

CONTACT POINTS

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Oral lichen planus and sensitization to copper sulfate

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Key words: copper; dental prosthesis; oral lichen planus.

The lesions of oral lichen planus and other lichenoid conditions often present a diagnostic dilemma. Lesions which are clinically and histologically indistinguishable from oral lichen planus may be caused by systemic medication, disease or local factors such as metallic restorative materials.

Case Report

A 56-year-old woman presented with pain in the left buccal mucosa for the past 5 years. She showed us the report of a biopsy, done in 1998 at another hospital, with the histological diagnosis of lichen planus. She had been treated with triamcinolone acetonide in Orabase® for 3 years with no improvement. For 25 years she had had a metal dental prosthesis. The patient told us that she had had the same problem with the mucosa of the right buccal muscle, but that this had resolved when an adjacent dental prosthesis had been removed. This prosthesis was the same as the one she still had on the left and both had been inserted at the same time. On physical examination there was a whitish reticulated area on the mucous membrane of the left buccal mucosa adjacent to a metal prosthesis, and depapillated areas on the left side of the tongue. There were no lesions outside the mouth.

She was patch tested with the Spanish (GEIDC) standard and dental screening series (Chemotechnique®, Malmö, Sweden). The only positive reaction was to copper sulfate 2%

pet. (++). Her prosthesis contained copper. We, therefore, recommended that it should be changed, after which there was almost immediate relief of her symptoms and, 6 months later, her lesions had much improved.

Discussion

Allergy to metals in dental prostheses may present as lichenoid lesions in the adjacent oral mucosa. Diffuse lesions of lichen planus are rarely produced and association with cutaneous lichen planus is even rarer. Mercury is the metal most commonly associated with such lesions, although copper has also been reported in some cases (4, 5). It is believed that copper only rarely causes allergic contact dermatitis and has a low sensitizing potential, unlike other common metals such as nickel, cobalt, palladium and chromium (6, 7). The clinical relevance of such positive results often remains in doubt and usually they are claimed to be irritant and non-specific, especially in cases in which there is already coexisting sensitization to other metals (8). Nevertheless, in dentistry, cases of orodynia or oral lichen planus (8) have been reported in association with contact allergy to copper sulfate (6–8).

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Frictional dermatitis due to paper tissues

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Key words: atopy; friction; paper tissues; rubbing.

Case Report

A 26-year-old woman had noticed itchy erythema in the periorbital and perioral areas for around 1 year

before presentation. She used contact lenses and applied eye drops. In spite of a past history of atopic dermatitis during childhood, she now showed only xerosis on the limbs. Physical examination showed itchy erythema on the upper eyelids and at the angles of the lips.

As we suspected contact dermatitis due to some contactant such as the eye drops, cosmetics and paper tissues that she used, we patch tested her with these as is, as well as with the European standard series. However, all these tests were negative at D2 and D3. Although we also scratch-patch tested the eye drops as is, the test remained negative. After applying her contact lens and when finishing her meals, she habitually and thoroughly rubbed the upper eyelids and the angles of the lips with paper tissues, respectively. Therefore, following our suggestion, she ceased to rub her skin in this way. Following this, the eruptions immediately decreased and 1 week later completely disappeared. From these findings, we diagnosed her as having a frictional dermatitis from rubbing her skin with paper tissues.

Discussion

It was reported previously that repeated friction, such as that from a shower jet, could induce discoid eczema in a patient with an endogenous eczematous tendency (1). Moreover, we have reported that discoid eczema on the leg of a baseball pitcher with atopic background was caused by pitching friction rather than by any specific contactant (2). The case reported here also suggests that the mechanical irritation, such as rubbing the skin with paper tissues, is a potential pathogenic cause of eczema, especially for persons with an atopic history.

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Contact dermatitis due to pirfenoxone

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Key words: antioxidants; eye drops; medicaments; ophthalmics; pirfenoxone.

Case Report

A 77-year-old woman had begun applying Catalin K[®] eye drops (Senju Pharmaceutical Co., Ltd,

Osaka, Japan) (0.005% pirfenoxone) 3 months before her first visit. 1 month later, itchy erythema appeared around both eyes. We suspected contact dermatitis from Catalin K[®] and therefore patch tested her with the eye drops (as is) and their ingredients. She showed positive reaction to Catalin K[®] (as is) and 0.005 and 1% aq. of pirfenoxone (Table 1). After withdrawal of the drug, the eruption gradually disappeared.

Discussion

Pirfenoxone (Fig. 1), the main active component of Catalin K[®] eye drops, has long been used in Japan for the treatment of cataract (1). It has been reported to have antioxidant effects, including protection against lipid peroxidation (2). A search of the literature found only 1 previous report of contact dermatitis due to pirfenoxone (3). Therefore, the incidence of contact dermatitis from pirfenoxone would seem to be low. As antioxidants such as *N*-acetylcysteine have been reported to suppress hapten-induced contact hypersensitivity (4), pirfenoxone may exert a similar effect.

Table 1. Patch test results (ingredients of Catalin K[®] eye drops)

Catalin K [®]	As is	–	+
Pirfenoxone	1% aq.	?+	+
Pirfenoxone	0.005% aq.	?+	+
Aminoethylsulfonic acid	20% pet.	–	–
Boric acid	20% pet.	–	–
Sodium borate	10% pet.	–	–
ε-aminocaproic acid	10% aq.	–	–
<i>p</i> -oxymethyl benzoic acid	3% pet.	–	–
Chlorobutanol	20% pet.	–	–
Potassium chloride	0.2% aq.	++	–
Distilled water	As is	++	–
Pet.	As is	–	–

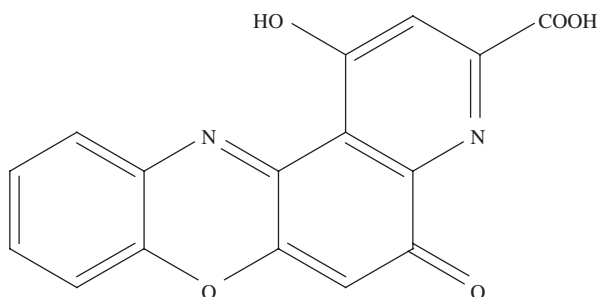


Fig. 1. Chemical structure of pirfenoxone 1-hydroxy-5-oxo-5H-pyrido [3,2-a] phenoxazine-3-carboxylic acid: C₁₆H₈N₂O₅.

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Allergic contact dermatitis from a hydrogel dressing (Intrasite[®] Gel) in a patient with scleroderma

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Key words: allergic contact dermatitis;
hydrogel dressing; Intrasite[®] Gel;
medicaments; propylene glycol;
scleroderma.

Case Report

A 34-year-old Korean male was admitted to our dermatology department with a necrotic ulcer on his right shin. He had had hardening and discoloration on both legs and arms for 12 years, and skin biopsy had showed

scleroderma. 6 years before admission, a small necrotic ulcer had developed on the right shin and had enlarged gradually such that it had been treated with Intrasite[®] Gel (Smith & Nephew Healthcare Ltd, Hull, UK), mupirocin ointment and OpSite[®] (Smith & Nephew Healthcare Ltd) film daily since 1 year before admission. 1 month before admission, however, the ulcer had worsened, with necrosis, discharge and rapid enlargement and had also developed pain and itching. On examination, a 10 × 30 cm-sized necrotic ulcer with erythematous margins was noted on the right shin (Fig. 1).

He was patch tested with mupirocin ointment, Intrasite[®] Gel and OpSite[®] film (as is), and readings were made at D2 and D4, according to the guidelines of the International Contact Dermatitis Research Group. The results were positive (++) to Intrasite[®] Gel and negative to mupirocin ointment and OpSite[®] film.

We treated the patient with systemic and topical corticosteroid after a diagnosis of allergic contact dermatitis from Intrasite[®] Gel. 3 weeks later, we retested him with propylene glycol (5%, 10% and 20% in pet.), a major ingredient of Intrasite[®] Gel, and he

showed positive (+) results at D4 with propylene glycol at 10% and 20%. He was referred to the plastic surgery department and underwent debridement of necrotic tissue.

Discussion

Hydrogels consist of hydrophilic polymers that are commonly hydrated almost to saturation. They are generally highly biocompatible and are used in the dressings of many different types of wounds, including leg ulcers, pressure sores and surgical wounds. They are of particular value in the treatment of dry, sloughy or necrotic wounds, promoting rapid debridement by facilitating rehydration and autolysis of dead tissue.

Of more than 10 different brands of hydrogel dressings commercially available today, Intrasite[®] Gel is an amorphous hydrogel which contains carboxymethylcellulose (NaCMC), propylene glycol and water (1). It is commonly used in patients with chronic venous leg ulcers because it is non-adherent, does not harm viable tissue or the skin surrounding the wound and enhances granulation and re-epithelialization (2, 3).



Fig. 1. 10 × 30 cm-sized necrotic ulceration with erythematous margins on the right shin.

Allergic contact dermatitis from Intralite[®] Gel has rarely been reported even though it is widely used in patients with venous leg ulcers. Recently, Tavadia et al. (3) found positive patch tests to hydrogels in 29 of 200 patients with leg ulcers, 19 (9.5%) of whom were positive to Intralite[®] Gel. Of these, 1 patient was patch test positive to 5% propylene glycol and 2 patients to 10% propylene glycol.

Propylene glycol (1,2-propanediol) is an emulsifying agent and a commonly used vehicle for topical preparations, especially for drugs unstable or insoluble in water. Within the past decades, it has increasingly been used in topical therapeutics and personal hygiene products. Although short- and long-term toxicologic studies indicate that it has low toxicity when used as a solvent in pharmaceuticals, its tendency to induce irritant or allergic skin reactions in some patients is well documented.

The North American Contact Dermatitis Group has reported a rate of positive patch tests to 10% propylene glycol of between 1% and 2% through the 1980s and early 1990s (4, 5). There have been many documented cases of allergic contact dermatitis from propylene glycol in antibiotic ointments, calcipotriene ointment, minoxidil solution, ECG electrode gel and Zovirax cream (6–10).

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Contact urticaria syndrome from occupational benzonitrile exposure

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Key words: anaphylaxis; benzonitrile; contact urticaria syndrome; occupational irritant; P-K test.

Benzonitrile is a chemical compound with extensive usage worldwide. It is also known as cyanobenzene, benzenenitrile, phenyl cyanide and benzoic acid nitrile (1). According to the International Chemical Safety Card, its packing and storage should be tightly closed and kept in a well-ventilated room. Skin irritation, eye irritation, respiratory irritation and gastrointestinal complaints due to benzonitrile have previously been reported. Benzonitrile is a well-known occupational skin irritant, but allergic reaction to it has not been reported previously.

Case Report

A 40-year-old woman presented to our clinic with pruritic wheals and

urticaria-like rash on her entire body. For the last 8 days, she had been rearranging some poorly packed benzonitrile at her workplace. She had been experiencing dizziness, malaise and dyspnoea whenever she handled the benzonitrile. On the morning before coming to our clinic, she started developing an itchy erythematous urticarial rash on her face, neck and forearms a few minutes after contact with benzonitrile. Her occupational physician treated her with intravenous 10% calcium gluconate and oral antihistamine and vitamin C. The cutaneous lesions showed no improvement and gradually spread to the trunk. At midnight, she started suffering from abdominal pain with bowel movement accompanied with dizziness. She fainted when trying to get out of bed. She experienced nausea, sweating, mild dyspnoea and hypotension with tachycardia. She was then transferred to our hospital for further management. Clinical examination showed erythematous wheals and urticarial rash, accompanied by small erythematous papules, diffusely scattered over her entire body. Her eyelids and ears were also involved.

The patient was without evidence of systemic disease, and she denied a prior personal or family history of urticaria or any other skin disease. She was taking no medication before the eruption.

On admission, her blood pressure was found to be normal and routine laboratory tests (blood, urine and stool) were within the normal range. Serum total immunoglobulin E (IgE) was normal. Serum specific IgE to common food and inhalant allergens detected by *in vitro* immunoassay with a test kit (American ASI Company, MO, USA) were negative. Blood HAV-IgM, hepatitis B surface antigen (HBsAg), hepatitis Be antigen (HBeAg), ATHBE, ATHBC and anti-hepatitis C virus (HCV) were negative.

Contact urticaria syndrome (CUS) from occupational benzonitrile exposure was considered. She was treated with oral loratadine, calcium gluconate and vitamin C, combined with topical antipruritics. The wheals disappeared gradually within 24 h but erythema and papules persisted for over 1 week.

She has since avoided benzonitrile exposure and, at 2-year follow-up, she has not had any recurrence of similar symptoms or anaphylaxis.

Table 1. Results of P-K test

Benzonitrile concentration	Time interval after injection		
	30 min	6 h	24 h
0 (normal saline)	No reaction	No reaction	No reaction
0.01%	No reaction	No reaction	No reaction
0.1%	No reaction	No reaction	No reaction
10%	Wheal of Φ 1 cm	Wheal of Φ 1 cm	Nodule of Φ 0.8 cm

Prausnitz-Küstner Test

Prausnitz-Küstner (P-K) test was performed as further proof of the involvement of IgE in this reaction, using a rabbit as the recipient (2). On admission, 8 ml venous blood was collected from the patient and serum derived accordingly. 0.05 ml of the patient's serum was injected intradermally in 4 different areas on the back of a rabbit's skin and marked with black marker. After 24 h, 0.05 ml of 0.1%, 0.01% and 10% benzonitrile in normal saline, as well as normal saline only, were injected, respectively, in those 4 specific areas. Corresponding areas of the back skin injected with benzonitrile only, at same concentrations (0.1%, 0.01% and 10%), as well as normal saline, served as control. The results were observed at 30 min, 6 h and 24 h after intradermal injection (Table 1). No reaction could be found on the control site.

Discussion

Benzonitrile (C_7H_5N) is a colourless transparent liquid, usually used as an intermediate for rubber chemicals, solvents and specially lacquers.

CUS refers to a wheal-and-flare response with systemic reactions occurring on the application of chemicals to intact skin (3). To our knowledge, there have been no previously reported cases of CUS from benzonitrile exposure. While other colleagues who worked with our patient in the same environment also had similar symptoms like dizziness, malaise dyspnoea, etc., no one else developed an urticarial rash.

P-K reaction is a specific type of passive cutaneous anaphylaxis that can be used to assay IgE antibodies or certain heterologous IgG antibodies. This test detects antigen-specific IgE antibodies, because IgG anaphylactic antibodies become detached from mast cells within 24 h (2).

Based on the above, a diagnosis of CUS from occupational benzonitrile exposure was established.

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Is tea tree oil an important contact allergen?

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Key words: contact allergy; cosmetics; prospective patch testing; tea tree oil.

Tea tree oil is the essential oil distilled from the leaves of *Melaleuca alterni-*

folia. For generations, the Australian aboriginal population have made use of the aseptic properties of the oil. In recent years, tea tree oil has had more widespread use in the Europe and North America and is now a component of many cosmetic preparations. Sporadic cases of allergic contact dermatitis caused by tea tree oil have been described (1-6). The purpose of the current prospective study was to determine the frequency of positive patch tests to tea tree oil in a group of Danish patients undergoing routine patch testing.

Patients and Methods

From 15 September 2001-18 January 2002, 217 consecutive patients, 140 women and 77 men all of whom were 18 years of age or older, were patch tested with the European standard series in a private practice of dermatology. The patients were also tested with the following 4 substances: (1) 10% tea tree oil in pet., (2) 2% lemon myrtle oil in pet., (3) 2% lavender oil in pet. and (4) a commercially available lotion, containing 5% tea tree oil. The tea tree oil in this lotion was identical to the oil in pet. The tea tree oil used in this study met the Australian standard that sets minimum and maximum concentrations for a number of potential sensitizers, including 1,8-cineol, d-limonene, aromadendrene, α -terpinene, terpinolene and α -pinene (7).

From 1 June 2003-15 August 2003, 160 consecutive patients, 117 women and 43 men all of whom were 18 years of age or older, were patch tested with the European standard series in the same private practice of dermatology as above. The patients were also tested with 4 different newly developed lotions, each containing 5% tea tree oil. The new formulations were made because of many irritant patch test reactions to the original lotion. The tea tree oil in the 4 different lotions was identical to the oil used in the 1st study.

All test materials were applied on Finn Chambers[®] and fixed with Scanpor[®] tape. The patch tests were applied on the upper back, and the sites were marked. The patch test materials were removed by the patients after 2 days, and the test sites were read by a dermatologist after 3 days. The test results were graded according to the criteria of

the International Contact Dermatitis Group as +, ++, +++, irritant or negative. Only those reactions that were + or stronger were considered allergic reactions. The patients were instructed to return for additional readings if late reactions occurred.

The study was approved by the regional medical ethics committee.

Results

In the 1st study, 50 of 140 women and 15 of 77 men had 1 or more positive patch tests to substances in the European standard series and to the additional test materials. The most commonly positive patch tests were to nickel (23 women and 2 men), fragrance mix (8 women and 3 men), cobalt (6 women and 1 man) and Myroxylon pereirae resin (4 women and 3 men).

1 woman (0.5%) had a ++ reaction to 10% tea tree oil in pet. and, simultaneously, a ++ reaction to the lotion containing 5% tea tree oil. She also had a +++ reaction to colophonium. When patch tested on a previous occasion, she had reacted to fragrance mix. The reaction to tea tree oil in the current study was relevant. She had experienced dermatitis following the application of cosmetic preparations containing tea tree oil.

1 woman and 1 man (0.9%) had relevant positive patch tests to lavender oil. The man also reacted to fragrance mix. None of the patients had reactions to lemon myrtle oil.

3 patients (1.4%) had non-relevant, weakly positive reactions to the lotion containing 5% tea tree oil. 1 of the 3 also had positive reactions to several cosmetic preparations. 44 other patients (20.3%) had weak, irritant reactions to the lotion.

In the 2nd study, comprising 160 patients, there were no allergic reactions to the 4 different lotions containing 5% tea tree oil. In 5 (3.1%) patients, irritant reactions were seen. One of these patients had irritant reactions to all 4 test lotions and, in addition, to all the substances in the European standard series. 3 patients had weak irritant reactions to 3 of the lotions containing tea tree oil, 1, in addition, having an irritant reaction to epoxy resin. The last patient had weak irritant reactions to all 4 test lotions.

Discussion

In the 1st study, we found only 1 person with a relevant positive patch test to tea tree oil among the 217 persons tested. 1 other patient had a weakly positive reaction to a lotion containing 5% tea tree oil and positive patch tests to several cosmetic preparations. She did not remember having used products containing tea tree oil, but the reaction to the tea tree oil lotion could have been relevant.

2 other patients who had not used products containing tea tree oil had weakly positive patch tests to the 5% tea tree oil lotion. Because this lotion produced irritant patch test reactions in 44 of the 217 persons tested (20.3%), it is likely that the weakly positive reactions were, in fact, irritant reactions.

The 2nd study showed no allergic reactions to the 4 different newly formulated lotions containing 5% tea tree oil. Irritant reactions were seen in 5 patients, and, thus, only 3.1% irritant test reactions were seen in the 2nd study. This is probably a high estimate, because 1 patient had irritant reactions to all substances in the European standard series in addition to the lotions. Furthermore, 4 of the 5 patients had only weak irritant reactions.

In a study of 725 consecutive patients patch tested with 5%, 1% and 0.1% tea tree oil, Lisi et al. (8) found only 1 patient suspected to have had a definitely positive patch test to 5% and 1% of the oil. None of the patients reacted to 0.1% of the oil.

It has been suggested that allergic reactions to tea tree oil occur primarily from photo-oxidized products (9). Perhaps the quality of the oil in commercial products has improved in general over the past few years, thus reducing the risk of sensitization.

We conclude that, in our area, the frequency of contact sensitization to tea tree oil appears to be low.

Acknowledgement

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The spectrum of allergic contact dermatitis in the elderly

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Key words: age; allergic contact dermatitis; elderly; sensitization; sex.

Although allergic contact dermatitis in the elderly is a common health problem, with a frequency in clinical

studies ranging from 34 (1) to 64% (2), few reports deal with this subject and their results are controversial.

Therefore, we present a retrospective study of 224 elderly patients seen in the Department of Dermatology of the University of Bologna over a 2-year period (2002–2003), to identify any trend in allergic contact dermatitis among seniors, evaluating the role played by age and sex.

Patients, Materials and Methods

Over a 2-year period, from January 2002 to December 2003, 224 elderly patients (93 men, 131 women) were referred to our Department for investigation of suspected contact dermatitis. 85 gave a personal history of allergic symptoms and 23 of these reported the recent appearance of eczematous dermatitis. The mean age was 73 for men, ranging from 65 to 89 years, and 72 for women, ranging from 65 to 90 years.

All 224 patients were patch tested with the Italian (SIDAPA) standard series, supplementary series and their own cosmetics and topical medicaments. Allergens were placed in Finn Chambers[®] on Scanpor[®] tape (Epitest, Tuusula, Finland), applied to patient's upper backs and read on days 2 and 3 (when necessary to dispel doubts, additionally on day 4 and on day 7 for topical corticosteroids), according to accepted international guidelines.

To evaluate the influence of age and sex, we divided our cohort into 2 groups. According to age, the 1st

group included patients between 65 and 74 years (157) and the 2nd, patients from the age of 75 years (67); according to sex, the 1st group comprised men (93) and the 2nd women (131).

Results

Results are summarized in Tables 1 and 2. Among all 224 patch tested patients, 96 (43%) had a positive reaction and relevance was determined in 39 of these (41%). 42 patients (19%) reacted to 1 allergen, 54 patients (24%) to 2 or more allergens.

65 patients (41%) between 65 and 74 years developed a positive reaction, 28 (18%) to a single allergen and 37 (24%) to 2 or more allergens. 31 patients (46%) from 75 years showed a positive reaction, 14 (21%) to a single allergen and 17 (25%) to 2 or more allergens.

62 women (47%) had a positive reaction and 32 of these (24%) were to a single allergen, 30 (23%) to 2 or more allergens. 34 men (37%) developed a positive reaction and 10 of these (11%) were to a single allergen, 24 (26%) to 2 or more allergens.

The most common allergens were nickel sulfate (31 positive reactions), especially in women; Myroxylon pereirae resin (balsam of Peru) (21 positive reactions) and topical medicaments (19 positive reactions), with no difference between the sexes; potassium dichromate (17 positive reactions), mostly in men and fragrance mix (17 positive reactions), chiefly in women.

Discussion

It is well recognized that contact sensitization is much influenced by age and sex (3, 4): both factors are important variables for the actual exposures inducing contact allergy. With regard to age, there is the possibility of persistent historical sensitizations, i.e. to allergens that either no longer occur in the general environment or no longer clinically relevant, as for example topical medicaments. In addition, there is the cumulative lifetime exposure to ubiquitous allergens, with a presumably increasing risk of sensitization, assuming that susceptibility to contact allergy is not age dependent. Concerning sex, there are some differences due

Table 1. Clinical features

Localization	Number
Upper limbs (from axillary fold to hands)	129
Scalp, face (including eyelids and eyes) and neck	94
Lower limbs (from inguinal fold to foot)	72
Trunk	41
Generalized	36
Oral mucosa	9

Table 2. Positive allergens (all in pet. unless otherwise indicated)

Allergen (%)	Positive patient number (relevance)	Male number (93)	Female number (131)	65–74 years (157)	≥ 75 years (67)
Nickel sulfate (5%)	31 (12)	10	21	20	11
Topical medicaments	25 (13)	13	12	16	9
Myroxylon pereirae resin (25%)	21 (5)	10	11	14	7
Potassium dichromate (0.5%)	17 (7)	12	5	10	7
Fragrance mix (8%)	17 (9)	4	13	11	6
Euxyl K400 (2.5%)	13 (5)	8	5	7	6
Cobalt chloride (1%)	12 (3)	5	7	5	7
Thimerosal (0.1%)	11 (4)	3	8	9	2
Para-phenylenediamine (1%)	8 (2)	2	6	7	1
Euxyl K400 (0.5% aq.)	7 (4)	4	3	4	3
Para-tert-butylphenol-formaldehyde resin (1%)	5 (3)	2	3	4	1
MCI/MI (0.01% aq.)	4 (1)	1	3	2	2
Cosmetics	3 (3)	0	3	2	1
Other allergens	32 (14)	11	21	25	7

to occupation, clothing, personal habits, culture and exposure to the environment.

We found that the frequency of positive reactions in elderly patients was 43%, a figure intermediate between those reported by Wantke et al. (34%) (1) and Gupta et al. (64%) (2). Positive reactions were more numerous in the oldest subjects, conflicting with the opinion that cellular immunity is depressed with ageing (5, 6). Because various diseases diminish delayed hypersensitivity reactions (7), it is difficult to differentiate ageing effects from the effect of diseases associated with ageing, but our data show that anergy is uncommon in the healthy elderly and need not be considered a physiological phenomenon. Typical diseases of old people, such as stasis ulcers, might reasonably explain why contact dermatitis often involves their lower limbs and why topical medications are one of their most frequent sensitizers.

The most common allergens both in patients from 65 to 74 years and in patients from 75 years are nickel, because of its ubiquity in the environment, and Myroxylon pereirae resin, which is a fragrance marker. There are no noticeable differences in the frequency of positive reactions to particular allergens between the 2 age groups, suggesting that the specificity of cutaneous delayed hypersensitivity persists unchanged throughout the years.

There is a wide difference of opinion as to the influence of the sex of the individual on allergic contact dermatitis. Diversities in sensitization and elicitation phases are due to different exposures to allergens caused by occupation, clothing, habits and culture (8).

In agreement with previous reports (1, 4, 9, 10), we found that the most common sensitizers in elderly men and women are almost the same as those observed in younger subjects, i.e. topical medicaments and potassium dichromate for males, nickel sulfate and fragrance for females, and that the frequency of positive reactions to Myroxylon pereirae resin does not show remarkable differences between the sexes.

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Age dependence of diphenylcyclopropenone sensitization in patients with alopecia areata

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Key words: age; alopecia areata; diphenylcyclopropenone; lymphocyte transformation test.

Contact sensitization has been an accepted topical immunotherapy in the treatment of alopecia areata (1, 2). Whether the age of patients is a significant factor in the treatment results is a matter of controversy. In our study, we investigated the correlation between age of the patients and diphenylcyclopropenone contact sensitization *in vivo* and *in vitro* (3, 4).

Patients and Methods

12 patients with alopecia areata (AA) were enrolled in the study: 10 males, 2 females; age 21–64 years, mean age 36.6 years; duration of disease 1.5–12 months, average 5.3 months.

Diphenylcyclopropenone (DCP) treatment was started by sensitization of the patient with a 2.0% DCP solution in acetone. Patients were sensitized on days 1 and 2. The dose for sensitization was 1.0 µg/ml (2%) DCP. 14 days after sensitization, challenge was performed in 8 doses (500, 50, 5, 0.5, 0.05, 0.005, 0.0005 and 0.00005 µg). DCP was applied ×1 a week at a concentration which provoked an eczematous reaction.

In vivo evaluation of DCP sensitization was performed according to the skin reactions of re-exposed skin sites at 1, 2 and 3 days.

Blood was taken for lymphocyte transformation test (LTT) on 0th and 17th day of treatment, cell cultures and LTT being performed by standard methods (5–7).

Results and Discussion

In our study, age-dependent development of contact sensitization was suggested by *in vivo* tests. The smallest re-exposing dose was used to evaluate the capacity for sensitization. The relationship between the age of patients and the smallest re-exposing dose was strong but not statistically significant (Fig. 1) ($r = 0.2590$; $P = 0.4163$).

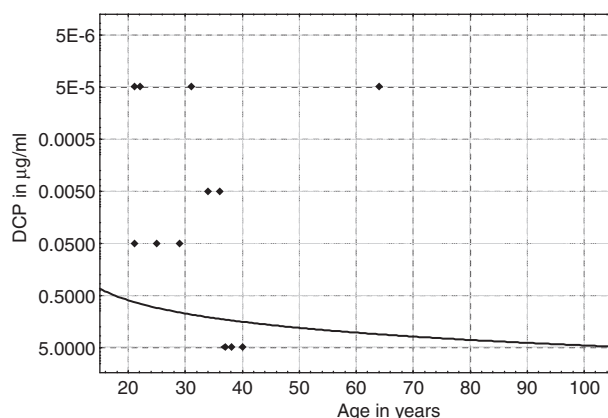


Fig. 1. Correlation of age and diphenylcyclopropenone (DCP) re-exposing doses.

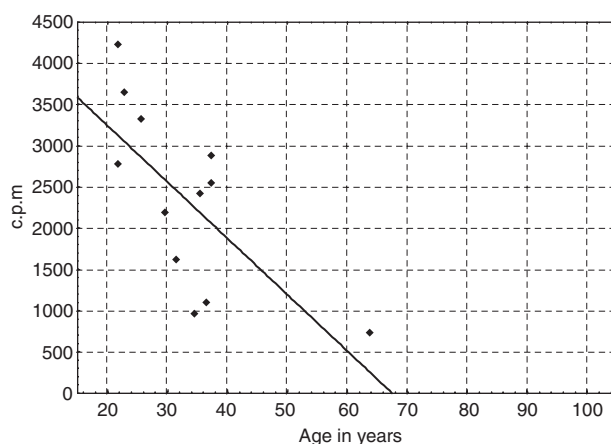


Fig. 2. Effect of phytohaemagglutinin on blastogenesis after 17 days of treatment.

However, *in vitro* LTT data showed that development of sensitization to DCP and the stimulation of blastogenesis with phytohaemagglutinin ($r = -0.7072$; $P = 0.0101$) was age dependent (Fig. 2).

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Oral piroxicam-induced dyshidrosiform dermatitis

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Key words: cutaneous adverse drug reactions; non-steroidal anti-inflammatory drugs; piroxicam; positive patch tests; systemic contact dermatitis; thimerosal.

Case Report

A 39-year-old man first presented with itchy vesicles and slight erythema on the lateral aspects of the fingers and the backs of the hands and fingers in October 1996. After applying topical corticosteroids, the eruption resolved in 2 weeks. He had previously taken oral piroxicam to treat a toothache.

In October 2002, he again developed vesicles associated with slight erythema on the lateral aspects and backs of the fingers, the backs of the hands and the palms. This time, he had received oral piroxicam for ankle pain. He said that he had had no other eruptions between 1996 and 2002.

In November 2002, after resolution of the skin lesions, the patient was patch tested on the back with the GEIDC (Spanish Contact Dermatitis Research Group) standard series, Feldene[®] gel (piroxicam 0.5%), Silvederma[®] (sulfadiazine), Orudis[®] gel (ketoprofen 2.5%), Dermisone[®] triantibiotico (bacitracin, polymyxin B and neomycin), Furacin[®] (nitrofurantoin 0.2%) and Iruxol[®] Neo (neomycin 0.35%). Positivity to thimerosal (++++) and to piroxicam (++) was demonstrated. Furthermore, Feldene[®] gel (piroxicam 0.5%) photopatch tested over the hand showed positivity (++) on both exposed and non-exposed areas.

Discussion

Many cutaneous side effects of piroxicam, a non-steroidal anti-inflammatory drug, have been described, and photoallergic eruptions are one of the more common and better known of these (1). In most patients, after

developing an allergy to thiosalicylic acid (one of the components of thimerosal), a photoallergic eruption occurs after taking piroxicam. Patch testing shows positivity to thimerosal and thiosalicylic acid, but not to piroxicam, unless it is combined with human serum albumin (2) or L-cysteine and irradiated (1). However, a photopatch test to piroxicam alone is positive.

Some reports have described dyshidrosiform dermatitis associated with photoallergic eruption in patients who had received oral piroxicam, but no one previously has reported dyshidrosiform dermatitis alone (3–6).

We think that our patient presented with a systemic contact dermatitis (not photoallergic), which manifested itself as a dyshidrosiform dermatitis, not previously described. The results of patch and photopatch tests support this theory.

In our case, either the positivity to thimerosal is coincidental, or it is of aetiopathogenic importance, as it occurs in photoallergy to piroxicam. More patients are needed to clarify this question.

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Intolerance of fondaparinux in a patient allergic to heparins

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Key words: cutaneous adverse drug reactions; delayed-type hypersensitivity; desirudin; fondaparinux; heparin; heparinoid.

The synthetic pentasaccharide fondaparinux can be well tolerated in patients with delayed-type hypersensitivity (DTH) to heparins (1, 2), but not in this case.

Case Report

A 39-year-old woman with a history of DTH to several heparins was admitted for diagnostic purposes. On 2 occasions, during the last 3 years, she had developed erythematous plaques with papulovesicles at the injection sites of various anticoagulants used, including but not limited to nadroparin (Fraxiparin[®], Sanofi-Synthelabo, Berlin, Germany) and certoparin (Mono-Embolex[®], Novartis, Nürnberg, Germany). The

patient then declined any further anticoagulation.

A comprehensive series of skin allergy tests was initiated, using undiluted original drugs. Several heparins yielded positive intracutaneous test results at day 4 after injection of 0.1 ml, given on the inner aspect of the forearm, with eczematous lesions developing at the injection sites (Table 1). In contrast, intracutaneous tests using either fondaparinux (Arixtra[®], Sanofi-Synthelabo) or tinzaparin (Innohep[®], Leo, Neu-Isenburg, Germany) remained negative. However, subsequent subcutaneous exposure tests with a single therapeutic dose resulted in the formation of eczematous lesions at the respective injection sites within 3–4 days (Table 1, Fig. 1). The sole drug included in the skin tests that also remained negative on subcutaneous exposure was desirudin (Revasc[®], 15 mg, Aventis, Bad Soden, Germany), a synthetic variant of hirudin.

Discussion

The patient here described shows DTH responses to a spectrum of heparins and other glycosaminoglycans, a constellation repeatedly reported (1, 3, 4). Recent observations suggest that the synthetic pentasaccharide fondaparinux may safely be used in such patients (1, 2). Our observation points out that careful skin tests with fondaparinux are not obsolete and should be performed in patients with DTH to heparins before using it as alternative, whenever this is feasible.

Table 1. Results of skin tests performed

Substance	Intracutaneous test		Subcutaneous challenge
	20 min	Day 4	
Unfractionated heparin Calciparin [®] , Sanofi-Synthelabo, Berlin, Germany	Negative	Positive	Not done
Nadroparin Fraxiparin [®] , Sanofi-Synthelabo	Negative	Positive	Not done
Dalteparin Fragmin P [®] , Pharmacia, Erlangen, Germany	Negative	Positive	Not done
Tinzaparin innohep [®] , Leo, Neu-Isenburg, Germany	Negative	Negative	Eczematous plaque after 3 days
Enoxaparin Clexane [®] , Aventis, Bad Soden, Germany	Positive	Positive	Not done
Certoparin Mono-Embolex [®] , Novartis, Nürnberg, Germany	Negative	Positive	Not done
Fondaparinux Arixtra [®] , Sanofi-Synthelabo	Negative	Negative	Eczematous plaque after 4 days
Danaparoid Orgaran [®] , Celltech, Essen, Germany	Negative	Positive	Not done
Desirudin Revasc [®] , Aventis	Not done	Not done	Not done



Fig. 1. Exposure to fondaparinux on the abdomen resulted in eczematous reactions at the test site within 4 days.

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**Occupational allergic
contact dermatitis
caused by padauk wood
(*Pterocarpus soyauxii*
Taub.)**

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Key words: airborne contact dermatitis;
allergic contact dermatitis; knife maker;
occupational; padauk; *Pterocarpus soyauxii*
Taub.; wood.

Dusts from tropical hardwoods can cause various skin symptoms, especially urticaria, allergic and irritant contact dermatitis. Sometimes, this is associated with inflammation of the oral mucosa and respiratory tract (1–4).

Case Report

A 40-year-old woman, with no personal history of atopy, had been employed for 7 years as a knife maker. She ground knife shanks made of alder or padauk wood. After 2 years, she developed itchy erythema of the face, eyelids, neck, abdomen and elbow flexures. In the last 3 years, the symptoms had increased in severity, with the development of papulovesicular dermatitis. The patient had to stop working with woods. She did not report any respiratory symptoms.

She was patch tested with the European standard series, hydroquinone, turpentine peroxides, thimerosal, palladium chloride, Euxyl K 400, a plants series (Chemotechnique Diagnostics, Malmö, Sweden) and with sawdusts from her own woods (alder and padauk) as is, moistened with water and at 20% in pet. Positive patch tests were observed with sawdust of padauk as is and at 20% pet. (++) reaction at D2, D4 and D7), as well as with hydroquinone (1% pet.)

(+ at D2 and D4). Patch tests with the same sawdusts were carried out in 20 controls and all were negative. Prick tests to common environmental allergens (Allergopharma, Joachim Ganzer KG, Reinbek, Germany), and dusts from alder and padauk in our patient were negative.

Discussion

Adverse reactions to tropical woods are quite frequent. There have been reports of rhinitis, conjunctivitis, bronchial wheezing and dyspnoea following contact with obeche (*Triplachiton scleroxylon*), African teak (*Chlorophora excelsa*), Western red cedar (*Thuja plicata*) and East Indian rosewood (*Dalbergia latiflora*) (1, 2, 5–7). In addition, tropical wood may cause allergic contact dermatitis, airborne contact dermatitis, urticaria and erythema multiforme, sometimes of occupational (3, 8–11).

Padauk (red African padauk) (*Pterocarpus soyauxii*) is a hardwood tree of the Leguminosae–Papilionaceae family of West African origin. Its wood is red in colour, which darkens with time. Padauk wood is also used to manufacture veneer, furniture and musical instruments.

Irritant and allergic disorders of the skin from padauk are rare. In the 1920s, Nestler observed that padauk wood from Indonesia caused painful swelling and redness of the face in men working with it. He obtained 2 different specimens called padauk wood, neither of which could be identified botanically, though one resembled *Pterocarpus indicus* (1). There have also been reports of conjunctival irritation after contact with Ceylon mahogany (*Pterocarpus santalinus*), and asthma in men working with *Pterocarpus angolensis* (1). Estlander et al. (7) reported rhinitis in a joiner after contact with Honduras mahogany wood dust, and American authors describe a case of occupational contact dermatitis due to wood of 6 exotic tree species, including padauk (4).

Our patient had allergic contact dermatitis with an airborne distribution pattern, and her lesions had a clear relationship to her work. The weak positive patch test to hydroquinone suggests a possible cross-reaction with benzoquinone, which has been isolated from the trees of the Leguminosae–Papilionaceae family (12, 13).

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Occupational contact urticaria and rhinoconjunctivitis in a veterinarian from bull terrier's seminal fluid

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Key words: contact urticaria; dog; occupational allergy; rhinoconjunctivitis; seminal fluid; veterinarian.

A 39-year-old man, who had been working as a veterinarian since 1992, had a history of sneezing, nasal obstruction, watery eyes and urticaria since 1997 after contact with bull terrier's seminal fluid. Symptoms appeared 15–30 min after contact with such seminal fluid and disappeared spontaneously after several hours. He had never suffered from asthma and eczema.

Clinical examination, as well as routine laboratory parameters, remained normal.

The total immunoglobulin E (IgE) (Uni-Cap, Pharmacia, Uppsala, Sweden) level was 102 kU/l. Prick tests (Allergopharma, Reinbek, Germany) to common allergens and to occupational allergens, such as dander of cats, dogs, rats, mice, guinea pigs, horses, rabbits and hamsters were negative. Prick testing with undiluted semen showed wheal and flare diameters of 11 and 46 mm, respectively, with negative diluent control.

Specific IgE (Uni-Cap, Pharmacia, Uppsala, Sweden) for occupational animal allergens was absent.

A specific challenge test was then performed in a veterinary clinic (the veterinarian was in contact with seminal fluid during sexual intercourse between dogs). 30 min after allergen challenge, he showed itchy blotches on his hands that persisted up till 5 h after the test. Additionally, 15 min after contact with the dog's seminal fluid clinical symptoms of

rhinoconjunctivitis appeared, and they were observed up until 6 h after the test.

An increase in either eosinophil or basophil proportion in nasal swabs was observed at 6 h after the provocation.

Comment

The diagnosis of occupational allergy was made on analysis of the patient's medical history, a positive prick test with bull terrier's seminal fluid and a positive challenge test performed at the work place. Immediate-type reactions to human seminal fluid are well documented (1–3), but this is the first description of IgE-mediated allergic disease due to occupational exposure to the seminal fluid of bull terriers in a veterinary physician.

There are no accurate data on the prevalence of occupational allergy to dog's seminal fluid, in contrast to various publications describing the presence of respiratory and skin diseases due to occupational exposure to the dander of many animals (4). In our opinion, physicians, veterinarians and others taking care of animals should be familiar with the health aspects of animal seminal fluid hypersensitivity.

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