

CONTACT POINTS

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Allergic contact dermatitis from 1,6-hexamethylene diisocyanate in a domestic setting

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Key words: 1,6-hexamethylene diisocyanate; airborne; allergic contact dermatitis; do-it-yourself; isocyanates; surface coatings.

Case Report

A 40-year-old housewife was renovating her bathroom using Tile Magic® (Knauf DIY, Maidstone, UK). This 'do-it-yourself' (DIY) product renovates ceramic tiles in 4 steps, finishing with the application of an isocyanate coating to the tiles with a roller. While using Tile Magic®, within an hour of completing the 4th stage, the patient developed severe pruritic erythema on the face, neck and arms, associated with peri-orbital oedema. This settled with potent topical application of corticosteroids over 2 weeks. She had had a similar, although less marked, reaction after using the final stage of Tile Magic®, 3 months earlier.

The manufacturer of Tile Magic® listed the constituents of the isocyanate coating for us. The patient was patch tested with the British standard series, a glue series and a further range of isocyanates, including diphenyldimethyl diisocyanate, toluenediisocyanate, isophorone diisocyanate and 1,6-hexamethylene diisocyanate (Chemotechnique Diagnostics, Malmö Sweden). Readings were taken at D2 and D4, and 1,6-hexamethylene diisocyanate gave a ++ reaction on both days. The other isocyanates were negative, as were all the remaining

tests. 1,6-hexamethylene diisocyanate was one of the listed constituents of the final coating stage of Tile Magic®.

Comment

1,6-hexamethylene diisocyanate (1,6-diisocyanatohexane) is a colour-stable aliphatic isocyanate that is used in speciality paints as a hardener. It is widely used in motor vehicle spray paint workshops and in the clothing industry. Cases of occupational contact dermatitis from 1,6-hexamethylene diisocyanate have previously been reported in both industries (1, 2).

There are several reports of sensitization to polyurethane products in a domestic setting – such as to a plastic watchstrap (3), spectacle frames (4) and a pacemaker lining (5), though none of these reports specifically identified sensitization to 1,6-hexamethylene diisocyanate.

With the increasing popularity of DIY, isocyanates are likely to become more common allergens within the home. Consumers should be warned clearly as to the hazards of exposure to such chemicals in confined spaces with poor ventilation.

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Contact allergy to propylene glycol in brassiere padding inserts

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Key words: 1, 2-propanediol; allergic contact dermatitis; CAS 57-55-6; clothing dermatitis.

Case Report

A 30-year-old woman developed a bullous reaction after applying 5% ibuprofen gel (Boots® ibuprofen gel, Nottingham, UK) to a sprained ankle. She had had a similar reaction to a different brand of 5% ibuprofen gel (Deep Relief® gel, The Mentholatum Company, East Kilbride, UK) 1 month before. On further questioning, she revealed that she had also noticed burning and redness across her breasts after wearing a new brassiere (Marks and Spencer®, London, UK) containing padding made of a gel insert. Subsequent inspection of the garment label showed that the gel substance in the cup insert was made from 100% propylene glycol (PG).

Patch testing with the British standard series, a medicaments series, a textiles series, the 2 gel formulations and the gel substance from her brassiere insert gave the results

Table 1. Patch test results

	% w/v	D2	D4
Propylene glycol	20% pet.	++	+
Boots [®] ibuprofen gel	As is	+++	++
Deep Relief [®] gel	As is	++	++
Marks and Spencer [®] brassiere gel insert	As is	++	++

summarized in Table 1. The patient was told that she was allergic to PG and was advised to avoid contact with it in the future.

Discussion

Propylene glycol is widely used in topical formulations in the cosmetic and pharmaceutical industries, as well as in hygiene and food products. It is a good solvent and humectant, enhances the percutaneous penetration of many chemicals and is useful in transdermal drug delivery systems.

Reports of skin reactions have included topical preparations, transdermal patches, electrodes and injectables (1–3). It may also be found in varnishes, synthetic resins, antifreeze and foods (4). Some experimental data suggest that ingesting PG in foods can produce flares of PG dermatitis, as well as flares at sites of previous patch test reactions (5).

PG can be a mild contact irritant as well as a contact sensitizer. In a review by Funk and Maibach, summarizing patch test studies (concentration of PG 2–100%), the frequency among eczema patients of allergic sensitization ranged between 0.2% and 4.1% (6). Difficulty arises in differentiating allergic from irritant responses to patch tests, particularly when such reactions are mild. There is thus some debate over the optimum concentration of PG for patch testing. Low concentrations of 1–10% have been advocated to avoid irritant reactions, but even at a 20% concentration the sensitivity of patch testing may not be sufficient and false-negatives occur (6). The concentration of PG in topical preparations also varies considerably, ranging from 2% to 60%.

As PG is cheap and is useful as a gel-forming substance, it can easily be added to garments that need padding. Therefore, allergic contact dermatitis from PG should be considered in any patient who presents with dermatitis under clothing that uses padded inserts.

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Clinically relevant contact urticaria caused by Thrombocid[®] ointment

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Key words: contact urticaria; sorbic acid; Thrombocid[®].

Thrombocid[®] ointment (Lacer, Barcelona, Spain) is sold in many countries (1) for varicose veins and haematomas; until now, there have been no reported cases of adverse cutaneous reactions following its use.

Case Report

A 77-year-old man who developed an urticaria-like rash on his legs after first applying Thrombocid[®] ointment is described. Patch testing with the GEMC standard series and the product itself showed a positive reaction (+) to Thrombocid[®] ointment as is at D4. Patch tests with the different components of the ointment including the active ingredient, pentosane polysulfate, were negative at D4. Given the urticaria-like appearance of the dermatitis presented by the patient, patch tests with Thrombocid[®] ointment as is and with its components were applied to his forearms and uncovered at 20 min, resulting in a positive wheal response to sorbic acid at 0.1% and 1% pet. and to Thrombocid[®] ointment. The reaction to Thrombocid[®] ointment in a control group of 20 patients was likewise studied with a reading at D4, no positive responses being observed in any of the cases. A further group of 20 patients had the same ointment applied to their forearms, as well as sorbic acid at 0.1% and 1% pet., for 20 min; a positive reaction to sorbic acid at 1% pet. was seen in 3 cases.

Discussion

The urticarial reaction on the legs, presented by the patient after applying Thrombocid[®] ointment, together with the results of the epicutaneous tests, with a whealing response to the ointment as is and to sorbic acid, confirms the diagnosis of clinically relevant contact urticaria, probably because of the sorbic acid content of the ointment. Although the capacity of sorbic acid to provoke non-immunological contact urticaria is well known (2–7), we have not found published case reports of relevant contact urticarias owing to topically applied medications containing sorbic acid.

On the other hand, a positive response was obtained with Thrombocid[®] ointment at D4 (+), for which we can offer no definite explanation. In our opinion, this weak positivity, like other weak patch test reactions (8), was of no clinical significance.

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Allergic contact dermatitis in methotrexate manufacture

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Key words: 2,4-diamino-6-chloromethylpteridine hydrochloride; 2,4-diamino-6-hydroxymethylpteridine hydrochloridemethotrexate; airborne; allergic contact dermatitis; cross-sensitivity; occupational; pharmaceutical manufacture.

A 34-year-old production engineer in the manufacture of methotrexate (MTX) presented with acute

Table 1. Patch test results with methotrexate (MTX) and intermediates

Compound	(%) aq.	D1	D2	D3	D4
TAP	0.1	—	—	—	—
	0.01	—	—	—	—
TAPB	0.1	—	—	—	—
	0.01	—	—	—	—
DAHMPT	0.1	—	—	—	+++
	0.01	—	—	—	—
DACHMPT	0.1	++	+++	+++	+++
	0.01	++	++	+++	+++
MTX	0.1	—	+++	+++	+++
	0.01	—	—	—	—

TAP, 2,4,6-triaminopyrimidine; TAPB, 2,4,5,6-tetraaminopyrimidine; DAHMPT, 2,4-diamino-6-hydroxymethylpteridine hydrochloride; DACHMPT, 2,4-diamino-6-chloromethylpteridine hydrochloride.

eczema on the face and neck. Methotrexate is synthesized in phases: first the precursors 2,4-diamino-6-chloromethylpteridine hydrochloride (DACHMPT) and *N*-methyl-*N*-formyl-*p*-aminobenzoylglutamateethyl derivate (MFBGE) are made, which then are reacted together to form MTX.

The patient worked in the manufacture of DACHMPT, which itself is staged. Guanidine carbamate reacts with malononitrile forming 2,4,6-triaminopyrimidine (TAP), the base of 2,4,5,6-tetraaminopyrimidine (TAPB) then being synthesized. By the reaction of TAPB with dihydroacetone, 2,4-diamino-6-hydroxymethylpteridine hydrochloride (DAHMPT) is formed. On halogenation with thionyl chloride, 2,4-diamino-6-chloromethylpteridine hydrochloride (DACHMPT) is synthesized.

After 2 months of such work, he developed itchy erythema on the face, becoming vesicular and exudative, with spread to the neck, thorax and volar forearms. He suspected that DACHMPT was the cause. Although manufactured in a closed system, it could contaminate the work environment. He was provided with protective clothing, respirator and rubber gloves. He also worked with this same compound in a laboratory. Bagging the chemical was a dusty operation. During a 1-month sick leave the dermatitis healed, and he was redeployed to another section, not involving MTX manufacture. When he inadvertently visited a laboratory where the personnel were working with DACHMPT, he developed a widespread dermatitis.

On examination, erythema and scaling on the face, small erosions on the forehead and scaling of the lips were noted.

After healing, patch tests were performed with the European standard series (Trolab, Hermal, Reinbek, Germany) with negative results. Additional tests were carried out with substances from the workplace, using Leukotest (Beiersdorf AG, Hamburg, Germany). Application time was 1 day with readings immediately after removal and at D2, D3 and D4. Reactions to DACHMPT were detected at 0.1% and 0.01% and to DAHMPT and MTX only at 0.1% (Table 1).

The dermatitis was reported as occupational. Since redeployment of the patient into the business department, he has had no further symptoms. In the workplace, preventive measures were intensified – rubber clothing with safety helmet.

Discussion

Such a case was first described by Lahti *et al.* in 1990, in a ventilation engineer working in MTX manufacture. Sensitization to DACHMPT was detected at 1, 0.1 and 0.01%. Patch tests with other intermediates, including DAHMPT, were negative (1). In our case, the primary allergen was probably also DACHMPT, which is more irritant than DAHMPT – according to safety documentation. Reactions to DAHMPT and MTX were most probably due to cross-sensitivity.

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Contact allergy to tetrahydrocurcumin

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Key words: allergic contact dermatitis; antioxidants; *Curcuma longa*; spices; turmeric.

Case Report

A 54-year-old woman developed an eczematous reaction to Avon Age Block Environmental Protection Cream® (Corby, UK). Open application on her arm with the same cream caused a similar response. Patch testing with the British standard series and a facial series was negative. The sunblock cream gave a + reaction at D2 and D4. Patch testing on 10 controls with the cream was negative. Testing the patient to the individual ingredients of the sunblock cream gave a + reaction to tetrahydrocurcuminoid (1%

pet.) at D2 and D4 and all other ingredients were negative. Further testing on 20 controls with tetrahydrocurcuminoid was negative.

Discussion

Tetrahydrocurcuminoid (Fig. 1) belongs to a group of compounds called curcuminoids, which are extracts from the rhizome of *Curcuma longa* (turmeric root) (1). The rhizome of the turmeric plant has been used in Asia for peptic ulcer treatment, wound treatment, as an anti-inflammatory and as an antifungal for skin diseases. The curcuminoids have significant antioxidant properties and have also been shown to exhibit antimicrobial and anti-inflammatory properties, with derivatives being developed as anticancer treatments (2, 3).

Unlike the other curcuminoids, tetrahydrocurcuminoid is a colourless compound and is useful in cosmetic products as an alternative to the synthetic antioxidants currently employed. Therefore, it is likely that the use of curcuminoids will increase in both medicaments and over-the-counter products.

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Contact allergens in 200 patients with hand dermatitis

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Key words: allergic; atopy; hand dermatitis; irritant; latex; occupational.

Hand dermatitis is one of the main reasons for referral to patch testing. We describe a study of 200 cases of hand dermatitis investigated in a contact dermatitis clinic.

Patients and Methods

Over a 30-month period (1998–2000), 200 patients (110 women and 90 men) were referred for investigation of hand dermatitis to a contact dermatitis clinic. 101 gave a personal history of atopic symptoms (i.e. atopic dermatitis, rhinitis or asthma).

Occupations were as follows: 29 healthcare work, 26 office work, 23 full-time housework (all women), 20 heavy engineering, 16 metal industry, 13 food handling, 9 cleaning, 9 light industry, 9 education, 9 building, 6 hairdressing, 4 woodwork, 8 unemployed or retired and 19 in other types of employment. 142 subjects wore latex rubber gloves regularly at work or at home: 3 wore vinyl and 1 nitrile. 59 complained of itching on wearing latex gloves.

Subjects were patch tested with the British Contact Dermatitis Society's standard series, together with other allergen series appropriate for their circumstances. Readings were done at D2 and D4. A positive reaction was defined as + or more (?+ not

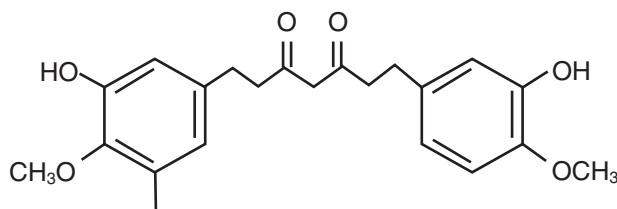


Fig. 1. The chemical structure of tetrahydrocurcuminoid.

included). Allergen-specific immunoglobulin E (IgE) tests, e.g. for latex, were performed in all cases, with prick testing for latex being carried out when indicated (ALK Abello A/S, Horsholm, Denmark).

Results

Patch testing revealed the commonest allergic reactions in this unselected group of 200 subjects with hand dermatitis to be as follows: 26 fragrance mix, 22 nickel, 18 cobalt, 15 Myroxylon Pereirae resin, 9 colophonium, 7 para-phenylenediamine, 6 latex, 6 Amerchol L-101, 6 chromate, 5 lanolin alcohol, 5 thiuram mix, 4 cocamidopropyl betaine, 4 Compositae mix, 4 methylchloroisothiazolinone + methylisothiazolinone and 3 sesquiterpene lactone mix.

Contact urticaria from latex was diagnosed in 16 subjects, all of whom had a positive prick test to natural rubber latex allergen. All wore latex gloves at work or at home: 11 were women and 14 gave a personal history of atopy. 13 of the 16 also had an allergen-specific IgE to latex of grade 2 or more. 6 of the 16 were healthcare workers, 3 were cleaners, and others were employed in construction, education, food handling, sales, metal industry and engineering.

A final diagnosis of predominantly irritant contact dermatitis was made in 73 subjects, 69 had mainly allergic contact dermatitis, 32 had atopic eczema (combined with irritant contact dermatitis in 11 and with allergic contact dermatitis in 8), 10 had psoriasis and 16 had other types of eczema. The dermatitis was considered to be occupational in 22 cases.

Discussion

Contact urticaria (and contact dermatitis) from latex was a common finding in this group of subjects with hand dermatitis and needs to be carefully considered in patients presenting with a hand eruption. As in other studies, we found hand dermatitis often to be multifactorial (1). In a large European study of hand dermatitis, the most common positive allergens were balsams, nickel, rubber chemicals and chromate (fragrance mix and latex were not included in this study) (2). The results from this study are broadly similar, except

that latex is seen to be more prominent. Most allergens are found in the standard series (3).

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Allergic contact dermatitis from propylene glycol ricinoleate in a lipstick

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Key words: allergic contact dermatitis; cosmetics; lipstick; propylene glycol ricinoleate.

Case Report

A 28-year-old woman had had pruritic erythema and scaling on her lip for 4 months. She was patch tested with 20 of her cosmetics, using Finn Chambers (Epitest Ltd Oy, Tuusula, Finland) on Scanpor tape (Norgesplaster A/S, Vennesla, Norway). Readings were made at 2, 3 and 7 days according to ICDRG recommendations. She showed a positive reaction to 1 lipstick that she had used for 6 months. This lipstick contained 17 ingredients, among which she reacted only to propylene glycol ricinoleate 10% pet. (Table 1). 10 control subjects showed no reaction to the same preparation of propylene glycol ricinoleate. She has been free of symptoms since using lipsticks without propylene glycol ricinoleate.

Discussion

Propylene glycol ricinoleate is the monoricinoleate of propylene glycol (Fig. 1). It has been used as a humectant in lipsticks, comprising 5.5% of this particular lipstick. Because the patient showed no reaction to propylene glycol 2% pet. (Table 1), we suspect that an antigenic determinant exists in the ricinoleic acid portion.

Many cases of allergic contact dermatitis because of ricinoleic acid in castor oil have previously been reported (1–4), but not contact allergy to propylene glycol ricinoleate. Castor oil is a glycerine ester of fatty acid (2), about 90% of which is ricinoleic acid (4). Magerl et al. (5) reported a patient who had been sensitized to zinc ricinoleate in a deodorant and cross-reacted to glyceryl ricinoleate in a lipstick. Dooms-Goossens *et al.* (6) reported a cross-reaction between glyceryl ricinoleate and PEG 400 monoricinoleate. Thus, it is suspected that there may be cross-reactivities between the various ricinoleates. We need to pay

Table 1. Patch test results

	%/veh	D2	D3	D7
Lipstick (including propylene glycol ricinoleate at 5.5%)	As is	+	++	+
Propylene glycol ricinoleate	10% pet.	—	++	++
Other ingredients of positive lipstick		—	—	—
Propylene glycol	2% pet.	—	—	NT

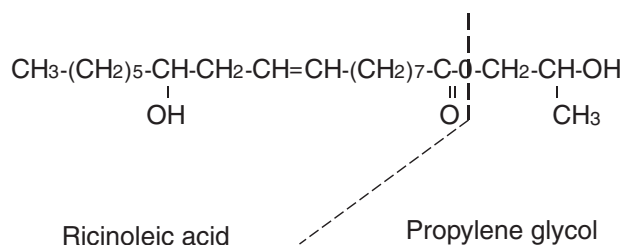


Fig. 1. Chemical structure of propylene glycol ricinoleate.

attention to other ricinoleates when a patient is sensitized to any particular ricinoleate.

This is the first reported case of allergic contact dermatitis because of propylene glycol ricinoleate. We must consider not only ricinoleic acid in natural fatty oils, but also synthetic ricinoleates such as in our case, when searching for the cause of cosmetic dermatitis.

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Recurrent facial dermatitis from chamomile tea

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Key words: airborne; allergic contact dermatitis; chamomile tea; *Chamomilla recutita*; chromate; cobalt; colophonium; German chamomile; herbal remedies; oak moss.

Some patients with eczema keep developing one contact allergy after another: fortunately, they seem to comprise a small minority.

Case Report

A young woman had had eczema in infancy and first had been referred to seek dermatological advice by her general practitioner at the age of 22 years. She then had given a recent history of eczema of the eyelids and dorsa of the feet. Patch tests had shown ++ reactions at D2 and D4 to both colophonium and chromate in the European standard series, the latter being confirmed as allergic by patch testing additionally with potassium dichromate 0.375% pet. (+ D2/++ D4). She gave a previous history of reactions to adhesive plaster but was advised about possible airborne sources of exposure to colophonium, as well as being warned about leather footwear.

Her foot eczema cleared, but she returned at the age of 23 years with worsening relapses of facial eczema. Patch tests, omitting colophonium and chromate, were now positive to cobalt and oak moss. She was advised to avoid perfumed products. A rosaceous component to her red papular facial dermatosis was also identified, and this responded well

to oral oxytetracycline. All seemed to be well 6 months later.

She next returned at the age of 25 years, with further recurrences of facial eczema, some of which had been sufficiently acute and oedematous to prompt visits to hospital accident and emergency departments. Patch testing, omitting colophonium, chromate, cobalt and oak moss, was extended for the first time with a series of plant extracts (Trolab[®], Hermal, Reinbek, Germany; Chemo-technique Diagnostics, Malmö, Sweden) and showed a + D2/++ D4 reaction to German chamomile (*Chamomilla recutita*) 2.5% pet. Compositae mix, also tested for the first time, was + D2/+ D4. Sesquiterpene lactone mix in the standard series remained negative, as it had on the 2 previous patch tests. Roman chamomile (*Anthemis nobilis*) was not tested.

When informed of this latest allergy, the patient, surprisingly, said that it made sense. Over the past year, she had become 'addicted' to steaming-hot chamomile tea, and the drinking of such infusions had immediately preceded at least some of the relapses of her facial eczema, which at times had been accompanied by lip swelling. On follow-up 4 months later, she reported that she had been completely avoiding chamomile tea and had had no further relapses.

Discussion

Chamomile tea has previously been reported as causing allergic (German and Roman), including systemic (Roman), contact dermatitis from its use topically (1) as well as orally (2), though not reported as causing recurrent facial dermatitis.

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Occupational allergic contact dermatitis from 1,2-benzisothiazolin-3-one without cross-sensitization to other isothiazolinones

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Key words: 1,2-benzisothiazolin-3-one; 2-methyl-4-isothiazolin-3-one; 2-n-octyl-4-isothiazolin-3-one; 5-chloro-2-methyl-4-isothiazolin-3-one; allergic contact dermatitis; batchmaker; biocides; 1, 2-benzisothiazolin-3-one; chemical industry; isothiazolinones; Kathon[®] CG; lack of cross-sensitivity; occupational; Proxel[®].

Isothiazolinone biocides include 5-chloro-2-methyl-4-isothiazolin-3-one (MCI), 2-methyl-4-isothiazolin-3-one (MI), both present in Kathon[®] CG, 1,2-benzisothiazolin-3-one (BIT), 3-ethylamino-1,2-benzisothiazole hydrochloride, 2-methyl-4,5-trimethylene-4-isothiazolin-3-one (MTI) and 2-n-octyl-4-isothiazolin-3-one (Kathon[®] 893, Skane[®] M-8, etc.). Proxel[®] GXL is an industrial biocide, pesticide and preservative, composed of BIT at 10–20%, sodium hydroxide 5–10% and aqueous dipropylene glycol. All Proxels[®] and Mergals[®] contain BIT, and Proxel[®] CRL also contains ethylenediamine. Proxel[®] GXL is a known irritant and allergen. We report 2 cases of allergic contact dermatitis from BIT in Proxel[®] GXL without cross-reaction to Kathon[®] CG (MCI/MI) or 2-n-octyl-4-isothiazolin-3-one.

Case Reports

A 23-year-old man (patient no. 1) presented with a 12-month history of recurrent hand dermatitis. The lesions involved the palms and sides of the fingers and were severely fissured and keratotic. Improvement was noted during vacations. A 31-year-old man (patient no. 2) was seen with a 4-month history of similar lesions on his hands, at times spreading to his forearms, left thigh and right leg. Both men were batchmakers in a chemical plant that produced dyes for the textile and paper industries. Both were in contact with over 2000 chemicals, but through review of material safety data sheets and temporal analysis of their respective tasks, the number of potential allergens was reduced to less than 20. We found that both batchmakers had been handling undiluted Proxel[®] GXL, without gloves or other protective equipment, and that spillage had often occurred.

Both patients were patch tested with the NACDG standard series, a textile series, BIT 0.05% pet. and 2-n-octyl-4-isothiazolin-4-one 0.1% pet., all from Chemotechnique Diagnostics AB (Malmö, Sweden). 18 chemicals from the workplace were also tested, including Proxel[®] GXL at aqueous dilutions of 1:200 and 1:400, to obtain concentrations of BIT of 0.1% and 0.05%, respectively. These additional allergens were negative when tested on 5 controls. Allergens were applied on Finn Chambers[®] (Epitest, Oy, Tuusula, Finland) on Scanpor[®] tape (Norgeplaster A/S, Kristiansand, Norway), with readings at D2 and D4. Both men had strong reactions to Proxel[®] GXL and to BIT, but no reactions to MCI/MI or to 2-n-octyl-4-isothiazolin-3-one (Table 1).

Discussion

BIT is the active component of Proxel[®] GXL. It is a commonly used industrial biocide because of its high antimicrobial activity at low concentrations. It is often used in pastes, cutting oils, water-based paints, cleaning agents, polishes, pigments and plasticizers (1). After the first publication by Pedersen (2) in 1976, there have been multiple reports of allergic contact dermatitis from BIT in various occupations, including carpet makers (3), printers, painters and paper-hangers (4, 5), paint manufacturers (6, 7), pottery workers (8), paper makers, metalworkers (9) and laboratory technicians (2, 10). BIT has also been reported to sensitize woodwork teachers (11), workers in the air freshener manufacturing industry (12) and a patient working in a shoe factory (13). In our patients' workplace, Proxel[®] GXL had in recent years replaced formaldehyde as a biocide, added to the finished aqueous solutions of dyes.

BIT is a known irritant at 1%, and can sometimes even be at 0.1% (14). Our results confirm that concentrations below 0.1% are adequate to elicit positive reactions in sensitized individuals.

Like BIT, MCI/MI is used in metalworking fluids, paints, glues, plastics and cosmetics (except in Europe, where BIT is not permitted in cosmetics) (15). In some patients, positive patch test reactions have been noted to both MCI/MI and BIT (3, 4), and presumed to represent cross-sensitivity. Damstra et al., however, propose that cross-sensitivity is unlikely, despite the chemical similarity between the 2 compounds (5). Greig (7) also reports no cross-reactions between BIT and Kathon[®] CG in a patient with allergic contact dermatitis from Proxel[®] CRL. Of the 4 workers with a positive test to Proxel[®] CRL reported by Dias et al. (12), none reacted to Kathon[®] CG.

Basketter et al., using the murine local lymph node assay, demonstrated BIT to be a substantially weaker allergen than MTI, which in turn was weaker than MCI as determined from a previous study (16). Furthermore, in the human cross-challenge component of their study, they demonstrated that there was no significant cross-reaction between MTI and MI. This suggests that,

Table 1. Patch test results

	Patient no. 1		Patient no. 2	
	D2	D4	D2	D4
NACDG standard series (includes MCI/MI)	–	–	–	–
Textile series	–	–	–	–
Proxel [®] GXL 1:200 aq. (BIT 0.1%)	+++	+++	++	++
Proxel [®] GXL 1:400 aq. (BIT 0.05%)	+++	+++	+	++
BIT 0.05% pet.	++	++	+	+

within the isothiazolinones, there may be little cross-reactivity between chemically similar agents, and that concurrent MCI/MI and BIT-positive patch test reactions are because of separate sensitizations.

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Allergic contact cheilitis from D&C Red no. 7 in lipstick

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Key words: allergic contact cheilitis; D&C Red no. 7; cosmetics

Case Report

A 26-year-old woman presented with a pruritic and irritating sensation, with dryness and slight swelling of the lips, of 7 days duration. A clinical examination showed erythematous papules and vesiculation with scaly fissures on and around the lower lip. She had a previous history of frequent cheilitis on using dark red-coloured lipsticks for 6 years.

She was patch tested with the Korean standard series and a cosmetics series (Chemotechnique Diagnostics AB, Malmö, Sweden), including her lipstick, using Finn Chambers[®]. The patient was positive to thimerosal and the lipstick. A further patch test with the 32 individual ingredients of the lipstick formulation kindly provided by the manufacturer (Clinique, New York,

NY, USA) showed a ++ reaction to D&C Red no. 7 calcium lake (CI 15850) 20% aq.; the other ingredients were negative. The patient discontinued using this lipstick, and her symptoms improved.

Discussion

Various additives in lipsticks, including eosin, castor oil, ricinoleic acid, benzophenone-3, lanolin, perfumes and antioxidants, such as propyl gallate, may cause allergic contact cheilitis. Among these, the most common are flavouring agents and preservatives, but cosmetic pigments such as various red D&C dyes, including eosin (D&C Red 21), have been identified more rarely (1).

Before 1960, eosin in lipstick was a relatively common cause of cosmetic dermatitis, but with reduction in use and the availability of purer forms of eosin, dermatitis due to eosin is now rarely seen. However, other dyes such as D&C Yellow no. 11 (CI 47000), D&C Red no. 17 (CI 26100) and D&C Red no. 36 (CI 12085) have occasionally been reported to cause sensitivity reactions (1, 2).

In Korea, previous causes of allergic contact cheilitis have been found to be propyl gallate, eosin and 1-phenyl-azo-2-naphthol (3). To date, there has been no report of lipstick cheilitis due to D&C Red no. 7 (calcium salt of 3-hydroxy-4-[(4-methyl-2-sulphophenyl) azo]-2-naphthalenecarboxylic acid).

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Contact dermatitis in the elderly

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Key words: allergic contact dermatitis; elderly; herbal remedies; topical medicaments.

We present a retrospective study of 272 elderly patients seen in the Contact Dermatitis Unit of the Dermatology Department of the Medical Faculty of Gazi University over a 3-year period.

Patients and Methods

Patients were patch tested with the European standard series (Hermal, Reinbek, Germany) and with their own cosmetics and medicaments, by directing them to apply mailed patch tests to their upper backs 2 days before attending, reactions being classified according to ICDRG criteria.

Results

Results are shown in Tables 1–4. Nickel was the commonest sensitizer, followed by fragrance mix, *para*-phenylenediamine and neomycin. 3 of our patients were lanolin sensitive, and they had an atopic history. 3 female patients using herbal remedies for joint pain were found to be allergic to *Laurus nobilis* (laurel) oil.

Discussion

Allergic contact dermatitis is one of the commonest health problems in the elderly (1–3). High nickel positivity was in accordance with previous studies (1, 4, 5), though may derive from a young age (4, 5). Cosmetics were next most common, positive reactions to the fragrance mix having increased over the past 10–15 years (5). Virtually all herbal remedies can cause allergic reactions (6, 7). 3 of our patients, with erythema and oedema over their knees, had used *Laurus nobilis* (laurel) oil to relieve joint pain.

In total, 21 patients (8%) were found to be allergic to topical medicaments, many of whom had stasis dermatitis and chronic leg ulcers.

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Table 1. Age and sex distribution

Ages	Number	Male	Female (%)
56–59	237	88 (37)	149 (63)
60–69	19	7 (37)	12 (63)
≥70	16	4 (25)	12 (75)
Total	272	99 (36)	173 (64)

Table 2. Clinical features

Symptoms and signs	No.	Localization	No.
itching	180	face and neck	45
scaling	65	trunk	43
erythema	123	hand and arm	110
fissures	15	leg	61
vesicles	13	genital	9
		scalp	7
		oral mucosa	2
Total	401		255

Table 3. Diagnoses

Diagnosis	Female	Male	Total
Contact dermatitis	162	82	244
Allergic	98	65	163
Irritant	64	17	81
Seborrheic dermatitis	8	15	23
Stasis ulcer	3	2	5
Total	173	99	272

Table 4. Positive allergens

Allergen (%)	Positive patient no. (%)
nickel sulfate (5%)	61 (23)
fragrance mix (8%)	27 (10)
<i>para</i> -phenylenediamine (1%)	27 (10)
Myroxylon Pereirae resin (25%)	22 (8)
potassium dichromate (0.5%)	21 (7)
neomycin sulfate (20%)	21 (7)
thiuram mix (1%)	18 (7)
cobalt chloride (1%)	16 (6)
quinoline mix (6%)	15 (6)
paraben mix (12%)	12 (4)
quaternium-15 (1%)	9 (3)
benzocaine (5%)	9 (3)
formaldehyde [1% (aq.)]	5 (2)
colophonium (20%)	3 (1)
lanolin alcohol (30%)	3 (1)
<i>Laurus nobilis</i> oil (20%)	3 (1)

All in pet. unless otherwise indicated.

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Fig. 1. Itchy linear infiltrative erythema on the areas of the face and neck where the nasal cannula was fixed.

Contact dermatitis due to alkyl diaminoethylglycine hydrochloride

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Key words: alkyl diaminoethylglycine hydrochloride; allergic contact dermatitis; antiseptics; detergents; nasal cannula.

Case Report

A 58-year-old woman, who had had an operation for meningioma, suddenly developed convulsions and was hospitalized, oxygen therapy being started through nasal cannulation. Several days later, itchy linear infiltrative erythema developed on the areas of her face and neck, where a nasal cannula, sterilized with alkyl diaminoethylglycine hydro-

Table 1. Positive patch test results

Materials	Conc./veh.	D2	D3
Cannula sterilized with AH	As is	++	++
Cannula sterilized with ethanol	As is	–	–
Unsterilized cannula	As is	–	–
Lanolin alcohol	30% pet.	–	+
Pet.	As is	–	–
AH	0.5% aq.	+	++
AH	0.1% aq.	+	++
AH	0.05% aq.	–	++
AH	0.01% aq.	–	+
H ₂ O	As is	–	–

AH = alkyl diaminoethylglycine hydrochloride.

chloride (AH) (Concnol[®] Solution, Merck Hoei, Osaka, Japan), was fixed (Fig. 1). After removal of the nasal cannula, the erythema gradually decreased. She was patch tested with the nasal cannula sterilized with AH and also with an unsterilized one. There was a positive reaction to the sterilized nasal cannula but not to the unsterilized. Further patch tests demonstrated a positive reaction to AH at the concentrations of 0.5%, 0.1%, 0.05% and 0.01%, and lanolin alcohol among European standard allergens (Table 1). 5 healthy subjects showed no reaction to these concentrations of AH. We diagnosed this case as allergic contact dermatitis caused by residual AH on the cannula.

Discussion

AH, well known also as Tego[®], is an antiseptic detergent used widely for cleaning materials. Allergic contact dermatitis due to AH has been reported in workers directly exposed to it, such as hospital personnel, a food industry worker and a swimming instructor. Regarding dermatitis due to AH remaining on sterilized material, only 1 case of a deep-sea diver wearing a sterilized wet suit was previously reported (1). Therefore, this category of AH dermatitis seems very rare.

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Baboon syndrome due to pseudoephedrine

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Key words: baboon syndrome; cutaneous adverse drug reactions; positive patch test; pseudoephedrine; sympathomimetic drugs.

Andersen et al. (1) first described the baboon syndrome in 1984. Pseudoephedrine may produce a non-pigmenting fixed drug eruption, its most frequent cutaneous adverse reaction, as well as a pustular eruption, an eczematous eruption, a generalized red itchy dermatitis, a generalized erythematous rash with facial angioedema, a scarlatiniform rash and, reported only once before, a baboon syndrome (2).

Case Report

A 20-year-old woman, with no history of atopy or allergy, was treated with Atiramin[®] tablets (azatadine 1 mg and pseudoephedrine 120 mg) (Laboratory Juste, Madrid, Spain) for a cold. 3 h after ingestion of the 2nd tablet, she developed itching and pain in the gluteal area, with a maculopapular rash on the posterior thighs, buttocks and forearms. The medication was discontinued, and the skin lesions completely resolved in 2 days. 3 months later, an identical sequence of events occurred after 1 dose of Iniston[®] syrup (triprolidine 1.25 mg and pseudo-

ephedrine 30 mg) (Laboratory Pfizer, Barcelona, Spain).

6 months later, prick tests with Atiramin[®], Iniston[®] and pseudoephedrine were found to be negative. The patient was patch tested with Atiramin[®] (1% pet.), Iniston[®] (1% pet.) and pseudoephedrine (1% pet.), with readings taken at days 2 and 4, on both normal and previously affected skin. Patch tests with Iniston[®] were positive: on normal skin and on lesional skin. Patch tests with Atiramin[®] and pseudoephedrine were both negative. Patch tests with Iniston[®] in 5 healthy controls were all negative. A skin biopsy from the positive patch test with Iniston[®] showed hyperkeratosis, dermal fibrosis and a lymphocytic infiltrate.

To investigate possible cross-reactivity among catecholamines, we then performed patch tests with ephedrine (1% pet.), salbutamol (5 mg/ml aq.), terbutaline (5 mg/ml aq.) and epinephrine (1% pet.), again on normal and lesional skin, with entirely negative results. Single blind oral challenges with salbutamol and terbutaline were negative, as also was subcutaneous epinephrine.

Discussion

Baboon syndrome has been previously described from mercury (1, 3, 4), nickel (1), intravenous human immunoglobulins (5) and various antibiotics (1, 6, 7). In spite of its pathognomonic localization to the buttocks and major flexures, its cause has still not been elucidated, though perhaps skin occlusion or sweating might be factors. Patch tests are considered the best diagnostic procedure for allergen identification. Lesions show non-specific histopathological features of dermatitis (6).

Sanchez et al. (2) described a woman with baboon syndrome from taking Logradin[®] (loratadine and pseudoephedrine). Patch tests with pseudoephedrine and ephedrine were both positive. In our patient, patch testing with Iniston[®] was positive but negative with pseudoephedrine. This apparent contradiction could be explained by technical problems when preparing the patch tests: Iniston[®] is a syrup prepared in ethanol, while pseudoephedrine comes in small granules that were very difficult to disperse.

In spite of the negative patch test with ephedrine, we still recommended

that the patient avoid its use. Pseudoephedrine and ephedrine are both based on a phenylpropanolamine skeleton, the only difference between them being the configuration of the asymmetric carbon borne by the hydroxyl group, which is *S* in the former and *R* in the latter (8).

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Coccygeal pad

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Fig. 1. An elevated nodule in the coccygeal area.

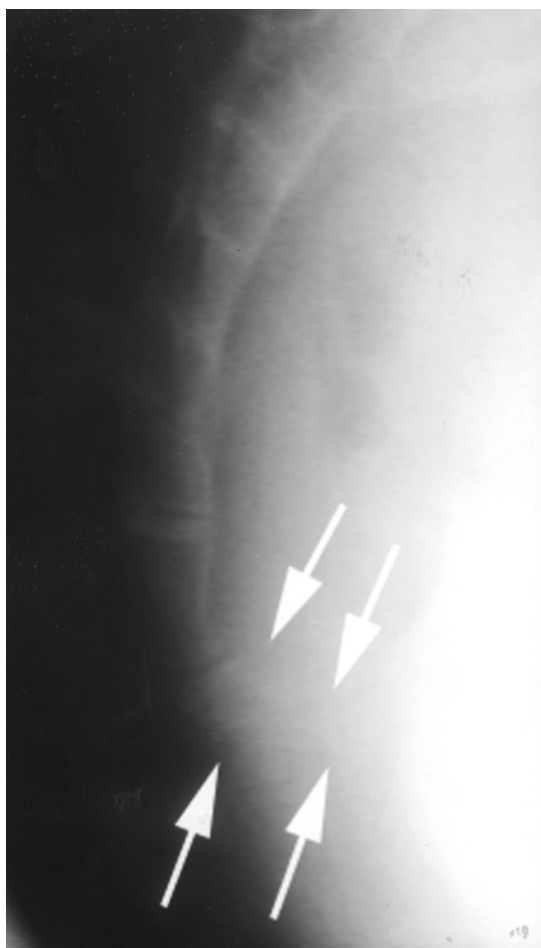


Fig. 2. X-ray showing anterior subluxation of the coccyx.

Key words: bicycle saddle; coccygeal pad; isolated collagenoma; tylosis-like eruption.

Case Reports

Case no. 1

A 16-year-old Japanese boy presented with an asymptomatic nodule in the centre of the coccygeal area. It had appeared 3 years earlier, after starting to ride a bicycle to school for 1 h a day. The nodule was 45×25 mm in diameter, slightly erythematous and sclerotic (Fig. 1). Skin biopsy showed mild parakeratosis and marked fibrosis in the dermis. X-ray of the pelvis showed anterior subluxation of the coccyx (Fig. 2). The posterior extruding point of the coccygeal joint seemed to be just under the nodule when the patient was in a seated position. The nodule was surgically excised, together with shaving of the underlying angular bony structure.

Case no. 2

A 28-year-old Japanese man presented with a 6-month history of an asymptomatic nodule on the left side of the gluteal cleft. The nodule was 30×16 mm in diameter, slightly erythematous and sclerotic (Fig. 3). We recommended surgical excision, but the patient refused.

Both the cases were diagnosed as coccygeal pad.

Discussion

In the English dermatological literature, coccygeal pad has been reported only once in 1995 as acquired coccygeal nodule (1). This condition is not rare in Japan, where it is reported also as tylosis-like eruption or isolated collagenoma (2, 3). The condition is an acquired nodule on the sacrococcygeal area and is frequently related to bicycle riding (1). Histologically, the nodule is characterized by marked dermal fibrosis, combined with mild hyperkeratosis and acanthosis.

In most of the reported cases, anterior subluxation of the coccyx was noted, as in Case no. 1, which is infrequent in the general Japanese population (4). The pathomechanism of the nodule probably involves the affected dermis being sandwiched between the extruding point of the



Fig. 3. An elevated nodule in the gluteal cleft.

coccyx and the saddle of the bicycle, repeated pressure with friction subsequently causing dermal fibrosis. The clinicopathological features of the nodule make it similar to true knuckle pad (2, 5), keyboard wrist pad (6) and pachydermodactyly (7, 8). In this context, we diagnosed these cases as coccygeal pad (9). Although coccygeal pad is not described in standard dermatology textbooks, it appears to be a distinct clinical entity.

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Red tattoo reactions

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Key words: hypersensitivity; laser ablation; red dye; tattoo.

Case Report

A 38-year-old man developed persistent itching and swelling within red regions of professional tattoos. 2 large tattoos covering the lateral aspects of his right upper arm and left forearm showed elevation, erythema and scaling confined to the red areas. Laser ablation of the tattoo was accomplished by treatment of the involved area with a CO₂ laser in continuous mode with 20 W of power utilizing a 2-mm spot size, resulting in a power density of 500 W/cm². 6 passes were employed, wiping away the char before each pass. 50% urea in Aquaphor ointment (60 g of Urea USP mixed with 60 g of Aquaphor ointment) (Aquaphor-Beiersdorf, Inc., Wilton, CT, USA/Urea-Mallinckrodt Baker Inc, Paris, KY, USA) was applied to the treated area under a dressing for 1 week. This successfully ablated the red portion of the tattoos. 6 months later, the patient reported that a red dye had leached from a wet T-shirt, causing red staining of his trunk and arms. The skin in the areas of his tattoos became inflamed within 1 h, while other areas were unaffected. Patch testing with neat samples of the 2 red tattoo colours, Patchy Red 904A and Crimson Red, on normal skin of the back and on tattooed skin on the patient's right arm showed a ++ reaction to Patchy Red 904A at both sites at day 2. Crimson Red was negative. Small pieces of the moist red T-shirt material were then applied, eliciting a ++ reaction at a site overlying the tattoo but no reaction on normal skin of the back.

Discussion

Complications of tattooing include infection, hypersensitivity, inoculation of warts and scarring. Hypersensitivity is the most common and includes eczematous, granulomatous, pseudolymphomatous and lichenoid reactions (1). A potential risk of laser ablation of tattoos is the initiation of a localized or generalized immediate or delayed-type allergic reaction to pigment (2).

Hypersensitivity (presumed type IV) to components of the red dye used in tattoos is well documented, and the most frequent cause has

been mercuric sulfide (cinnabar and vermilion) (3). Other red tattoo pigments are scarlet lake, carmine, cochinnilla and cadmium red (4). Allergies to other metallic salts include allergy to cobalt blue, chrome green and cadmium yellow. Patch testing with the suspected pigment is often not performed, while some patients have been tested with the putative chemical allergen such as mercury. A recent study identified traces of nickel in a red tattoo pigment, and the patient was patch test positive to both the pigment and nickel (1). Newer, mainly synthetic, organic dyes and inorganic fillers, primarily titanium dioxide, have now replaced the traditional dyes (5).

Patch testing with tattoo pigments may be inconclusive. Of 4 patients with granulomatous reactions in the red portions of their tattoos, only 1 had a positive patch test to mercury. The authors postulated that the 3 patch-test-negative patients would have reacted to intracutaneous challenge (3). In our patient, the positive response of the red shirt dye on the previously inflamed skin of the tattoo, but not on normal skin of the back, is somewhat analogous to patch-test responses described in fixed drug eruptions (6).

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Contact urticaria syndrome from occupational triphenyl phosphite exposure

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Key words: contact urticaria syndrome; occupational; open testing technique; organophosphorus compounds; plastics; triphenyl phosphite.

Case Report

A 38-year-old employee of a plastic polymer company developed an urticarial eruption in June 2002. The face, forearms, knees and feet were the sites of predilection of a symmetrical, moderately itchy, urticarial rash, which resolved in 2 weeks with systemic corticosteroid treatment. During this period, he had also stopped working. 2 days after his subsequent return to work, he again developed urticaria, but, on this occasion, the itch was more severe and the cutaneous lesions more diffuse: the trunk and the legs were also involved, with associated malaise and mild dyspnoea. There was no personal or family history of atopy.

Open tests (OTs) were first performed with the contact sensitizers identifiable in the patient's work environment: epoxy resin, cresyl glycidyl ether, hexanediol diglycidyl ether and tri methylolpropane triacrylate. These were all negative. The patient recalled that in March 2002, 3 months before the first urticarial episode, the factory had introduced triphenyl phosphite (TPP) as a polymer stabilizer, and he acknowledged occasional contact with this compound. Consequently, we performed OT with TPP (1% pet.) on his lower back. 1 h after OT was started, an itchy, persistent urticarial reaction appeared at the TPP application site. The patient was briefly treated with

oral antihistamine and redeployed away from potential sources of TPP. When last seen, 1 month after the first episode, he was well and denied further urticarial and dyspnoeic episodes.

Discussion

TPP ($C_{18}H_{15}O_3P$) is a liquid triaryl phosphite, soluble in most common aprotic organic solvents, insoluble in water and used as a stabilizer in many types of polymers (adhesives, styrenics, engineering thermoplastics, polyesters, polyolefins, polyurethanes, coatings, epoxies and polyvinyl chloride). In this case of TPP-related contact urticaria syndrome (CUS), an immunological pathway is probable, consisting of a type I allergic reaction, mediated by allergen-specific immunoglobulin in a previously TPP-sensitized individual. According to recently published criteria for CUS (1), (i) the reaction occurred after previous exposures, (ii) not one of the other workers employed in the same factory complained of urticaria or allergic reactions and (iii) further exposure to TPP worsened the clinical manifestations. Unfortunately, in our case, a passive transfer test was not performed, because the patient was positive for hepatitis C virus.

To our knowledge, this is the first report of CUS due to TPP. To date, only one case of occupational allergic contact dermatitis from TPP has been reported (2). The International Chemical Safety Cards simply report TPP as an irritant; consequently, it is tempting to assume that, due to the wide field of application of TPP in polymer factories, a number of further TPP-mediated allergic reactions, including TPP-related CUS, may have remained undiagnosed.

Lastly, we emphasize the role of OT as a helpful allergological procedure for CUS diagnosis, as already shown in previous papers (3, 4): its low invasivity minimizes the risk of systemic toxicity when hazardous chemical compounds are used, and it avoids potentially severe extracutaneous allergic reactions, such as are typical of CUS of immunological type (1).

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Palpebral eczema due to contact allergy to henna used as a hair dye

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Key words: contact allergy; hair dye; henna; lawsone.

Henna is a greenish powder made from the leaves of *Lawsonia inermis* (family Lythraceae), which is traditionally used in Islamic and Hindu cultures as a hair

colouring and as a dye for decorating the nails or making temporary skin tattoos (1, 2).

Case Report

A 50-year-old woman presented after 3 acute episodes of palpebral eczema in the last few months. She had been using henna to dye her hair for many years. Patch tests were carried out with the GEIDC standard series, a hairdressing series (Chemotechnique, Malmö, Sweden), her own cosmetic products, pure powdered henna 10% pet. (2) and lawsone 5% pet. (Marti-Tor, Barcelona, Spain) (3). Positive reactions (++) were seen at D2 and D4 to henna 10% pet. and lawsone 5% pet. These 2 substances were patch tested in 20 control patients, without any positive reactions. Her palpebral eczema was cured when she stopped using henna.

Discussion

Henna is a vegetable colouring that may be used singly or in combination with other colouring agents, such as *para*-phenylenediamine (PPD), oil of lemon or beet juice, which produce more intense colouration as well as reduce the fixation time. Its active component is lawsone, a naphthoquinone (2-hydroxy-1,4-naphthoquinone) (4). This vegetable dye rarely causes contact dermatitis, and the majority of cases are associated with the application of temporary skin tattoos, many being due to colouring agents mixed with henna, such as PPD, rather than to pure henna itself (1, 5).

Although its use as a hair dye or addition to other hair products (shampoos) is becoming more and more widespread, as far as we know, only 1 case of palpebral eczema due to henna, with a positive patch test to this substance, has been previously reported in a user of this type of hair dye (1).

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