

CONTACT POINTS

CONTACT DERMATITIS 2004; 50: 98–107

COPYRIGHT © BLACKWELL MUNKSGAARD 2004

ALL RIGHTS RESERVED

CONTRIBUTIONS TO THIS SECTION WILL NOT UNDERGO PEER REVIEW, BUT WILL BE REVIEWED BY THE EDITOR

Widespread vitiligo after erythroderma caused by photosensitivity to flutamide

Jiménez Puya Rafael, Galán Gutiérrez Manuel, Vélez Antonio and Moreno José Carlos

Department of Dermatology, University Hospital 'Reina Sofía', Córdoba, Spain

Key words: antiandrogens; cutaneous adverse drug eruptions; erythroderma; flutamide; medicaments; photosensitivity; vitiligo.

Case Report

In February 2000, a 71-year-old man was referred with a widespread exfoliative dermatitis for 2 weeks. A surgical operation on a prostatic adenocarcinoma had been carried out in 1995. In November 1999, he presented with a local recurrence of the tumour and was operated on again. Depot hormonal treatment with leuporeline acetate (7.5 mg i.m. once a month) was started. In January 2000, flutamide (250 mg oral 3 times a day) was added to the hormonal regime.

A diagnosis of toxic erythroderma was suspected because of the short time since the beginning of treatment with flutamide and the exclusion of other possible causes of exfoliative dermatitis. A skin biopsy showed a neutrophil polymorph and eosinophil inflammatory cell infiltrate surrounding blood vessels in the dermis. All treatment was stopped and prednisone (50 mg oral daily for 1 month) was administered over a period of 2 weeks. The patient recovered, but in April 2000, new lesions consisting of rounded hypopigmented macules started gradually appearing. These lesions involved particularly the sun-exposed areas of the skin: head, neck and upper limbs (Fig. 1a,b). A skin biopsy of these showed absence of melanocytes, increased number of

Langerhans' cells, epidermal vacuolization and a T-cell inflammatory infiltrate. No evidence of other auto-

immune diseases was detected. Photopatch testing with flutamide at 20% in acetone was positive and

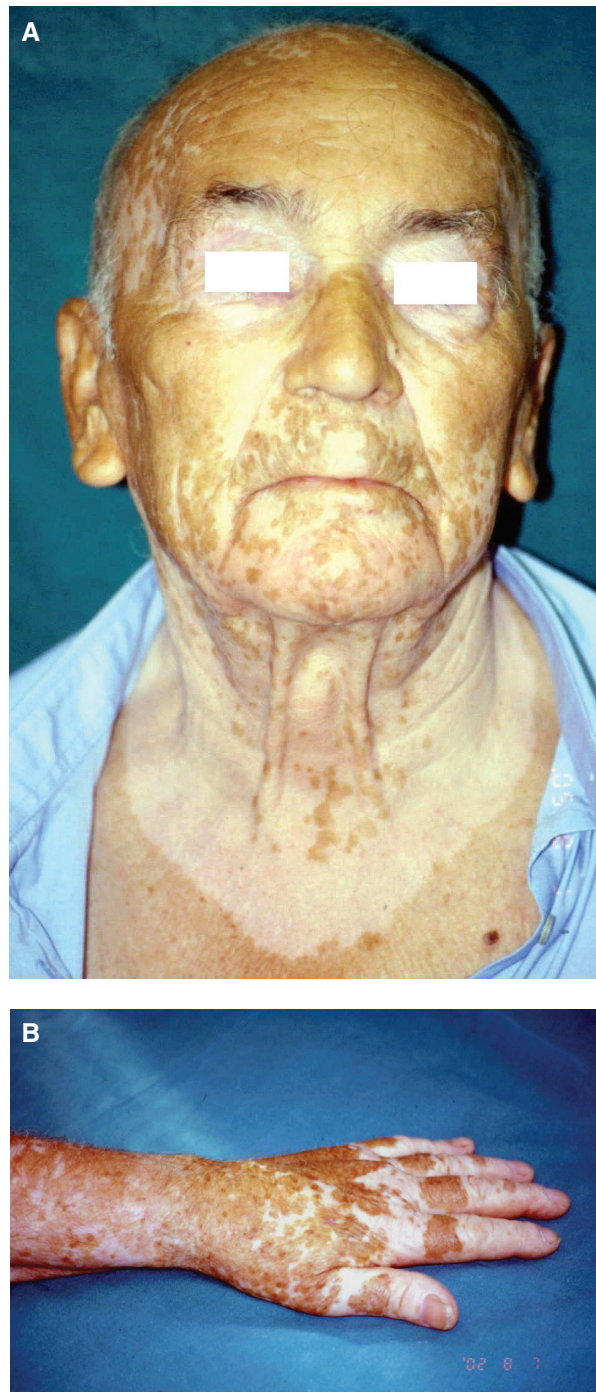


Fig. 1. Vitiligo affecting sun-exposed areas: (a) head and neck and (b) upper limbs.

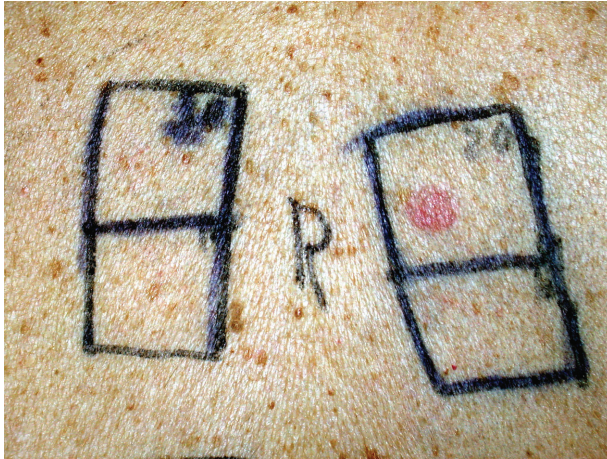


Fig. 2. Photopatch test positive for flutamide at 20% in acetone and control negative.

controls negative (Fig. 2). This test was realized with a dosage of 0.5 J/cm^2 and 1.0 J/cm^2 of ultraviolet A1 (UVA1) and UVB, respectively.

In July 2000, the patient started treatment with an extract of *Polypodium leucotomos* (240 mg oral 3 times a day for 5 months). By December 2000, we observed slow but progressive repigmentation of the vitiligo lesions. Currently, the patient is being treated by phototherapy with narrowband UVB. We use an emission spectrum of 311 nm with a treatment frequency of $\times 2$ weekly. The initial dosage was 0.3 J/cm^2 , and we increased the level 0.1 J/cm^2 weekly to a maximal dose of 3 J/cm^2 . The patient now shows almost complete repigmentation of the vitiliginous areas on the upper limbs (Fig. 3).

Discussion

Whether exfoliative dermatitis is more common in males and in older

patients has been disputed (1). It can be idiopathic but is usually caused by psoriasis, atopy, eczema, a drug reaction, lymphoma or another internal malignancy (2, 3). When caused by a drug reaction, it generally has a shorter history, because the cause can be removed and systemic or topical treatment with corticosteroids given (4). Schwartz and Trotter (5) reported in 1983 the first patient with vitiligo following exfoliative dermatitis. In their case, a prostatic adenocarcinoma was the cause of 2 uncommon markers of internal malignancy (erythroderma and vitiligo). In our patient, the beginning of treatment with flutamide seems to have been the cause of the exfoliative dermatitis.

Flutamide is a nonsteroidal anti-androgen that is indicated for advanced prostatic adenocarcinoma. In dermatology, it is also used to treat hirsutism (6, 7). The most

frequent side effects are nausea, vomiting and gynecomastia; other less common are diarrhoea, insomnia, hepatic dysfunction (8, 9), methemoglobinaemia (10), anaemia, leucopenia, decreased libido, anxiety, etc. Dermatological effects of flutamide have also been described: pruritus, ecchymosis, herpes zoster infection, lymphedema, erythema at the point of inoculation and toxic epidermal necrolysis. Some authors have reported phototoxicity from flutamide and described photosensitivity reactions in the form of erythema, ulceration, lupus-like syndrome, blistering and pseudoporphyria (11–14).

Vargas et al. (15) studied the phototoxicity of flutamide and showed a photohaemolytic effect on human erythrocytes and photo-induction of lipid peroxidation. Vilaplana et al. (16) reported a case of flutamide photosensitivity with residual vitiliginous lesions in a patient who was receiving treatment for prostatic cancer. A photopatch test with flutamide at 10% and 20% in acetone was positive. In our case, this test was positive for flutamide at 20% in acetone.

Several theories have been reported to explain the pathogenesis of vitiligo (17–24): genetic, autoimmune, self-destruction, growth factor defect, neural and convergence theory. In our patient, autoimmune disorders (thyroid disorders, diabetes mellitus and Addison's disease) and other pathologies associated with vitiligo were absent.

Vitiligo has a tendency to increase in size during the patient's lifetime. In only a few cases does spontaneous repigmentation occur, and this is usually noted in only a few macules and appears perifollicularly because of melanocyte reserves being located in the hair follicles. Njoo and Westerhof (25) provide some evidence-based guidelines for the treatment of vitiligo, their first-choice therapy for adults with widespread vitiligo being UVB treatment with an emission spectrum of 310–315 nm for 6–24 months. Our patient began to show progressive spontaneous repigmentation without any specific treatment. Nevertheless, phototherapy with UVB has now been in progress for 2 months with remarkable recovery of normal pigmentation.

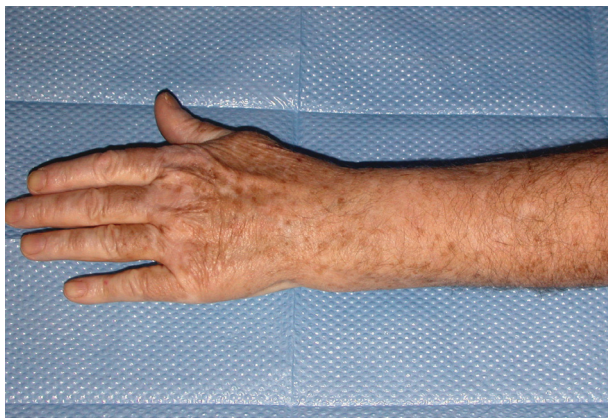


Fig. 3. The patient showing almost complete repigmentation of the upper limbs.

References

- Schallreuter K U, Lemke R, Brandt O, Schwartz R, Westhofen M, Montz R, Berger J. Vitiligo and other diseases: coexistence or true association? Hamburg study on 321 patients. *Dermatology* 1994; 188: 269–275.
- Sehgal V N, Srivastava G. Exfoliative dermatitis: a prospective study of 80 patients. *Dermatologica* 1986; 173: 278–284.
- Nicolis G D, Helwig E B. Exfoliative dermatitis: a clinicopathologic study of 135 cases. *Arch Dermatol* 1973; 108: 788–797.
- Wilson D C, Jester J D, King L E. Erythroderma and exfoliative dermatitis. *Clin Dermatol* 1993; 11: 67–72.
- Schwartz R A, Trotter M G. Generalized vitiligo after erythroderma. *Dermatologica* 1983; 167: 42–46.
- Muderris I I, Bayram F, Guven M. Treatment of hirsutism with lowest-dose flutamide (62.5 mg/day). *Gynecol Endocrinol* 2000; 14: 38–41.
- Ruiz-Rebollo M, Atienza-Sanchez R, Lopez-Garcia E. Hirsutism, flutamide and hepatotoxicity. *Gastroenterol Hepatol* 2001; 24: 218.
- Kraus I, Vitezic D, Oquic R. Flutamide-induced acute hepatitis in advanced prostate cancer patients. *Int J Clin Pharmacol Ther* 2001; 39: 395–399.
- Gomez S J R, Moreno J M, Arribas M I M, Villoria A P, De la Serna H C, Gonzalez A B. Fulminant liver failure induced by flutamide. *Rev Esp Enferm Dig* 2000; 92: 411.
- Schott A M, Vial T, Gozzo I, Chareyne S, Delmas P D. Flutamide-induced methemoglobinemia. *DICP* 1991; 25: 600–601.
- Mantoux F, Bahadoran P, Perrin C, Berman C, Lacour J P, Ortonne J P. Flutamide-induced late cutaneous pseudoporphyria. *Ann Dermatol Venereol* 1999; 126: 150–152.
- Schmutz J L, Barbaud A, Trechot P. Flutamide and pseudoporphyria. *Ann Dermatol Venereol* 1999; 126: 374.
- Reid M B, Glode L M. Flutamide induced lupus. *J Urol* 1998; 159: 2098.
- Leroy D, Domp Martin A, Szczurko C. Flutamide photosensitivity. *Photodermatol Photoimmunol Photomed* 1996; 12: 216–218.
- Vargas F, Rivas C, Mendez H, Fuentes A, Fraile G, Velasquez M. Photochemistry and phototoxicity studies of flutamide, a phototoxic anti-cancer drug. *J Photochem Photobiol B* 2000; 58: 108–114.
- Vilaplana J, Romaguera C, Azon A, Lecha M. Flutamide photosensitivity: residual vitiliginous lesions. *Contact Dermatitis* 1998; 38: 68–70.
- McBurney E I. Vitiligo: clinical picture and pathogenesis. *Arch Intern Med* 1979; 139: 1295–1297.
- Kemp E H, Waterman E A, Weetman A P. Autoimmune aspects of vitiligo. *Autoimmunity* 2001; 34: 65–77.
- Ogg G S. Detection of antigen-specific cytotoxic T lymphocytes: significance for investigative dermatology. *Clin Exp Dermatol* 2000; 25: 312–316.
- Huang C L, Nordlund J J, Boissy R. Vitiligo: a manifestation of apoptosis? *Am J Clin Dermatol* 2002; 3: 301–308.
- Le Poole C, Boissy R E. Vitiligo. *Semin Cutan Med Surg* 1997; 16: 3–14.
- Taieb A. Intrinsic and extrinsic pathomechanisms in vitiligo. *Pigment Cell Res* 2000; 13: 41–47.
- Castanet J, Ortonne J P. Pathophysiology of vitiligo. *Clin Dermatol* 1997; 15: 845–851.
- Nordlund J J. The epidemiology and genetics of vitiligo. *Clin Dermatol* 1997; 15: 875–878.
- Njoo M D, Westerhof W. Vitiligo: pathogenesis treatment. *Am J Clin Dermatol* 2001; 2: 167–181.

Address:

Dr Rafael Jiménez Puya
Department of Dermatology
University Hospital 'Reina Sofia'
Avda. Menéndez Pidal s/n
14004 Córdoba
Spain
Tel: +34 957011212
Fax: +34 957011213
e-mail: jimpuya@terra.es

Systemic contact dermatitis from nickel associated with orthodontic appliances

P. D. Pigatto¹ and G. Guzzi²

¹Department of Dermatological Sciences, University of Milan, Ospedale, Maggiore IRCCS, and ²Italian Association for Metal and Biocompatibility Research, AIRMEB, Milan, Italy

Keywords: children; dental patients; nickel; orthodontic appliances; systemic contact dermatitis.

Orthodontic patients may have systemic allergic reactions with no evidence of adverse effects in the mouth (1, 2). We describe such a case where orthodontic nickel-based appliances were associated with a severe allergy to nickel.

A 15-year-old atopic girl presented to our department with an intensely pruritic dermatitis on her face. Physical examination showed extensive erythema, oedema with microvesiculation and crusting on her ears, neck, face and scalp (Fig. 1). Similar skin lesions were present on her upper arms (flexures), hands (dorsal) and wrists. Excoriations were present due to scratching. Surprisingly, the oral and perioral tissues showed no lesions.

The onset of the cutaneous eruptions began 40 days after orthodontic appliances, including brackets, bands and wires, were applied by her dentist (Fig. 2). Initial treatment was given with topical corticosteroids. Remission occurred but, after discontinuation of corticosteroids, her skin lesions rapidly recurred. We considered a possible allergy to metal in connection with the recent fixed orthodontic treatment (3–5).

Thus, we patch tested her with a complete dental series to evaluate a possible causal relation, using a patch test series of dental allergens (Chemotechnique, Malmö, Sweden). She showed a strong allergic reaction to nickel sulfate 5% in pet. at 3 and 4 days (+++).

After removal of all orthodontic appliances, she achieved complete remission of cutaneous lesions with no scarring, within 6 months. On follow-up at 2 years, her systemic contact dermatitis had resolved completely with no relapse.

References

- Veien N K, Borchorst E, Hattel T, Laurberg G. Stomatitis or systemically-induced contact dermatitis from metal wire in orthodontic materials. *Contact Dermatitis* 1994; 30: 210–213.
- Mancuso G, Berdondini R M. Eyelid dermatitis and conjunctivitis as sole manifestations of allergy to nickel in an orthodontic appliance. *Contact Dermatitis* 2002; 46: 245.
- Lowey M N. Allergic contact dermatitis associated with the use of an Interlandi headgear in a patient with a history of atopy. *Br J Dermatol* 1993; 175: 67–72.
- Kerouso H, Kanerva L. Systemic contact dermatitis caused by nickel in a stainless steel orthodontic appliance. *Contact Dermatitis* 1997; 36: 112–113.
- de Silva B D, Doherty V R. Nickel allergy from orthodontic appliances. *Contact Dermatitis* 2000; 42: 102–103.



Fig. 1. Physical examination showed extensive erythema, oedema with microvesiculation and crusting on her ears, neck, face and scalp.

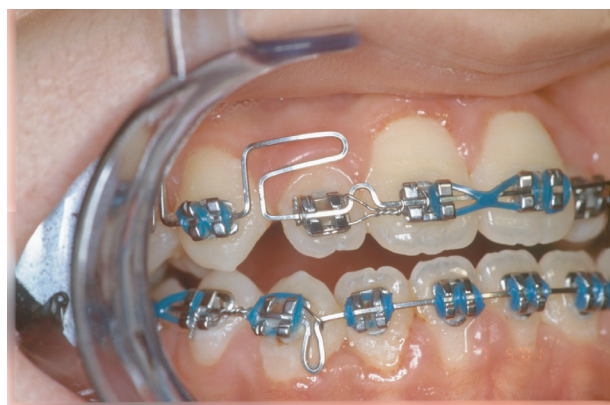


Fig. 2. The onset of the cutaneous eruptions after orthodontic appliances were applied.

Key words: allergic contact dermatitis; eggplants; gardening; hand eczema.

Case Report

A 28-year-old woman presented with a 3-month history of bilateral hand eczema. It had started as pruritic scaling and fissuring of both aspects of the hands. She had been prescribed 0.05% difluprednate ointment at another clinic, and this topical corticosteroid therapy relieved the rash. But her symptoms recurred after she stopped using this. She mentioned that she had begun home cultivation of eggplants, roses and tomatoes 6 months before her visit, and her symptoms worsened 1–2 days after tending to these plants. She had a history of possible allergic contact dermatitis from urushiol, but no past history of atopic dermatitis or hand eczema before this episode.

To detect the cause of her hand eczema, we performed 2-day closed-patch testing using Finn Chambers[®] (Epitest Ltd Oy, Tuusula, Finland) on Scanpor[®] tape (Alpharma AS, Vennesla, Norway) with chopped leaves of eggplants, roses and tomatoes, in pet. We also checked patch tests for urushiol at 0.002%, primin at 0.6% and detergent at 0.1%. Reactions were read on days 2 and 3 after application in accordance with ICDRG recommendations (1). On days 2 and 3, we saw ++ positive reactions to chopped leaves of eggplant and urushiol in pet. Therefore, we advised her to stop cultivating eggplants, and since then, her hand eczema has cleared completely, without recurrence after a further 3 months.

Discussion

The cultivated eggplant, *Solanum melongena* L. (Solanaceae), also known as brinjal, is a species of considerable economic importance in many tropical and subtropical parts of the world (2). Recently, it was reported that eggplant fruit (aubergine) or eggplant flower pollen induced immunoglobulin E-mediated immediate-type hypersensitivity reactions, such as rhinorrhoea, urticaria, food allergy and asthma (3–5). In contrast, this case seems to be mediated by delayed-type hypersensitivity reaction, because her

Address:
P. D. Pigatto
Department of Dermatological Sciences
University of Milan
Ospedale Maggiore IRCCS
Milan
Italy
Tel: +39 02 550 351 46
Fax: +39 02 700423 812
e-mail: paolopigatto@libero.it

Contact dermatitis due to eggplant

Kenji Kabashima and Yoshiki Miyachi
Department of Dermatology, Kyoto
University Graduate School of Medicine, 54
Shogoin-Kawahara Sakyo, Kyoto 606-8507,
Japan

symptoms started 1–2 days after each contact and the patch test was positive 2–3 days later. This patient has had no immediate-type hypersensitivity symptoms, such as urticaria, rhinorrhoea or asthma. Moreover, her symptoms did not relate to the period of aubergine maturation or eggplant flower pollen. The above findings suggest that the allergens from eggplant leaves, but not aubergines or eggplant flower pollen, can be a cause of allergic contact hypersensitivity mediated by delayed-type hypersensitivity. Gardening is becoming a popular hobby for Western people. The number of people who cultivate eggplants cannot be that small. Until now, only immediate-type reactions to aubergines and flower pollen have been focused on, but clinicians should also watch for allergic contact dermatitis from eggplant leaves.

References

1. Fregert S. *Manual of Contact Dermatitis*, 2nd edn. Copenhagen: Munksgaard, 1981: 71–81.
2. Lawande K F, Chavan J K. Eggplant (Brinjal). In: *Handbook of Vegetable Science and Technology: Production, Composition, Storage, and Processing*, Salunkhe D K, Kadam S S (eds): New York, Marcel Dekker, 1998; 225–244.
3. Muthiah R, Zondlo A, Zondlo J, Kagen S. Eggplant anaphylaxis: isolation of the major allergens and demonstration of cross-reactivity with other Solanaceae. *J Allergy Clin Immunol* 1996; 97: 334 [Abstract].
4. Gil M, Hogendijk S, Hauser C. Allergy to eggplant flower pollen. *Allergy* 2002; 57: 652.
5. Pramod S N, Venkatesh Y P. Allergy to eggplant (*Solanum melongena*). *J Allergy Clin Immunol* 2004; 113: 171–173.

Address:

Kenji Kabashima MD, PhD
Department of Microbiology and Immunology
University of California
513 Parnassus Avenue
HSE1001A, San Francisco
CA 94143-0414
USA
Tel: +1 415 502 6638
Fax: +1 415 502 8424
e-mail: kaba@kuhp.kyoto-u.ac.jp

Occupational allergic contact dermatitis from olive oil in pizza making

G. A. E. Wong and C. M. King

Department of Dermatology, Royal Liverpool University Hospital, Prescot St., Liverpool L7 8XP, UK

Key words: allergic contact dermatitis; occupational; olive oil.

Allergic contact dermatitis from olive oil is uncommon. Most cases in the literature have been reported in elderly patients with chronic venous eczema. A few cases of occupational allergic contact dermatitis from olive oil in pedicurists and masseurs have also been reported (1–3).

Case Report

A 44-year-old woman presented with a 5-month history of recurrent, dry, fissuring, occasionally vesicular eczema involving her palms and fingers, with extension up her ventral forearms to the elbows. There was no personal or family history of atopy. She had worked in a cafeteria for the previous 2 years. One of her tasks was making pizzas. This involved contact with large amounts of olive oil (Filippo Berio® olive oil and extra virgin olive oil, Tuscany, Italy). She had noted that the rash occurred when she used olive oil and would improve when she was away from work. Ingestion of olive oil did not cause any problems.

Patch tests were performed with the European standard series, her own topical medicaments, Filippo Berio® olive oil and Filippo Berio® extra virgin olive oil. At D2 she had a + reaction and at D4 a ++ reaction to the extra virgin olive oil. In addition, she had a ++ reaction to para-phenylenediamine at D4. She had used hair dyes in the past. However, there was no temporal relationship between hair dyeing and her hand eczema. Her hand eczema has completely cleared since she started avoiding contact with olive oil. Patch testing of 10 controls with Filippo Berio® olive oil and extra virgin olive oil was negative.

Discussion

Extra virgin olive oil is produced from the first pressing of olives,

whereas regular olive oils are extracted after further processing and refinement, which may include the use of organic solvents. Studies have shown that extra virgin olive oils and regular olive oils differ significantly in their composition, particularly in the phenolic antioxidant components (phenols, secoiridoids and lignans) (4). This difference in composition may explain our patient's positive patch test reaction to the extra virgin olive oil but not to the regular olive oil.

In a series of 13 cases of contact allergy to olive oil, all the patients had positive patch tests to olive oil, whilst none reacted to the constituents of olive oil tested. These constituents included glycerides of oleic, palmitic, linoleic, stearic and arachidic acids, as well as squalene, phytosterol and tocopherol. The authors suggest that this may be due to compound allergy or allergy to components not yet identified (1). We did not perform patch tests to olive oil constituents.

Although positive patch tests with olive oil are generally thought to be allergic in nature, there has been some discussion in the literature suggesting olive oil to be a weak irritant (2, 5). Crescendo (e.g. + on D2 and ++ on D4, as in our patient) is thought to be more indicative of an allergic, rather than an irritant, patch test reaction.

Occupational allergic contact hand dermatitis from olive oil is rare. Previous cases have been in pedicurists and masseurs (1–3). To our knowledge, this is the first case reported from food preparation.

References

1. Malmkvist Padoan S, Pettersson A, Svensson A. Olive oil as a cause of contact allergy in patients with venous eczema, and occupationally. *Contact Dermatitis* 1990; 23: 73–76.
2. Kranke B, Komericki P, Aberer W. Olive oil – contact sensitizer or irritant? *Contact Dermatitis* 1997; 36: 5–10.
3. Isaksson M, Bruze M. Occupational allergic contact dermatitis from olive oil in a masseur. *J Am Acad Dermatol* 1999; 41: 312–315.
4. Owen R W, Giacosa A, Hull W E et al. Olive-oil consumption and health: the possible role of antioxidants. *Lancet Oncol* 2000; 1: 107–112.
5. Zipprich F, Hauser C. Olive oil – contact sensitizer or irritant? *Contact Dermatitis* 1997; 37: 142–143.

Address:
G. A. E. Wong
Department of Dermatology
Royal Liverpool University Hospital
Prescot St.
Liverpool L7 8XP
UK
Tel: +44 151 706 2000
Fax: +44 151 706 5897
e-mail: gaewong@hotmail.com

Schirmer I testing in eyelid dermatitis

Jure D. Guin

18 Corporate Hill Drive, Suite 100, Little Rock, AR 72205, USA

Key words: allergic contact dermatitis; eyelid dermatitis; keratoconjunctivitis sicca; Schirmer I test.

Patients and Methods

Since the completion of a recent series of 203 persons with eyelid dermatitis (1), in which several persons had abnormal Schirmer I test examinations, the test has been done in 158 of 215 patients presenting ostensibly with eyelid dermatitis between April 2001 and October 2003. This test is done with special sterile filter paper strips inserted in the lower lid sulcus and left for 5 min, after which tear production is measured from a notch on the paper. The test was omitted in those who clearly did not have eczema, those under 21 years of age and those with an evident infection, including most with atopic eczema (AE), many of whom grew *Staphylococcus aureus* from skin lesions. There were also a few in whom the test was either not done or not recorded.

Results

The test results are summarized in Table 1. Those tested had an average age of 55.9 years and a median age of 56, whereas the average age was 49.6 years and the median age 51 years for the total of 215. Measurements in 83 (or 52.5%) were below 10 mm in at least one eye, in 55 of 83 in both eyes and in 58 of 83, 5 mm or less in at least one eye. Of the 131 patients over

40, 73 had readings below 10 mm in at least one eye, of which 57 had readings 5 mm and below.

Comment

Most eyelid dermatitis is caused by allergic contact dermatitis (ACD), often superimposed upon other conditions, e.g. seborrheic dermatitis or AE (1). A report by Katayama et al. (2) in 1994 stated that 22 of 52 persons with Sjögren's syndrome had eyelid dermatitis. This is an impressive percentage, and the results here would suggest that older persons with eyelid dermatitis tend to have dry eyes. But while some regard the combination of keratoconjunctivitis sicca with xerostomia as Sjögren's syndrome, the diagnosis would be more reliable if based on standardized methodology.

There are many causes of decreased tear production (or increased loss) and function, and multiple tests are used in patient evaluation, none of which is adequate alone. Tear film comprises an outer Meibomian layer, a central aqueous layer largely from ciliary glands and an inner mucin layer produced by conjunctival goblet cells of the ocular surface epithelium (3). The Schirmer test is essentially a measurement of tear volume and is more related to the aqueous component. Tear break-up time is said to be an indicator of Meibomian gland function and is not necessarily congruent with the results of the Schirmer test. The rose bengal test reflects epithelial damage, for which there are a number of potential causes. The best test for dry eyes may be measurement of tear osmolarity, but this requires special equipment not available in most clinical settings.

Of the 4 tests for tear function, only the Schirmer can be done easily in a dermatology office setting, as it does not require a slit-lamp or other special equipment. There are 3 types of Schirmer test procedures used by various investigators, including the 'Schirmer' (wetting of a filter paper strip for 5 min with anaesthesia), the Schirmer I (without anaesthesia) and the Schirmer II (with nasal stimulation to encourage tear production) (3). The limits of 'normal' are not the same and various investigators use 10 mm, 8 mm and 5 mm as the lower limit for tear production without anaesthesia, and mostly 5 mm for the Schirmer (with anaesthesia). The seldom-used Schirmer II is said to be abnormal below 15 mm (3).

A reduction in tear volume is relatively common, especially after age 40 (4, 5), and the prevalence increases with age (6), although there is some conflicting data on the latter (5). A control series might prove helpful, but would be difficult, as those with known disease associations would have to be excluded. Dry eyes occur with a number of systemic and cutaneous diseases including thyroid disease (7), diabetes (8), rheumatoid arthritis (9–12) and juvenile rheumatoid arthritis (13), multiple sclerosis (14), rosacea (15), hepatitis C virus (16), non-Hodgkin's lymphoma, human immunodeficiency virus (17) and HTLV-1 infections (18). Many such studies require tests other than the Schirmer, however, in order to demonstrate the pathology.

Some studies have set a limit of 5 mm, 6 mm or 8 mm as the lower limit of 'normal', but by any of those standards the older patients in this series are more at risk. As the test done does not detect many patients with abnormalities other than tear volume, there seems to be a need for

Table 1. Schirmer I test result of patients with eyelid dermatitis

Age (years)	Schirmer		Total tested
	<10 mm	≤5 mm	
20	2	1	13
30	8	4	24
40	15	9	30
50	17	14	33
60	16	15	27
70	15	12	20
80	8	5	8
90	2	2	3
Total	83	62	158

further study, as eyelid dermatitis may be a warning sign for the presence of dry eyes, particularly in those over 60.

The reason for the association of eyelid dermatitis with reduced tear output is unclear. Since many of these patients had had their eyelid dermatitis for a brief period of time, the eczema is unlikely to be the cause of their reduced tear output. Most eyelid dermatitis is associated with ACD, and symptoms of irritation may cause those with dry eyes to rub their eyes more often, allowing hand transfer of potential antigens.

References

- Guin J D. Eyelid dermatitis: experience with 203 cases. *J Am Acad Dermatol* 2002; 47: 755–765.
- Katayama I, Koyama T, Nishioka K. Prevalence of eyelid dermatitis in primary Sjögren's syndrome. *Int J Dermatol* 1994; 33: 421–424.
- Ekong A, Foster C. Dry eye syndrome (available from E-medicine.com). *Ophthalmology* 2001; 2.
- Thomas E, Hay E M, Hajeer A, Silman A J. Sjögren's syndrome: a community-based study of prevalence and impact. *Br J Rheumatol* 1998; 37: 1069–1076.
- Tomsic M, Logar D, Grmek M et al. Prevalence of Sjögren's syndrome in Slovenia. *Rheumatology (Oxford)* 1999; 38: 164–170.
- Strickland R W, Tesar J T, Berne B H et al. The frequency of sicca syndrome in an elderly female population. *J Rheumatol* 1987; 14: 766–771.
- Coll J, Anglada J, Tomas S et al. High prevalence of subclinical Sjögren's syndrome features in patients with autoimmune thyroid disease. *J Rheumatol* 1997; 24: 1719–1724.
- Sreebny L M, Yu A, Green A, Valdin A. Xerostomia in diabetes mellitus. *Diabetes Care* 1992; 15: 900–904.
- Mody G M, Hill J C, Meyers O L. Keratoconjunctivitis sicca in rheumatoid arthritis. *Clin Rheumatol* 1988; 7: 237–241.
- Bogliolo A, Mela Q, Perpignano L et al. Ocular involvement in rheumatoid arthritis. *Clin Ter* 1993; 142: 41–46.
- Pisko E J, Turner R A, Yeatts R P et al. Ocular pathology, tear production, and tear lysozyme in rheumatoid arthritis. *J Rheumatol* 1982; 9: 708–711.
- Andonopoulos A P, Drosos A A, Skopouli F N et al. Secondary Sjögren's syndrome in rheumatoid arthritis. *J Rheumatol* 1987; 14: 1098–1103.
- Jain V, Singh S, Sharma A. Keratoconjunctivitis sicca is not uncommon in children with juvenile rheumatoid arthritis. *Rheumatol Int* 2001; 20: 159–162.
- de Seze J, Devos D, Castelnovo G et al. The prevalence of Sjögren syndrome in patients with primary progressive multiple sclerosis. *Neurology* 2001; 57: 1359–1363.
- Gudmundsen K J, O'Donnell B F, Powell F C. Schirmer testing for dry eyes in patients with rosacea. *J Am Acad Dermatol* 1992; 26: 211–214.
- Goulding C, O'Connell P, Murray F E. Prevalence of fibromyalgia, anxiety and depression in chronic hepatitis C virus infection: relationship to RT-PCR status and mode of acquisition. *Eur J Gastroenterol Hepatol* 2001; 13: 507–511.
- Lucca J A, Farris R L, Bielory L, Caputo A R. Keratoconjunctivitis sicca in male patients infected with human immunodeficiency virus type 1. *Ophthalmology* 1990; 97: 1008–1010.
- Nakamura H, Kawakami A, Tominaga M et al. Relationship between Sjögren's syndrome and human T-lymphotropic virus type I infection: follow-up study of 83 patients. *J Lab Clin Med* 2000; 135: 139–144.

Address:
Jere D. Guin
18 Corporate Hill Drive
Suite 100, Little Rock
AR 72205
USA
Tel: +1 501 228 4664
Fax: +1 501 228 0011
e-mail: jdguin@swbell.net

Occupational allergic contact dermatitis caused by 1,2-benzisothiazolin-3-one in a varnish maker, followed by sensitization to benzalkonium chloride in Oilatum® Plus bath additive

S. L. Walker, J. A. Yell and M. H. Beck

Contact Dermatitis Investigation Unit,
Dermatology Centre, Hope Hospital,
Manchester M6 8HD, UK

Key words: 1, 2-benzisothiazolin-3-one; allergic contact dermatitis; antibacterials; benzalkonium chloride; biocides; medicaments; occupational; preservatives; varnishes.

Case Report

A 47-year-old varnish maker was investigated because he had had a bilateral

hyperkeratotic palmar dermatitis for 8 months. He made water-based varnishes, the components of which frequently came into contact with his hands. There had been a rapid improvement in the hand dermatitis when he took 2 weeks off work, but on returning to the same job the dermatitis had flared rapidly. He also gave a history of an exacerbation of his hand dermatitis following direct application of Oilatum® Plus bath additive (Stiefel, High Wycombe, UK) to his skin.

He was patch tested to our standard series, his own medicaments, gloves and components of face, eye and coolant series. He had ++ reactions to 1,2-benzisothiazolin-3-one (BIT) 0.05% pet. and benzalkonium chloride 0.1% pet. at 2 and 4 days.

Comment

Proxel® XL2 is a widely used broad-spectrum biocide for the preservation of industrial water-based products and is a 10% solution of BIT in propylene glycol. It has been reported to cause occupational allergic contact dermatitis in paint manufacturers and in workers using glues (1), workers in the carpet-making industry (2), air freshener manufacturers (3), workers in the pottery industry (4) and laboratory staff handling BIT directly (5). BIT has a reported sensitization rate of 1.2% in patients selected for patch testing (6), but cross reactions between the structurally similar isothiazolinones are rare (7). In our experience, patch testing with BIT at 0.05% rarely gives false-positive irritant reactions, but at 0.1% false-positives may occur.

He was prescribed Oilatum® Plus bath additive to treat the dermatitis caused by the BIT. He was given inappropriate advice on how to use this and was told to apply it directly onto the skin frequently. Prior to patch testing this was thought to be an irritant phenomenon, but he appears to have been sensitized while using this product in this way. Benzalkonium chloride patch tests occasionally give weak false-positive patch test reactions. In this instance, we thought the reaction was allergic as it was strong (++) and there was a good history.

Oilatum® Plus bath additive contains 2 agents with antimicrobial properties, triclosan 2% and benzalkonium chloride 6%, both of which can cause allergic contact dermatitis

(8, 9). Benzalkonium chloride is a quaternary ammonium compound and has caused allergic contact dermatitis following the use of eye drops (10), Timodine[®] cream (11) and plaster of Paris (12) containing it.

It is important to consider an allergic basis for dermatitis following the use of products containing benzalkonium chloride rather than simply attributing the problem to irritancy.

References

1. Ezzelarab M, Hansson Q, Wallengren J. Occupational allergy caused by 1,2-benzisothiazolin-3-one in water-based paints and glues. *Am J Contact Dermat* 1994; 5: 165–167.
2. Taran J M, Delaney T A. Allergic contact dermatitis to 1,2-benzisothiazolin-3-one in the carpet industry. *Australas J Dermatol* 1997; 38: 42–43.
3. Dias M, Lamarao P, Vale T. Occupational contact allergy to 1,2-benzisothiazolin-3-one in the manufacture of air fresheners. *Contact Dermatitis* 1992; 27: 205–207.
4. Roberts D L, Messenger A G, Summerly R. Occupational dermatitis due to 1,2-benzisothiazolin-3-one in the pottery industry. *Contact Dermatitis* 1981; 7: 145–147.
5. Slovak A J. Contact dermatitis due to benzisothiazolone in a works analytical team. *Contact Dermatitis* 1980; 6: 187–190.
6. Schnuch A, Geier J, Uter W, Frosch P J. Patch testing with preservatives, antimicrobials and industrial biocides. Results from a multicentre study. *Br J Dermatol* 1998; 138: 467–476.
7. Geier J, Schnuch A. No cross-sensitization between MCI/MI, benzisothiazolinone and octylisothiazolinone. *Contact Dermatitis* 1996; 34: 148–149.
8. Wong C S, Beck M H. Allergic contact dermatitis from triclosan in antibacterial handwashes. *Contact Dermatitis* 2001; 45: 307.
9. Rietschel R L, Fowler J F. *Fisher's Contact Dermatitis*, 5th edition. Philadelphia: Lippincott, Williams & Williams, 2001: 223–225.
10. Jerstad K M, Warshaw E. Allergic contact dermatitis to latanoprost. *Am J Contact Dermat* 2002; 13: 39–41.
11. Chowdhury M M, Statham B N. Allergic contact dermatitis from dibutyl phthalate and benzalkonium chloride in Timodine[®] cream. *Contact Dermatitis* 2002; 46: 57.
12. Lovell C R, Staniforth P. Contact allergy to benzalkonium chloride in plaster of Paris. *Contact Dermatitis* 1981; 7: 343–344.

Address:

Stephen Walker
Contact Dermatitis Investigation Unit
Dermatology Centre
Hope Hospital
Manchester M6 8HD, UK
Tel: +44 161 206 1014
Fax: +44 161 206 1018
e-mail: drstevewalker@hotmail.com

Erythema ab igne due to a laptop computer

B. A. Jagtman

Department of Dermatology, VieCuri Medical Center, PO Box 1926, 5900 BX Venlo, The Netherlands

Key words: erythema; heat-induced; personal computers; reticulate pigmentation.

Case Report

A 48-year-old woman presented with patchy reticulate pigmentation on the front of her thighs (Fig. 1). The right thigh was more affected than the left. The lesions were completely asymptomatic. She used to work sitting with her laptop computer resting on her thighs. She had no previous history of skin disease. The most pigmentation was seen on her right thigh, which corresponded to the warmest part of her laptop.

Discussion

Erythema ab igne is associated with exposure of the skin to an infrared radiation heat source (1). Particularly,

the outer aspects of the lower legs are affected. In the first instance, erythema appears, later reticulate pigmentation and, in chronic cases, even ulceration and secondary skin cancer may be seen. In the past, the condition was caused by heat from fireplaces and stoves. Since the introduction of central heating systems, erythema ab igne is mostly due to hot water bottles, heating pads for back pain and unusual sources such as heated popcorn (2) and, in this case, a laptop computer.

References

1. Tan S, Bertucci V. Erythema ab igne: an old condition new again. *CMAJ* 2000; 162: 77–84.
2. Donohue K G, Nahm W K, Badiavas E, Li L, Pedvis-Leftick A. Hot pop brown spot: erythema ab igne induced by heated popcorn. *J Dermatol* 2002; 29: 172–3.

Address:

B. A. Jagtman
Department of Dermatology
VieCuri Medical Center
P. O. Box 1926
5900 BX Venlo
The Netherlands
Tel: +31 773 206848
Fax: +31 773 206258
e-mail: bjagtman@viecuri.nl

Concurrent rubber allergy among workers in a silicone-wafer-manufacturing plant

F. A. Campbell, A. Drummond and A. Forsyth

Contact Dermatitis Investigation Unit, Glasgow Royal Infirmary, Castle Street, Glasgow G4 0SF, UK

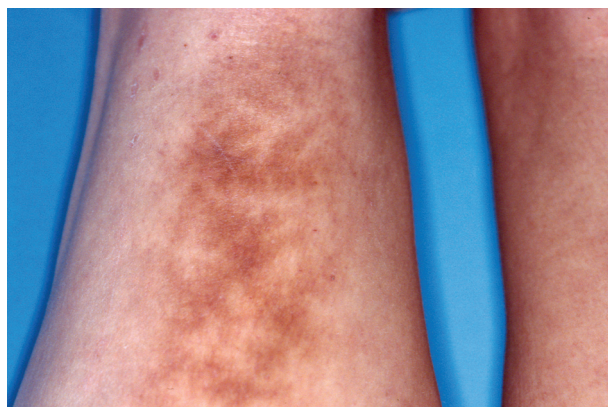


Fig. 1. Reticulate pigmentation on the anterior right thigh.

Rubber gloves are used by workforce in many industries and occupations, and the tendency to develop allergic reactions either to natural rubber latex or to chemicals used in its processing is well documented. Despite this, it is unusual for several employees (over 3%) in the same factory to be sensitized and react simultaneously as a result of a substandard batch of gloves. We present 3 patients who developed contact dermatitis in this context and whose subsequent patch tests showed allergy to rubber additives.

Case Report

Case no. 1

A 38-year-old non-atopic man developed sudden onset of itching, swelling and weeping of the skin on the backs of his hands and wrists. He regularly wore rubber gloves but had had no previous problems during his 5 years of employment. A 'sticky' batch of gloves had precipitated skin irritation, which settled with topical corticosteroids and emollients. His radioallergosorbent test (RAST) immunoglobulin E (IgE) to natural rubber latex (NRL) was negative, and patch tests, as listed in Table 1, showed a positive reaction to mercapto mix.

Case no. 2

Simultaneously, a 41-year-old atopic man developed irritation and fissuring of the skin on his left wrist and the dorsum of his right hand. Although he had worked in the factory for more than a year, he had had no previous problems with rubber gloves though had noted that the batch in question seemed 'stickier' than usual. RAST IgE to NRL was negative, and patch test results were as documented in Table 1. The rubber chemical series was applied on day (D) 2, when the response to mercapto mix was found to be equi-

vocal, and on D4, he was also noted to have reacted to several rubber chemicals.

Case no. 3

A 29-year-old man developed redness and itching on the backs of his hands, fingers and wrists after prolonged wearing of gloves from the 'faulty' batch. Although he had had no previous skin problems, he suffered from hay fever and had noticed occasional itching of his hands in the absence of any obvious precipitant. Patch tests showed allergies to mercapto mix and to fragrance mix (Table 1). Although he did not describe symptoms suggestive of Type I allergy, he was found to have an elevated RAST IgE to NRL and was given appropriate avoidance advice.

All 3 patients improved with avoidance of rubber gloves and attention to simple hand care advice. Confirmation of allergy to rubber additives and further, more-stringent avoidance measures allowed complete resolution.

Discussion

The increased use of latex gloves in the workplace has led to numerous, adverse, cutaneous and mucosal effects, with the most common clinical presentation being a non-immunological irritant contact dermatitis (1). Of immune-mediated reactions, Type IV (delayed) are commoner than Type I (immediate) and are usually due to allergens such as preservatives, accelerators and vulcanizing agents used in rubber processing and responsible for approximately 5% of finished glove weight (2). Type I allergy to latex and Type IV allergy to rubber additives has been reported to co-exist (1), as demonstrated in case number 3.

Glove-shaped glass or porcelain 'formers' are dipped into com-

pounded latex, 'cooked' in a coagulation oven and dipped in a water bath to remove residues of chemicals and water-soluble proteins. Subsequent chlorine washing further aids residue removal and its thoroughness ultimately dictates how 'sticky' or 'tacky' the finished product becomes. Thereafter, gloves may be ordered by industry specifically according to their 'tackiness' and depending on their utility within the workplace.

Gloves may be worn to protect the employee, or to protect the product as in our patients.

The silicone-wafer-manufacturing plant in which they were employed did not require the gloves to be of a specific rating, but those in question were found to be much more sticky than usual. The workforce comprised of 500 people, 90 of whom worked in the 'clean room' and regularly wore rubber gloves for 8–12 h shifts in an ambient temperature of 24°C and in a relative humidity of up to 40%. Our patients thus comprised over 3% of this subgroup.

Studies have shown that prolonged periods of glove usage are associated with skin symptoms (1), and that as few as 4 h of occlusion under a latex glove can cause transient impairment in the barrier function of the skin (3). Occlusion increases the water content of the stratum corneum by preventing evaporation, so that there is enhanced percutaneous absorption of irritant and allergenic water-soluble substances. The 'sticky' gloves which our patients described were almost certainly of inferior quality, contained higher levels of accelerator residues as a result of insufficient technical processing (4) and were therefore more likely to release residual chemicals into the skin. We suspect that this was instrumental in the development of rubber additive allergy in our 3 patients, and perhaps, also contributory to the induction of latex sensitivity in case number 3.

Table 1. Positive patch test results at day (D) 2 and D4

Substance	Concentration (% in petrolatum)	Patient number 1		Patient number 2		Patient number 3	
		D4	D2	D4	D2	D4	D2
European standard series							
Mercapto mix	2	++	+++	+	+	—	++
Fragrance mix	8	—	—	—	—	+++	+++

References

1. Nettis E, Assennato G, Ferrannini A, Tursi A. Type I allergy to natural rubber latex and type IV allergy to rubber chemicals in health care workers with glove-related skin symptoms. *Clin Exp Allergy* 2002; 32: 441–447.
2. Warshaw E M. Latex allergy. *J Am Acad Dermatol* 1998; 39: 1–21.
3. Reduta T, Laudanska H, Chodyncka B. Effect of the natural rubber on the skin barrier function. *J Eur Acad Dermatol Venereol* 2003; 17: 396–397.
4. Gibbon K L, McFadden J P, Rycroft R J G, Ross J S, Chinn S, White I R. Changing frequency of thiuram allergy in health care workers with hand dermatitis. *Br J Dermatol* 2001; 144: 347–350.

Address:

Dr F. A. Campbell
Contact Dermatitis Investigation Unit
Glasgow Royal Infirmary
Castle Street, Glasgow G4 0SF
UK
Tel: +44 141 2114510
e-mail: colin.campbell1@ntlworld.com

Aluminium and milk allergies in an adult

Heli Hyry and Johanna Höök-Nikanne

Skin and Allergy Hospital, Helsinki University
Central Hospital, Finland

Key words: adult; aluminium; allergy;
angioneurotic oedema; contact dermatitis;
milk.

Case Report

A 19-year-old woman was referred with intermittent face dermatitis (flushes) and leg dermatitis. She had no history of atopy. Prick testing with a standard series was negative. Patch testing with a standard series (Finn Chambers®) had been performed previously by the referring

dermatologist. An allergic patch test reaction had been elicited by colophonium, fragrance mix and her own leather boots. Her leg dermatitis had resolved after changing boots. However, facial flushing persisted although the patient avoided colophonium and fragrances. She had not had any vaccinations for 7 years.

We tried to perform patch testing with preservatives, antimicrobials, cosmetics and fragrance series (Finn Chambers®). However, the test area had to be treated with topical corticosteroids at day 2 because of a strong 'angry back' reaction. 3 months later, patch testing was performed without the fragrance series, because the angry back reaction was suspected to be caused by fragrances. Again, all tested substances gave a positive reaction. Allergy to aluminium test chambers was then suspected.

Patch testing with aluminium chloride in plastic chambers was performed 7 months later. Testing was delayed because of the need for systemic corticosteroid treatment of the facial flushes and facial angioedema. She had not informed us about the angioedema previously, and the corticosteroids had been prescribed by many different private practitioners. An allergic patch test reaction was elicited by all 3-test concentrations of aluminium chloride. Further prick testing, because of the angioedema, was performed. Milk gave a 5 mm reaction, histamine hydrochloride (10 mg/ml) 5 mm. Specific immunoglobulin (Ig)E for milk was positive (20.8). Total IgE was normal (59). The patient was advised to avoid milk products and aluminium. However, soy products were allowed. Her symptoms disappeared in a few days. Oral provocation test for milk was positive (nausea and vomiting 6 h after drinking of 2 dl of milk).

Comment

Delayed allergy to aluminium from Finn Chambers® (1) and immediate

allergy to milk are both relatively rare conditions in adults. To our knowledge, other cases of both allergies simultaneously have not been previously published. As our patient had been tested with Finn Chambers® without problems 2 months prior our testing, we suspect that she developed aluminium allergy from patch testing. However, no late reactions a few weeks after such testing, as a sign of sensitization, were noticed by the patient.

We had difficulty in finding out whether soy should be restricted in the diet of patients allergic to aluminium. Systemically aggravated contact dermatitis from aluminium has been described (2). It is known that soy naturally contains aluminium, and its use by children allergic to milk has led to concern about toxic effects of aluminium (3). Our patient was symptom-free although her diet contained soymilk products. However, the amount of dietary aluminium tolerated by allergic patients needs further investigation.

References

1. Rycroft R J G, Menné T, Frosch P J, Lepoittevin J-P eds. *Textbook of Contact Dermatitis*, 3rd edn. Berlin: Springer 2001.
2. Veien N K, Hattel T, Laurberg G. Systemically aggravated contact dermatitis caused by aluminium in toothpaste. *Contact Dermatitis* 1993; 28: 199–200.
3. Navarro-Blasco I, Alvarez-Galindo J I. Aluminium content of Spanish infant formula. *Food Addit Contam* 2003; 20: 470–481.

Address:

Heli Hyry
Skin and Allergy Hospital
PO Box 160, Fin-00029 hus
Finland
Tel: +358 9 4711
Fax: +358 9 47186474
e-mail: heli.hyry@hus.fi