhum[®] (paracetamol and pseudoephedrine). He has been hospitalized 8 years before for a similar eruption associated with hyperleucocytosis, eosinophilia and superficial pustules on biopsy. A diagnosis of acute generalized exanthematous pustulosis had been made and the patient advised to avoid non-steroidal anti-inflammatory and β -lactam antibiotic drugs, because the eruption had appeared on piroxicam and cefatrizine. No such advice had been provided about a nasal decongestant (Rhinalair[®] = pseudoephedrine), a 3rd drug that had been taken by the patient. Patch tests were performed 2 months after the 2nd

eruption with cefatrizine, piroxicam, paracetamol, benzalkonium chloride and pseudoephedrine. The only positive test was to pseudoephedrine (10% pet.) (+ + D2, + + D4).

Case no. 2

A 51-year-old woman was admitted with a generalized papulovesicular eruption with palms and soles involvement, facial oedema and diffuse mucosal erosions. She had fever (38.5°C) and lymphadenopathy with eosinophilia and inflammatory syndrome. Numerous drugs had been taken on preceding days for a flu-like syndrome, most of which were self-administered medications. Patch tests were performed with all the drugs taken by the patient (Actifed[®] and Toplexil[®] syrups, Exomuc[®], Cefaperos[®], Normacol[®], Senokot[®], Drill[®]) and some of their active ingredients (pseudoephedrine, paracetamol, amoxicillin, bacitratin, tixocortol pivalate). Actifed[®] (paracetamol, triprolidine, pseudoephedrine) syrup (+ + D2, + + D4) and pseudoephedrine (10% pet.) (+ + D2, + + D4) were the only positive tests.

Comment

Pseudoephedrine-induced eruptions are mostly non-pigmented fixed drug eruptions (1–4). Some generalized scarlatiniform or eczematous eruptions have also been reported (5–7). Our patients both had unusual presentations: recurrent acute generalized exanthematous pustulosis in the 1st, severe mucosal involvement in the 2nd. Pseudoephedrine is used for its vasoconstrictive properties, making it an effective decongestant, widely used in over-the-counter medications. Our cases, as in many previously recorded, show the importance of taking a meticulous drug history, without omitting over-the-counter medications. Patch tests may be helpful in identifying the responsible drug, especially when several are suspected (8, 9).

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Prognosis of occupational dermatosis

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Key words: dermatosis; occupational; prognosis.

More recent studies (1, 2) have suggested that, contrary to earlier studies (3–5), the prognosis of occupational dermatosis is relatively good. We followed up our patients with occupational dermatosis for 1 year to determine their prognostic outcomes.

Patients and Methods

All patients who attended our Occupational Clinic during 1999 were assessed. Occupational dermatosis was defined as a pathological condition of the skin for which occupational exposure can be shown to be a major cause or contributory factor (6). All patients were patch tested to the National Skin Center standard series and other allergens where indicated. Only patients with single diagnoses, i.e. predominantly allergic (ACD) or irritant contact dermatitis (ICD), were included in the study. The patients' demographic data, occupational history, cause and duration of occupational dermatosis were collected.

The patients were reassessed in the clinic at 1 year post diagnosis. Those who defaulted follow-up were contacted by telephone and interviewed as to the outcome of their dermatitis. Outcome of dermatitis was classified as either 'complete recovery' or 'persistent dermatitis'.

Results

64 patients with occupational dermatosis fulfilled the study criteria. 19 were lost to follow-up and not contactable. Thus, 45 (70%) were included in the analysis. There were 23(51%) cases of ACD, and 22 (49%)

of ICD. 27 (60%) patients had complete clearance of dermatitis at 1 year. 17 cases (77%) of ICD had complete clearance, compared with 10 (43%) of ACD ($P = 0.022$). Chromate in cement was the commonest allergen, accounting for 70% (16/23) of all ACD. It carried a poor prognosis, with only 44% (7/16) having clearance of dermatitis at 1 year. Among occupational irritants, dermatitis from wet work and cutting oils had poorer prognoses, with clearance rates of 50% (2/4) and 25% (1/4), respectively, at 1 year. ICD from cement and acids had excellent prognoses, with 100% (4/4) of patients in each case experiencing complete clearance. There were no statistically significant differences between males and females in either ACD (43% clearance rate in males, compared with 50% in females) or ICD (76% clearance rate in males, compared with 80% in females). Duration of exposure was not a significant prognostic factor in either ACD (41% clearance rate if exposed for < 5 years, compared with 50% if exposed > 5 years) or ICD (80% clearance rate if exposed for < 5 years, compared with 73% if exposed > 5 years).

Discussion

Our study suggested that the overall outcome for occupational dermatosis is reasonably encouraging, with 60% complete clearance at 1 year. The prognosis of ICD was significantly better than for ACD, the latter being influenced by the predominance of chromate dermatitis from cement in our ACD cohort, a group carrying a particularly poor prognosis. Additional preventive measures, e.g. the addition of ferrous sulfate to reduce hexavalent chromate in cement, should therefore be implemented.

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Patch testing in allergic contact dermatitis caused by topical Chinese herbal medicine

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Key words: allergic contact dermatitis, Chinese herbal medicine, colophonium, fragrance, herb, medicaments, myrrh, patch test.

Allergic contact dermatitis (ACD) from topical Chinese herbal medicine (TCHM) has been reported previously (1–3), and we have already shown it to be associated with a particularly high rate of patch test positivity to fragrance and colophonium (4) Table 2 Table 3 Table 4.

Patients and Methods

During a 10-month period, 23 consecutive adult patients with strong clinical evidence of ACD caused by TCHM were studied. There were

Table 1. The names, part ingredients, and suspected allergens in 12 topical Chinese herbal medicine

Suspected topical Chinese herbal medicine	Part ingredients	Suspected allergens
Jing Wan Hong	Mast, myrrh, rhubarb,	Fragrance, mast, myrrh, Capejasmine fruit, etc.
Feng You Jing	Camphor, menthol, eucalyptus oil, eugenol, etc.	Fragrance
Qing Liang You	Camphor, menthol, eucalyptus oil, cloves oil, cassia oil, etc.	Fragrance, cassia
Zheng Hong Hua You	Wintergreen oil, pure camphor oil, myrcia oil, cinnamon aldehyde, pine oil, etc.	Fragrance, colophonium, cassia
She Xiang Feng Shi You	Musk, mast, myrrh, eucalyptus oil, etc.	Fragrance, myrrh, mast
701 Gao	Camphor, menthol, wintergreen oil, rhubarb, rosewood, etc.	Fragrance, colophonium
She Xiang Hu Gu Gao	Musk, medicinal evodia fruit, etc.	Fragrance, colophonium
Zheng Gu Shui	Camphor, etc.	Fragrance
Qian Li Zhui Feng You	Camphor, safflower, <i>Hebra geranii</i> , etc.	Fragrance
Shang Shi Zhi Tong Gao	Radix aconiti, kusnezoff monkshood root, divaricate saposhnikovia root, etc.	Colophonium
Qi Zheng Yao Tie	Cypress, crazyweed, etc.	Colophonium
Fen Shi Die Da Gao	Mast, myrrh, safflower, cinnamon, cloves, etc.	Fragrance, colophonium, cassia

Table 2. Characteristics of patients with allergic contact dermatitis from topical Chinese herbal medicine and the results of patch testing

Patient	Age (years)	Sex	Causative topical Chinese herbal medicine/the purpose of using topical Chinese herbal medicine	Positive patch testing
1*	43	F	Jing Wan Hong/burn Feng You Jing/pain	Colophonium, mast, myrrh, safflower
2	46	F	Qing Liang You/headache	Colophonium, fragrance mix, rubber mix, herbs not tested
3	22	M	Zheng Hong Hua You/pain	Fragrance mix, colophonium, ammoniated mercury, herbs not tested
4	59	M	Zheng Hong Hua You/trauma	Colophonium, rubber mix, herbs not tested
5	45	F	Zheng Hong Hua You/pain 701 Gao/pain	Fragrance mix, colophonium, mast, myrrh
6	20	M	She Xiang Hu Gu Gao/trauma	Fragrance mix, colophonium
7*	26	F	Zheng Gu Shui/trauma	Colophonium, cassia
8	50	F	She Xiang Hu Gu Gao She Xiang Feng Shi You/pain	Fragrance mix, colophonium, mast, myrrh, cassia, rubber mix
9*	49	F	701 Gao/pain Shang Shi Zhi Tong Gao/pain Qing Liang You/itch	Fragrance mix, myrrh, cassia, neomycin sulfate, <i>para</i> -phenylenediamine
10	30	F	Unclear/pain	Mast
11	42	F	Shang Shi Zhi Tong Gao/pain	Rubber mix
12	72	F	701 Gao Zheng Hong Hua You/trauma	Fragrance mix, cassia
13	50	F	Qing Liang You Feng You Jing She Xiang Feng Shi You/pain	Fragrance mix, Colophonium, myrrh, safflower, cassia, rubber mix
14	31	F	Qing Liang You/headache	Fragrance mix, Qing Liang You as is
15	54	F	Unclear/pain	Negative
16	54	F	Zheng Hong Hua You/trauma	Fragrance mix, nickel, cassia
17	24	M	Zheng Hong Hua You/pain Shang Shi Zhi Tong Gao/pain	Fragrance mix, colophonium, mast, myrrh cassia, formaldehyde
18	23	M	She Xiang Hu Gu Gao/trauma	Fragrance mix, mast, myrrh, rubber mix
19	26	F	De-pigmentation cream/ de-pigmentation	Nickel, ammoniated mercury
20	53	F	Qian Li Zhui Feng You/pain	Fragrance mix, cassia, colophonium, <i>para</i> -phenylenediamine
21	24	F	Fen Shi Die Da Gao/trauma	Fragrance mix, colophonium
22	74	M	Zheng Hong Hua You/trauma	Fragrance mix
23	59	M	Zheng Hong Hua You/pain Qi Zheng Yao Tie/pain She Xiang Hu Gu Gao/pain	Fragrance mix, rubber mix

*Patients who had also had allergic contact dermatitis from cosmetics.

seven males and 16 females, with an average age of 43.1 ± 17.0 years.

Patch testing was performed with the standard series of Beijing Medi-

cal University, Beijing, China (4, 5). Some of the suspected herbs in TCHM were also patch tested. They were mast, myrrh, safflower and cas-

sia. Herbs were ground to their powdered form and dispersed in pet. Based on our previous studies, 10% (w/w) of the herb was used for patch

Table 3. Positivity rates to common contact allergens on patch testing

Allergen	TCHM ACD group (n = 23)	Control (n = 152)	P-value (χ^2 -test)
Fragrance mix	17 (74.0%)	16 (10.5%)	< 0.01
Colophonium	11 (47.8%)	7 (4.6%)	< 0.01
Either fragrance mix or colophonium or both	21 (91.3%)	24 (15.8%)	< 0.01
Rubber mix	7 (30.4%)	33 (21.7%)	> 0.05
Nickel	2 (8.7%)	29 (19.1%)	> 0.05
para-Phenylenediamine	2 (8.7%)	18 (11.8%)	> 0.05
Ammoniated mercury	2 (8.7%)	17 (11.2%)	> 0.05

ACD, allergic contact dermatitis; TCHM, topical Chinese herbal medicine.

Table 4. Positivity rates on patch testing to herbal allergens

Allergen	TCHM ACD group (n = 20)	Control (n = 152)
Mast	6 (30%)	2 (1.3%)
Myrrh	7 (35%)	1 (0.7%)*
Safflower	2 (10%)	2 (1.3%)
Cassia	8 (40%)	1 (0.7%)

*Also reacted to fragrance. ACD, allergic contact dermatitis; TCHM, topical Chinese herbal medicine.

testing (3, 4). Allergens were applied to the upper back, using Finn Chambers, and the results were recorded at day 2 (D2) and D3 according to ICDRG recommendations (6).

152 nonatopic patients with suspected ACD from non-TCHM were also patch tested during the same period. There were 41 males and 111 females, with an average age of 41.3 ± 16.2 years (mean $\pm$ SD).

The 2×2 χ^2 -test was used to compare the positive rate to each allergen in each group (7).

Results

There were 15 suspected TCHMs; the exact name or ingredient could not be obtained for three such TCHMs. The name, part ingredients and suspected allergens in the other 12 TCHMs are shown in Table 1. All 12 TCHMs are said to 'invigorate circulation, antiphlogistic and analgesic'. The clinical characteristics of patients with ACD from TCHM and the results of patch testing are shown in Table 2. All were nonatopic. The age and sex distribution of the patient and control groups showed no significant differences on statistical analysis. Their positivity rates to common contact allergens are shown in Table 3. The positive rates on patch testing to herbal allergens are shown in Table 4. Twelve out of 20

patients (60%) reacted to at least one of the four allergens.

Discussion

As expected from their main ingredients, the positivity rate to either fragrance mix or colophonium or both on patch testing in this study was 91.3%, which was much higher than that in controls. No such difference could be found between the two groups with regard to other common contact allergens. These results therefore support the hypothesis that fragrance and colophonium are the main contact allergens in TCHM.

Patch testing the patients with herbal allergens also gave a high positivity rate in the TCHM ACD group compared with the control group. These results therefore indicate that patch testing such patients with preparations of the herbs themselves is useful for the detection of TCHM ACD.

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Allergic contact dermatitis from ethylhexylglycerin

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Key words: allergic contact dermatitis; cosmetics; creams; ethylhexylglycerin; skin conditioner.

Case Report

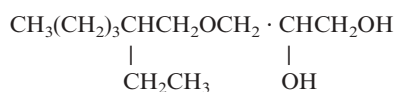
A 57-year-old woman presented in February 2002 with perioral and periorbital itchy erythematous oedema of the eyelids, which had been present for 8 months. The patient's mother had asthma and hay fever.

Initial patch testing with the European standard series, a cosmetics series, and the topical products used showed a positive reaction only to a hydrating facial cream, Tolériane® (La Roche-Posay, La Roche-Posay, France). After receiving the data-sheet and samples of the individual constituents from the manufacturer, further patch testing was carried out 2 months later. A positive (+) reaction at day (D)2 and D4 to ethylhexylglycerin (10% pet.) was obtained. Five control subjects were negative.

After the patient stopped using the facial cream, and underwent brief treatment with a clobetasone butyrate ointment, the condition cleared.

Discussion and Conclusion

Ethylhexylglycerin (syn. octoxyglycerin and CAS no. 70445-33-9) is used for miscellaneous purposes, including as a 'skin conditioning agent' (1). It has the following chemical formula:



To the best of our knowledge, this is the first case report of allergic con-

tact dermatitis from this cosmetic ingredient.

Acknowledgements

We are grateful to La Roche-Posay for their prompt assistance in providing the ingredients for patch testing in this case.

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Frequency of contact allergy to Compositae extracts in patients with atopic dermatitis

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Key words: atopic dermatitis; Compositae; patch testing, plants series; standard series.

In recent years, a role for patch testing with aeroallergens to identify trigger factors of relapses in atopic dermatitis (AD) has emerged (1, 2). Although the house-dust mite is the most important, some authors have also used other aeroallergens (3).

Patients and Methods

79 consecutive patients with AD (4) aged 6–37 years (mean age 20.5 years,

55 female, 24 male) were included in the study during 12 months, severity being evaluated by the SCORAD index (5). Based on this data, 18 of patients had mild AD (SCORAD <25), 41 moderate AD (SCORAD between 25 and 50) and 20 severe AD (SCORAD >50). In addition to AD, 42 patients had associated rhinoconjunctivitis and/or asthma.

All patients were patch tested to the European standard series (Chemotechnique Diagnostics AB, Malmö, Sweden) and a plant series (Chemotechnique Diagnostics AB), shown in Table 1. Patch tests were applied on the upper back with Finn Chambers on Scanpor tape (Epitest, Tuusula, Finland). Readings were made on day (D)2 and D4 according to ICDRG recommendations (6).

Results

5 out of 79 patients with AD (6.3%) had 1 or more positive reactions to plant extracts: 2 were positive to α -methylene γ -butyrolactone and 1 each to evernic acid, dandelion along with tansy, and dandelion along with propolis.

4 of 5 patients with positive reactions to the Compositae extracts and 36 of 74 persons with negative reactions to the Compositae extracts had 1 or more allergens in the standard series positive. In order of frequency, they included nickel sulfate, cobalt chloride, thimerosal, potassium dichromate, fragrance mix, Myroxylon Pereira resin (balsam of Peru), *para*-phenylenediamine, and methylchloroisothiazolinone + methylisothiazolinone.

4 of the 5 patients with positive patch tests to the plant extracts were in the moderate AD group and only 1 in the severe AD group. Finally, 2 of the 5 patients had a history of rhinoconjunctivitis $\pm$ asthma.

Discussion

This is the 1st report that correlates sensitization to a series of Compositae plants with clinical manifestation of AD. Previous studies have explored the role of only 1 Composita, mugwort (*Artemisia vulgaris*), in AD and the percentages of patients with positive patch tests were insignificant (7, 8). Our preliminary study, includ-

Table 1. Plant series: list of extracts

<i>Anthemis nobilis</i> 1.0% pet. (<i>Chamomilla romana</i>)
Diallyl disulfide 1.0% pet.
Mountain tobacco 0.5% pet. (<i>Arnica montana</i>)
Dandelion 2.5% pet. (<i>Taraxacum officinale</i>)
Yarrow 1.0% pet. (<i>Achillea millefolium</i>)
Propolis 10.0% pet.
Pyrethrum 1.0% pet. (<i>Chrysanthemum cinerariaefolium</i>)
Sesquiterpene lactone mix 0.1% pet.
α -Methylene γ -butyrolactone 0.01% pet.
Tansy 1.0% pet. (<i>Tanacetum vulgare</i>)
Alantolactone 0.1% pet.
Lichen acid mix 0.3% pet.
Atranorin 0.1% pet.
Usnic acid 0.1% pet.
Evernic acid 0.1% pet.
Parthenolide 0.1% pet.

ing a variety of Compositae, showed a 6.3% of subjects suffering from AD to have positive patch tests. Further studies considering both mugwort and plants series in patients with AD are now needed. In these Compositae-sensitive patients, as in others (9), nickel was the most frequent contact allergy, followed by cobalt. These were also relevant among the plant extracts-negative patients. The European standard series does not reliably identify Compositae allergens in patients with AD.

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Contact dermatitis from a dry stick deodorant

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Key words: allergic contact dermatitis; cosmetics; deodorant; farnesol; fragrance.

Case Report

A 25-year-old woman presented with a 2-year history of dermatitis in the axillary and presternal region. She had had atopic dermatitis until puberty. She worked in a cheese factory where she wore latex gloves. 2 years before she had been patch tested, with only 1 reading, and remained negative. She mentioned problems with perfumes when applied directly onto the skin. She treated the dermatitis with dermatocorticosteroids.

We re-performed patch testing with the Belgian standard series, our cosmetics series and the patient's own products (perfumes and deodorants). Readings were done at day 2 (D2) and D4. Fragrance mix was + at both readings. There was a + reaction to farnesol at D2, but this became ?+ by D4. 6 out of the 8 own products tested showed a + reaction at D4: 2 deodorants (Secret Nature Fresh and Secret Exotic Fresh; Procter & Gamble, Weybridge, Surrey, UK), 3 perfumes (Paco Rabanne, Deep Red Hugo Boss and White Jeans Versace) and 1 perfumed moisturizing milk (Hydramilk Lancôme).

We also patch tested with the different ingredients of 2 of the responsible dry stick deodorants (Secret Nature Fresh and Secret Exotic Fresh), which were supplied by the manufacturer. The 3 out of the 11 ingredients that were + at D2 were 12-hydroxystearic acid (2% pet.), fragrance Montana (10% pet.) and fragrance Confidence Plus (10% pet.). Only the latter 2 remained + at D4.

Discussion

Chemical analysis by Johansen *et al.* (1) revealed that deodorants contain on average 3 fragrance-mix constituents. Gallego *et al.* (2) described an irritant contact dermatitis of the axillae from an alum-containing deodorant. Lyrall (3), as well as farnesol (4), can also be allergens found in deodorants.

GC-MS analysis combined with structure-activity relationship analysis may be valuable in exploring allergy to deodorants (5).

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Allergic contact dermatitis from medium-chain triglycerides in a moisturizing lotion

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Key words: allergic contact dermatitis; capric fatty acid; caprylic fatty acid; cosmetics; dicaprylyl maleate; medium-chain triglycerides; moisturizer.

Case Reports

Case no. 1

A 36-year-old office clerk was referred in 2001 with eczema of her face and

arms, possibly exacerbated by sunlight. There was no history of atopy. Previous patch testing in 1993 had shown contact allergy to colophonium and a doubtful reaction to fragrance.

Further patch testing in 2001 included the British Contact Dermatitis Society standard series (excluding colophonium), preservatives, a cosmetics series, a photopatch test series and the patient's own cosmetics. Day (D)2 and D4 readings showed a definite positive reaction to her cucumber moisturizing lotion. She also showed doubtful reactions to Compositae and sodium amantadine at D4. Subsequently, she was patch tested to the individual ingredients of the lotion. She reacted to 10% (but not to 1%) dicaprylyl maleate and 1% caprylic/capric triglyceride at both D2 and D4.

20 patients were tested as controls and 1 patient was also positive to the lotion. He has not been available for further tests.

Case no. 2

A 45-year-old woman presented as an emergency with severe facial dermatitis in February 2001. She had severe erythema, oedema and vesiculation on the face and neck, particularly the eyelids. She was treated with systemic antihistamines and corticosteroids. She had applied a new formulation of cucumber moisturizing lotion the previous day. In the past she had used the lotion on many occasions without any problems. She had no past history of skin disease or atopy.

Subsequent patch testing to the European standard series and the original and new formulation of the cucumber moisturizing lotion showed a strongly positive reaction to the new formulation at D2 and D4. Further patch testing was carried out with the ingredients of the new formulation. These gave a strong positive reaction to 1% dicaprylyl maleate at D2 and D4.

Discussion

Medium-chain triglycerides (MCTs), mainly caprylic (C₈) and capric (C₁₀) fatty acids with some caproic (C₆) and lauric (C₁₂), come from coconut or palm kernel oil, the distilled fatty

acids of which are blended and esterified with glycerin to form triglycerides. MCTs are widely used for parenteral nutrition in malabsorption syndromes and the feeding of premature infants, as well as emulsifiers in cosmetics and pharmaceutical preparations, encouraging skin penetration (1). A wide variety of MCT esters, alcohols and mixtures are produced and variously named by different companies (2).

We report two patients with allergic contact dermatitis from MCTs. Neither palm kernel nor coconut oil contain colophonium. It is not clear how the second patient had become sensitized to dicaprylyl maleate. However, 80% of patients with positive reactions to their own cosmetics have no previous history of contact dermatitis (3).

MCTs are marketed as 'natural' alternatives to mineral and animal-derived products. They have been claimed to cause no, or only slight, irritation and no sensitization (2, 4), which would now appear to require some revision: addition to the standard series currently might be informative.

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Triple sensitization in a child with chronic otitis externa

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Key words: Amerchol L-101; children; chronic otitis externa; contact allergy; medicaments; neomycin; otoscleritis; sensitization; tixocortol pivalate.

External otitis is a chronic eczematous condition, often aggravated by contact with water, shampoos, and liquid soaps or trauma, e.g. cotton buds or fingernails. Sometimes a contact allergy to a medicament may contribute to its chronicity and frequent exacerbations.

Case Report

An 8-year-old boy, with bilateral secretory otitis media (SOM) for more than 3 years, was treated bilaterally with grommets. Due to secretion through the tubes an external otitis developed intermittently with severe itching. The boy was treated with 3 different topical aural medicaments but was not altogether symptomless. He was therefore referred by an otorhinolaryngologist to the Department of Dermatology for a second opinion concerning treatment. Before considering changing the treatment, the boy was patch tested to our standard series and 2 of the topical aural preparations using Finn Chambers on Scanpor tape (Epitest, Tuusula, Finland), tests being read on day 3 (D3) and D7. Positive patch test reactions were noted to tixocortol pivalate, neomycin and Amerchol L-101, each a constituent in one of the three aural preparations, respectively (Table 1). When the child stopped using the 3 medicaments, the symptoms ceased.

tol pivalate, neomycin and Amerchol L-101, each a constituent in one of the three aural preparations, respectively (Table 1). When the child stopped using the 3 medicaments, the symptoms ceased.

Discussion

Otitis externa is a multifactorial disease with endogenous and exogenous causation. In a study of 79 patients with chronic otitis externa, 27.8% reacted to a topical aural preparation or its ingredients. Only in 5.1% did discontinuation of the topical aural preparation result in marked improvement in the otitis externa (1). The most important allergen was neomycin, also shown in other similar studies (1–3).

Our patient was patch tested to two of his topical preparations tested as is but did not react. However, he did react to at least 1 ingredient from each of the 3 aural preparations. False-negative reactions are sometimes seen to medicaments, pharmaceuticals and cosmetics tested as is, but when increasing the patch test concentration of the respective ingredient under investigation, positive reactions are sometimes seen (4). The child had no skin disease and had not suffered from any skin complaints from cosmetics. Triple sensitization in a child from topical medicaments must be rare and, to our knowledge, no such reports have previously been published in the literature.

Acknowledgements

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Allergic contact dermatitis on previous skin graft site

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Key words: allergic contact dermatitis, epoxy resin; Langerhans cell; split-thickness skin graft.

Table 1. Patch test results

Test substance	%	Vehicle	D3	D7	Present in
Neomycin sulfate	20.0	Pet.	++	++	Sofradex® ear drops*
Amerchol L-101	100.0	Pet.	+	–	Synalar® ointment†
Tixocortol pivalate	1.0	Pet.	+	+++	Terracortril with polymyxin B® ear ointment‡§
Sofradex® ear drops	As is	–	–	–	–
Terracortril with polymyxin B® ear ointment	As is	–	–	–	–

*Hoechst Marion Rousell, Stockholm, Sweden. †Bioglan, Malmö, Sweden. ‡Tixocortol pivalate is a marker for hydrocortisone allergy and hydrocortisone was present in this ointment. §Pfizer, Täby, Sweden.

To our knowledge, only 2 case reports of allergic contact dermatitis involving a previous skin graft have been published (1, 2).

Case Report

A 25-year-old-labourer presented with a 6-month history of intermittent rash principally at the site of split-thickness skin grafting (STSG) on the right calf 10 years previous and its donor area (left thigh). The eruption had subsequently spread to the forearms, neck and face. There was no personal or family history of atopy and no past history of other skin problems. In his work, he mixed epoxy resin and hardener before application with a high-pressure spray as a surface coating, which often splashed onto his legs. He wore rubber gloves. On examination, he had marked eczema on the face, neck, forearms and, particularly, the right calf. The rash on the left thigh had cleared.

He was patch tested with our extended European standard series, cosmetics series, corticosteroids series and epoxy series. He had positive reactions to epoxy resin (1% pet.), cycloaliphatic epoxy resin (0.5% pet.) and epichlorohydrin (0.1% pet.).

Fortunately, he was able to change his job to one where he could avoid contact with epoxy resin.

Discussion

In 1974, Jordan and Finn (1) suggested that both donor and recipient sites might have a common carrier protein which forms the hapten-carrier complex that finally acts as an immunogen at the graft site. It has since been recognized that the major histocompatibility complex (MHC) protein acts as the binding site for hapten on epidermal Langerhans cells (3, 4).

15 months following grafting, Langerhans cell densities were found to be increased in meshed split-thickness skin grafts 3–5-fold over normal skin, and were also uniformly greater than cultured keratinocyte autograft (5). These results suggest possible hyper-susceptibility in such skin

graft sites, from increased epidermal Langerhans cell density, and an enhanced response in allergic contact dermatitis. In addition, Langerhans cell density in atrophic scars is also increased, as compared to normal skin and normotrophic scars (6). Hence, it would appear that both donor and recipient skin graft sites may show increased recognition of allergens.

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Lymphomatoid allergic contact dermatitis from para-phenylenediamine

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Key words: clothing dyes; lymphomatoid contact dermatitis; oil products; para-phenylenediamine; T-cell receptor gene rearrangement.

Case Report

A 40-year-old man had a 6-month history of an 'eczematous' eruption in major body folds. Treatment cycles with topical and systemic corticosteroids achieved partial remission with rapid recurrence on discontinuation. He worked as a trader in oil products and often wore black synthetic materials.

On admission, mildly itchy, well-circumscribed, erythematous scaly plaques were seen in the axillary folds (Fig. 1a), inner thighs, scrotum and inguinal region. Biopsy showed parakeratosis and acanthosis with occasional apoptotic keratinocytes. A moderately dense lymphoid infiltrate was observed in the papillary dermis, with obvious epidermotropism, as well as focal extension to periadnexal and perivascular areas. This infiltrate was largely composed of lymphocytes and contained numerous cells with large, hyperchromatic and convoluted nuclei (Fig. 1b,c).

Immunohistochemistry showed the lymphoid infiltrate to express a CD2+, CD3+, CD5+, CD7+, CD45RO+, CLA/Heca452+ immunophenotype, with a marked prevalence of CD8+ cells over CD4+ cells (Fig. 1d). Since these findings suggested the diagnosis of CD8+ cutaneous T-cell lymphoma (CTCL) (1), a T-cell receptor gamma gene rearrangement study was performed using the PCR technique from paraffin sections, which showed a polyclonal pattern.

The patient underwent patch testing with the European standard series, which was negative at day (D)2 and D3; in contrast, a strong late positivity to *para*-phenylenediamine (PPD) was observed from D4 on, lasting for as long as 4 weeks. The positive test skin area was erythematous and infiltrated without clinically evident vesicles. Biopsy of the patch test lesion showed similar histological, immunohistochemical and molecular features to those in lesional skin.

Through avoidance of contact with oil products and black clothes, complete and continuing remission was achieved.

Discussion

Lymphomatoid contact dermatitis is often a challenging diagnosis (2, 3). In the present case, clinical, histological and immunohistochemical

findings of lesional skin mimicked CD8+ CTCL (1), but molecular investigations of TCR-gamma rearrangement did not support this diagnosis. Interestingly, similar clinical, histological, immunohistochemical and molecular features were obtained in the PPD+ patch test area, thus allowing the correct diagnosis to be made. Furthermore, complete and continuing remission was achieved by avoiding contact with these products.

Substances cross-reacting with PPD are used in both oil products (antioxidants) and clothing (azo dyes). We therefore propose this case as the 1st report of lymphomatoid contact dermatitis induced by PPD or cross-reacting substance(s).

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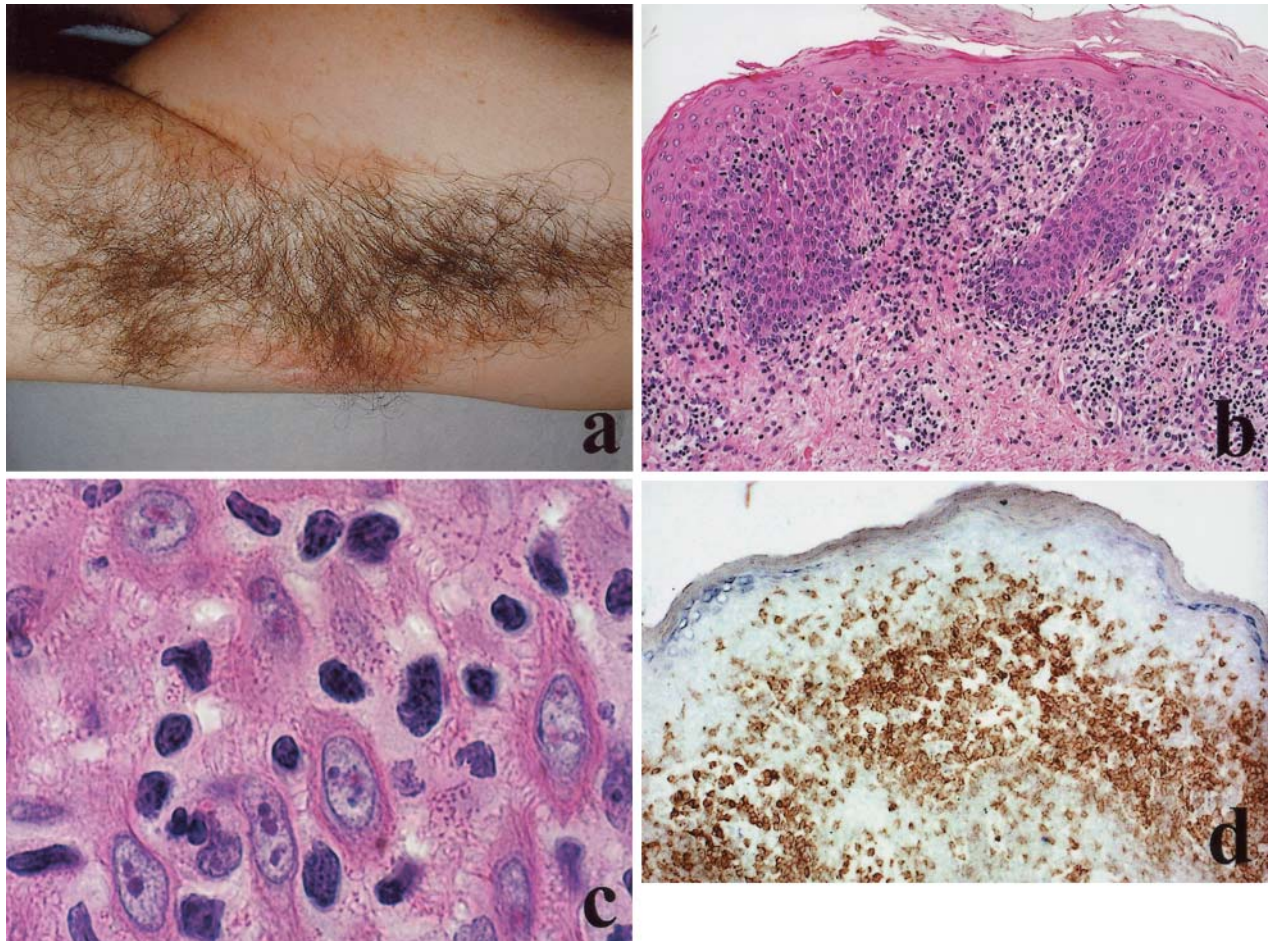


Fig. 1. Erythematous scaly plaques under the right arm (a). Scaly biopsy from the lesional area shows infiltration of lymphocytes with epidermotropism and irregular nuclei (b,c), and a prevalence of CD8+ T-cells (d).

Allergic contact dermatitis from topical diclofenac in Solaraze® gel

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Key words: allergic contact dermatitis, diclofenac, medicament, non-steroidal anti-inflammatory drugs, Solaraze® gel.

Solaraze® gel (Bioglan Laboratories Limited, Hitchin, UK) has recently been licensed as a treatment for actinic keratoses. Undesirable effects are believed to be rare ($> 1/100$, $< 1/10$ patients), but include pruritus, application site reactions, localized paraesthesia, contact dermatitis and vesiculobullous eruptions.

Case Report

A 56-year-old man presented with multiple actinic keratoses over his forehead and scalp. Given the wide area, he was treated with Solaraze® gel. Initially the preparation was well tolerated, but after approximately 2 weeks of twice daily applications he experienced increasing pain and inflammation at the application site. The gel was discontinued and 2.5% hydrocortisone applied. The inflammation settled after 2 weeks.

The constituents of Solaraze® were kindly provided by Bioglan and included sodium hyaluronate, benzyl alcohol, polythene glycol monomethyl ether 350 and diclofenac sodium. He was patch tested to the European standard series, Solaraze® gel and diclofenac 2.5% and 5% pet., plus the Solaraze® gel base and the individual ingredients of the gel as listed above. There were +++ patch test reactions at both day 2 (D2) and D4 to Solaraze gel and both concentrations of sodium diclofenac. There were no reactions to the remaining constituents of Solaraze®.

Comment

In 1992, Schiavino et al. (1) first reported allergic contact dermatitis

from diclofenac and, more recently, Gebhardt et al. (2). Ueda et al. (3) reported the first case of eyelid allergic contact dermatitis due to topical diclofenac.

This is the fourth report of allergic contact dermatitis from diclofenac but the first to be associated with Solaraze® gel. Allergic contact dermatitis from diclofenac should be suspected if reaction to the gel becomes extreme as treatment proceeds.

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Occupational allergic contact dermatitis from PEG-4 rapeseed amide in a massage oil

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Key words: allergic contact dermatitis; aromatherapy; CAS 85536-23-8; emulsifier; masseuse; monoethanolamine; occupational; PEG-4 rapeseed amide; rapeseed oil.

Fatty acid alkanolamides (FAAs) are the third most common synthetic surfactants and cocamide diethanolamide (DEA) is one such FAA. Following concerns about nitrosamine formation from free diethanolamine in cocamide DEA, the search for alternatives has resulted in PEG-4 RA (INCI name; Fig. 1) which has now been on the market for 10 years and is sold worldwide. It is mainly found in rinse-off toiletries at between 1 and 2%, but shower oils can contain 5% (personal communication with the manufacturer).

Case Report

A 25-year-old woman presented with eczema on the flexor wrists and forearms of 4 months duration. She had had mild atopic eczema as a child, but as an adult had been free of eczema until she started working as a masseuse. After 1 month, dermatitis had appeared on skin exposed to massage oils.

She was patch tested to our standard series on the back, in accordance with standard methodology, supplemented with work materials. Two massage oils from the same manufacturer provoked patch test reactions (Table 1) and in a second patch test session components of these two oils were tested. One component, an emulsifier present at 3.0% in both oils, elicited positive reactions in a dilution series (Table 1). The manufacturer informed us that this was an ethoxylated fatty acid monoethanolamide, PEG-4 rapeseed amide (PEG-4 RA, CAS no. 85536-23-8). 28 controls tested with PEG-4 RA at 0.3% pet. were all negative.

The patient ceased working as a masseuse after 5 months and her dermatitis cleared. After that, she tried to avoid contact with the emulsifier by reading the labelling on packages. Several months later, however, she coloured her hair with a brown permanent hair dye and within a few hours got an itchy, papular derma-

$R-CO-NH-(CH_2CH_2O)_{3-4}H$

$R=C16/C18$

Fig. 1. Molecular structure of PEG-4 rapeseed amide.

Table 1. Patch test results

Test substances	Vehicle	%	Test results
Test session no. 1			
Massage oil no. 1 as is	—	—	+++
Massage oil no. 2 as is	—	—	+++
Test session no. 2			
PEG-4 RA (batch 1)	pet.	3.0	+++
PEG-4 RA	pet.	0.3	+++
PEG-4 RA	pet.	0.03	+++
PEG-4 RA	pet.	0.003	+++
PEG-4 RA	pet.	0.0003	—
PEG-4 RA (batch 1)	aq.	3.0	+++
PEG-4 RA	aq.	0.3	+++
PEG-4 RA	aq.	0.03	+++
PEG-4 RA	aq.	0.003	+
PEG-4 RA	aq.	0.0003	—
Test session no. 3			
PEG-4 RA (batch 2)	pet.	3.0	+++
PEG-4 RA	pet.	0.3	+++
PEG-4 RA	pet.	0.03	+++
PEG-4 RA	pet.	0.003	++
PEG-4 RA	pet.	0.0003	—
Test session no. 4			
Rapeseed oil	—	As is	—
Monoethanolamine	pet.	2.0	—
2,6-Di- <i>tert</i> -butyl-4-cresol	pet.	2.0	—
Rapeseed amide	pet.	0.5	+

titis behind the ears and around the hair margin, the scalp turning red and itchy. On re-examining the labelling, it clearly stated that PEG-4 RA was an ingredient, but because the patient had only looked for the commercial name that she knew from the massage oil, she had overlooked this. Her dermatitis again cleared with topical corticosteroid.

On request, the manufacturer kindly supplied the 2 raw materials for PEG-4 RA (rapeseed oil and monoethanolamine), the intermediate product rapeseed amide and the end product without an added antioxidant 2,6-di-*tert*-butyl-4-cresol (BHT), as well as with BHT, i.e. PEG-4 RA, for patch testing purposes (Table 1). Two new batches of PEG-4 RA were tested in serial dilutions and showed the same patch test reactivity as before, and the end product without BHT showed the same reactivity as PEG-4 RA (results not shown).

Discussion

This is the first known report of contact allergy to this emulsifier and foam booster. The contact allergen

was present in the 2 oils used daily by the patient, who reacted to very low patch test concentrations of PEG-4 RA and also to the oils tested as is, and whose dermatitis cleared after she stopped working as a masseuse, strongly indicating occupational allergic contact dermatitis from PEG-4 RA.

Baseball pitcher's friction dermatitis

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Key words: baseball pitcher; discoid eczema; friction; occupational; professional sport.

Case Report

A 26-year-old professional baseball pitcher had noticed itchy erythema on his right ankle and red papules on the lower right knee 3 months before presentation. He had self-treated these lesions with 10% povidone-iodine and later developed multiple red papules with widespread pruritus. Physical examination showed itchy exudative erythema (Fig. 1) on the inner aspect of the right ankle and itchy red papules on the lower right knee and the remainder of the skin. He was diagnosed as discoid eczema associated with autosensitization.

Although we patch tested (as is) with 10% povidone-iodine, spike-shoe leather, stocking, ground soil and rosin bag, all these tests were negative at day (D)2 and D3. In contrast, the serum IgE level was significantly raised (640 IU/mL) and a RAST for house dust and mites was positive. He also suffered from allergic conjunctivitis.

In addition, he was a right-handed pitcher and used to get repeated friction on the inner right ankle and the lower right knee when reaching the 'release point' of his pitching action. Taken together, we speculated that the combination of pitching friction and atopic background might have resulted in his skin lesions. With oral corticosteroid (prednisolone 30 mg/day) remarkable improvement was obtained and the dose was then tapered. He now remains well controlled with topical corticosteroid and by wearing several stockings on top of each other to reduce friction on the skin.

Discussion

Previously, it was reported that repeated friction, such as that from a shower jet, could induce discoid eczema in a patient with an endogenous eczematous tendency (1). Similarly in our case, pitching friction appeared to have resulted in discoid eczema rather than this being caused by any specific contactant. Therefore, we designated this category of dermatitis as baseball pitcher's friction dermatitis.



Fig. 1. Discoid eczema on the inner right ankle.

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Delayed-type hypersensitivity skin reactions to low molecular weight heparins in a pregnant woman

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Key words: cutaneous adverse drug reactions; dalteparin; delayed hypersensitivity; enoxaparin, heparin; low-molecular-weight heparin; pregnancy.

Thromboprophylaxis in pregnancy, when sensitization to low molecular weight heparins (LMWH) occurs, raises a difficulty owing to the high cross-reactivity between heparins and the contra-indication of recombinant hirudins and dicoumarins (1, 2).

Case Report

A 38-year-old woman, in her 20th week of pregnancy and with a history of deep venous thrombosis and prior contact with heparin sodium, had been under thromboembolic prophylaxis since the 12th week, initially with 5000 IU dalteparin daily subcutaneous (s.c.), substituted later by 40 mg enoxaparin daily s.c. With both drugs, she developed pruritic erythematous lesions at the injection sites some 36 h after each injection. Examination showed erythematous infiltrated plaques on the abdominal wall, 5 × 3 cm in size, with vesicles, and some with desquamation.

An allergological study was done both on the patient and on five healthy volunteers without prior contact with heparin, after informed consent and ethical committee approval. All had prick, patch and intradermal (i.d.) testing. Prick tests

with all heparins caused erythema in both patient and controls, thus preventing their evaluation. Patches were applied to the patient's and controls' upper back for 48 h. Intradermal testing was done on the flexor forearm with 0.05 mL injections of each heparin. Readings of patch and i.d. testing were negative in the controls, the patient's being detailed in Table 1.

With these results, the Hematology Department decided to continue with oral anticoagulation using dicoumarin warfarin during the rest of the pregnancy. This was substituted in week 36 with tinzaparin. In week 38, an elective caesarean was performed, and thromboembolic prophylaxis thereafter maintained with tinzaparin, to which she showed no adverse reaction. The baby had no congenital abnormality. During the postpartum period, provocation tests with 5000 IU heparin calcium s.c. were tolerated without any side-effects.

Discussion

It was decided here to use dicoumarin anticoagulation for two reasons: risk of embryopathy greatly reduced when used after the 12th week (2); continuing with heparin calcium or tinzaparin s.c. for the remainder might induce fresh sensitizations, complicating treatment after week 36. After this time, an alternative to warfarin was needed, because of the otherwise high risk of postnatal bleeding.

Table 1. Results of patient's patch and intradermal testing

	Patch		Intradermal	
	Day 2	Day 4	20 min	Day 2
Heparins				
Heparin sodium (5000 U/0.2 mL)	—	—	—	—
Heparin calcium (5000 U/0.2 mL)	—	—	—	—
Tinzaparin (LMWH) (10,000 U/0.5 mL)	—	—	—	—
Nadroparin (LMWH) (2850 U/0.3 mL)	Erythema	Erythema	—	+
Enoxaparin (LMWH) (40 mg/0.4 mL)	Erythema	Erythema	—	+
Dalteparin (LMWH) (5000 U/0.2 mL)	Erythema	Erythema	—	+

Subcutaneous provocations with heparins are considered to be the most reliable diagnostic method, because i.d. testing may result in false-negatives (3, 4). As our patient was pregnant, we avoided s.c. provocations. Fortunately, in this case, there was clinical agreement with the result of the i.d. tests, both tinzaparin and heparin calcium being well tolerated. Therefore, in the event of heparin-induced dermatitis, i.d. testing is useful for diagnosing and deciding on therapy, with practically no adverse effects.

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Cutaneous reaction to oral spironolactone with positive patch test

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Key words: cutaneous adverse drug reaction, furosemide; lack of cross-reactivity; oral challenge; positive patch test; potassium-sparing diuretics; spironolactone; triamterene.

Spironolactone is a potassium-sparing diuretic which acts by antagonism of aldosterone in the distal renal tubules.

Case Report

A 50-year-old woman began oral treatment for cirrhosis and ascities with spironolactone 50 mg twice daily. 2 weeks later, she developed a pruritic maculopapular rash on the trunk, and lower extremities, which was treated with hydrocortisone cream and oral diphenhydramine. Symptoms cleared within 20 days of stopping the drug. She had no atopic background and no other drug or food allergy.

Patch testing was performed with commercial spironolactone (Aldactone-ATM, Searle, Madrid, Spain), 2 other potassium-sparing diuretics, triamterene (SalidurTM, Almirall, Barcelona, Spain) and furosemide (Furosemide 1%TM, Inibsa, Barce-

lona, Spain), all tested at 10% pet., and the European standard series (TRUE Test, ALK-Abelló, Madrid, Spain). A positive reaction was obtained to spironolactone at 2 and 4 days, persisting for as long as 1 week, and the other tests were negative. Spironolactone was negative in 5 control patients. The patch test with spironolactone was repeated 2 months later and an increase in the reaction was observed. Initially, we carried out a double-blind oral challenge test with spironolactone 50 mg, which reproduced the rash that the patient had previously experienced. Subsequently, we performed a double-blind oral challenge test with furosemide and triamterene, and the patient tolerated both of these drugs.

Comment

Spironolactone also has been associated with a lichen-planus-like skin reaction (1), cutaneous vasculitis (2), 'chloasma'-like pigmentation (3), alopecia (4), erythema annular centrifugum (5) and allergic contact dermatitis (6–8).

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been introduced whereby ready-cut pieces of bevelled glass were affixed to a new glass sheet with a two-stage UV-cured glue. He had worn latex gloves for this. The material safety data sheet indicated that the glue contained 2-hydroxyethyl methacrylate and ethylhexyl methacrylate at <50% and <37%, respectively.

Shaped glass pieces were covered in adhesive by hand from a bottle applicator and, using a template as a guide, pressed onto the sheet of glass to expel excess glue and air bubbles (Fig. 1a), the excess glue being wiped away manually, prior to part-curing by UV light for 15s. Curing was stopped to allow further cleaning of excess part-cured adhesive, then resumed for a further 15s to completion (Fig. 1b). The template was removed, any adherent adhesive

being cleaned from it by hand, with an isopropyl alcohol-based solvent. Finally, the completed glass panel was similarly cleaned and polished before applying a self-adhesive lead strip.

Past history included a 20-year history of psoriasis; otherwise he was well and had no history of atopy.

He was patch tested to our standard series, the Chemotechnique Diagnostics (Malmö, Sweden) acrylic adhesive series, and his own medications, glues and cleaners, with positive reactions to the glue and to several (di)(meth)acrylates (Table 1).

Discussion

There were many opportunities here for skin contact with non- and part-cured adhesive, and the resistance of

A new source of allergic contact dermatitis from UV-cured (meth)acrylate adhesive

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Key words: (meth)acrylates occupational; adhesive allergic contact dermatitis; UV-cured.

UV-cured acrylates sensitize in many applications including inks, lacquers, composite dental resins, audiological ear moulds and nail cosmetics (1–5).

Case Report

A 44-year-old man presented with a 5-month history of intermittent scaling of the dorsal hands and distal phalanges, including the fingertips, where fissuring extended under the nails. There had been one episode of exudative hand dermatitis. He had started a business in replacement windows 18 months previously. 5 months earlier, a new process had

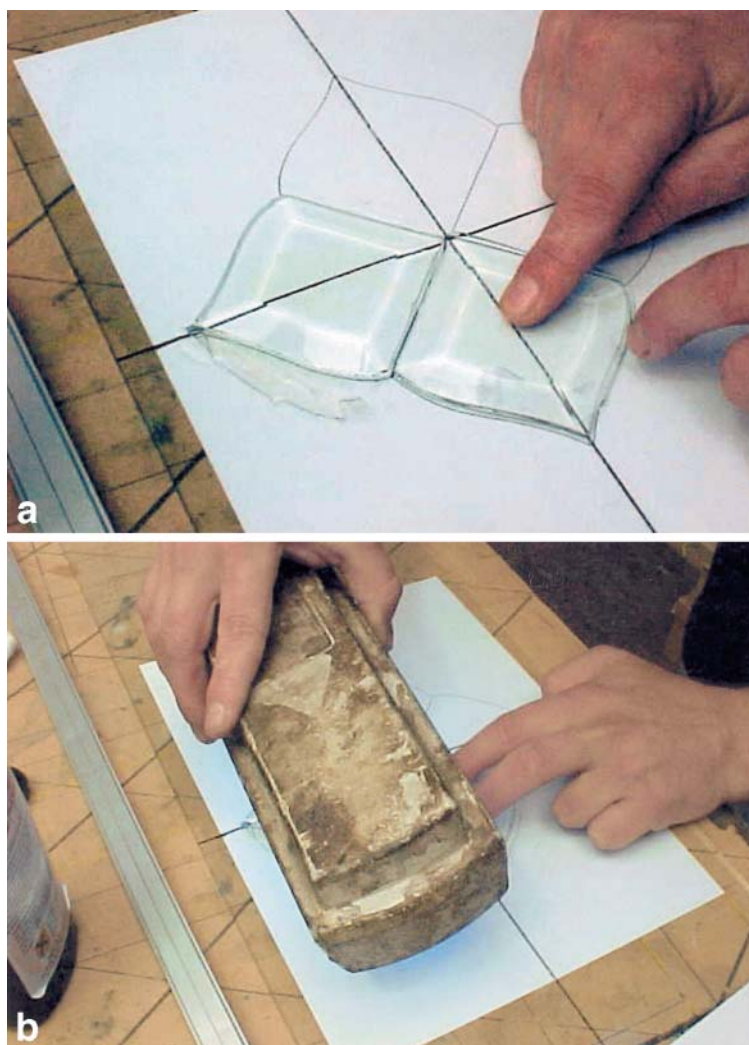


Fig. 1. (a) Decorative pieces of glass being glued on to glass. (b). Glue being cured with UV light.

Table 1. Positive (meth)acrylates patch tested

Allergen (2% pet. unless otherwise specified)	D2	D4
2-Hydroxyethyl methacrylate (2 HEMA)	++	++
2-Hydroxypropyl methacrylate (2 HPMA)	++	+
Ethyleneglycol dimethacrylate (EGDMA)	++	++
Triethyleneglycol dimethacrylate (TREGDMA)	++	++
1,6-Hexanediol diacrylate (HDDA) (0.1% pet.)	–	+
Tetraethyleneglycol dimethacrylate	++	++
Own glue (0.5% pet.)	++	++
Own cleaner (1% o.o.)	–	–

latex gloves to penetration by (meth)acrylates is low (6, 7). A similar fissuring fingertip pattern is seen in (meth)acrylate allergy from screwlocks.

2-Hydroxyethyl methacrylate is one of the most common (meth)acrylates to sensitize (8, 9). It is not clear whether accompanying reactions to other (meth)acrylates represent cross-reactivity or concomitant sensitization (10). This report extends further the sources of potential sensitization.

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Cosmetics patch tests: first report from Israel

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Key words: allergic contact dermatitis; cosmetics; fragrance mix; fragrance; methylchloroisothiazolinone + methylisothiazolinone; Myroxylon Pereirae resin; patch testing technique, preservatives.

General population studies have reported adverse reaction rates of 12.2% in the Netherlands (1) and 12% in the UK (2).

Patients and Methods

Our study sample consisted of 244 patients (204 female, 40 male) aged 12–80 years (mean 52.4 years) with clinical suspicion of cosmetic contact dermatitis. All were patch tested at the Contact Dermatitis Clinic of Rabin Medical Center in Israel between January 1997 and December 2000. The tests were done on the upper back with the European standard series and a cosmetics series (Chemotechnique Diagnostics, AB, Malmö, Sweden) using Finn Chambers on Scanpor tape (Epitest, Tuusula, Finland). The patches were removed after 2 days, and readings made on day 2 (D2) and D3 as recommended by the ICDRG.

Results

A positive response to 1 or more allergens in the cosmetics series was found in 80 patients (32.8%), 70 female and 10 male. Relevance was determined in 51 of these (63.5%). Overall, there were 128 positive responses. The most frequent allergens were methylchloroisothiazolinone + methylisothiazolinone (MCI/MI) (35% of such patients), thimerosal (26.2%), triethanolamine (8.7%), and octyl gallate (7.5%) (Tables 1 and 2).

Discussion

The NACDG studied 713 patients with cosmetic dermatitis over 64 months (1977–83); 626 (87%) were patch or use tested, with the suspected cosmetic alone (39%), the suspected cosmetic and certain other ingredients (38%), or the whole product and all its ingredients (18%) (3). The most common sensitizers were fragrance, preservatives (quaternium-15, formaldehyde, imidazolidinyl urea, and parabens), *para*-phenylenediamine and glycerol thioglycolate.

In a Dutch study (4) of 119 patients with cosmetic dermatitis, the most common allergens in a cosmetic series were MCI/MI, as in our study, followed by tosylamide/formaldehyde resin and oleamidopropyl dimethylamine (4). In India and Spain, the most common allergen reported was 4-phenylenediamine base (5, 6), although neither of these studies included a cosmetics series.

47 of our patients were positive to

Table 1. Frequency of reactions in the cosmetics series

Allergens	Number of positive responses
Methylchloroisothiazolinone + methylisothiazolinone	28
Thimerosal	21
Triethanolamine	7
Octyl Gallate	6
Cocamidopropyl betaine	6
Benzyl alcohol	6
2,6-Di- <i>tert</i> -butyl-4-cresol (BHT)	5
Phenylmercuric acetate	5
Hexahydro-1,3,5-tris-(hydroxyethyl) triazine	5
Hodecyl gallate	5
Ethylenediamine dihydrochloride	4
<i>tert</i> -Butylhydroquinone	4
Isopropyl myristate	3
Abitol	3
2-Hydroxy-4-methoxybenzophenone	3
2-Bromo-2-nitropropane-1,3-diol	3
Propyl gallate	3
Quaternium-15	3
DMDM hydantoin	2
Benzyl salicylate	2
Stearyl alcohol	2
Amerchol L-101	2
Total	128

Table 2. Frequency of reactions in the standard series

Allergens	Number of positive responses
Nickel sulfate	52
Fragrance mix*	30
Cobalt chloride	24
Potassium dichromate	23
Myroxylon Pereirae resin*	17
Methylchloroisothiazolinone + methylisothiazolinone(100 p.p.m.)*	12
Epoxy resin	6
4-Phenylenediamine base*	4
Neomycin sulfate	4
Quaternium-15*	4
Thiuram mix	3
Colophonium*	3
Mercaptobenzothiazole (MBT)	3
4- <i>tert</i> -Butylphenol-formaldehyde resin	2
Formaldehyde*	2
Mercapto mix	1

*Found in cosmetics.

fragrance (30 fragrance mix, and 17 Myroxylon Pereirae resin). MCI/MI was the second most common allergen overall, and the most common in the cosmetics series (28 patients). Patch testing with the cosmetics series gave a high yield: 33% of patients had at least 1 positive response, with high relevance (63.5%). We recommend that a cosmetics series be added to the standard series in all patients with suspected cosmetic contact dermatitis.

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Bingo-hall worker's occupational copper contact dermatitis from coins

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Key words: copper; euro coins, occupational allergic contact dermatitis.

2-Euro coins are 75% copper in both the external white ring and the internal yellow disk (1). However, the other euro coins also contain high levels of copper, as indeed do Spanish pesetas (2). Case reports and studies of allergic contact dermatitis from coins relate only to nickel or nickel-cobalt allergy (3), e.g. cashiers (4). Coins made of a nickel-free alloy, called 'nordic gold', containing 89% copper, 5% aluminium, 5% zinc and 1% tin, have been recommended because they do not release nickel (5). The health risk for people handling nickel-copper alloy coins is considered to be low (6).

Case Report

A 39-year-old man had been working in a bingo hall for 12 months. After

2 months he had developed dermatitis on the fingertips, both upper eyelids and the outer canthi. He described considerable improvement at weekends and during vacations, when he was not continually exposed to the 2-euro coins with which he associated his dermatitis. At presentation, he had slight scaling and redness on both upper eyelids, but no hand eczema. He gave no personal or family history of atopy.

Patch testing was performed and scored according to ICDRG recommendations, with the Spanish (GE-IDC) standard series and metals (nickel sulfate 5% pet., cobalt chloride 1% pet., mercury 0.5% pet., palladium chloride 2% pet., potassium thiosulfate 2% pet. and copper sulfate 2% pet.). This showed only a positive reaction to copper sulfate [+ + day 2 (D2)/+ + D4].

Discussion

We have found only one reference to dermatitis from nickel and copper in coins, which was in a housewife with positive reactions to copper sulfate at 5%, 1% and 0.5% aq. and nickel sulfate at 5% pet. (7). Intrauterine devices or dental amalgams may contain copper, but allergic reactions are considered rare (8).

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