

Contact urticaria from aluminium and nickel in the same patient

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Key words: contact urticaria; nickel; aluminium. © Munksgaard, 1997.

Delayed hypersensitivity has been described from vaccines containing aluminium (1) and from hyposensitization treatment (2). Similar results have been reported in a group of aircraft workers and in 2 young brothers with extensive eczema (3). Contact urticaria has not been described.

Nickel-sensitive patients may develop allergic contact dermatitis on the hands from frequent contact with coins (4). Some cases of contact urticaria from nickel have been described, provoked by dental prostheses containing nickel (5, 6), infusion needles in nickel-sensitive patients, and after skin contact with substances containing nickel (7, 8). 1 case of chronic urticaria elicited by oral nickel has also been reported (9).

Case Report

A 19-year-old student had a previous history of stress-provoked asthma, allergy to dogs and periodic hand eczema. In 1990, she developed a severe skin reaction when in direct contact with certain metals. She could neither hold coins in the palm of her hand, nor touch metal door handles and bannisters without a reaction. As a consequence, she always wore clothing with long sleeves, which she could pull down over her hands as a form of "glove". When in contact with metal, erythema, burning and itching appeared at the site of contact in only a few minutes. In a short time, vesicles and bullae developed. By the following day, these had changed into erosions and ulcerations. Some lesions healed with scarring. On her 1st visit, she had several linear scars on the dorsal hands and forearms, apparently from contact with metal.

Prick testing was positive to timothy (+++++) and NiSO_4 2.5% pet. (++++), while negative for white soft paraffin and control. Patch testing with the European standard series elicited erythema, infiltration and vesicles in more than $1/2$ of the tests after 2 and 3 days. A simple test with a Norwegian coin (denomination 5 NOK) was performed on the patient's forearm and back for 5 s and 10 min. On the arm, at both test sites, erythema and itching developed after 5 min. After 8 min, vesicular infiltration appeared, and 2 days later, there were large crusts. On the patient's back, no reaction could be seen when read after 25 min. After 2 days, the area was crusted, and severely itchy.

Patch tests were performed applying nickel sulfate in various concentrations to the patient's forearm and back, both with and without Finn Chamber occlusion. Open tests were read at 10 min, 1 h, 2 h, and after 2 days. The open nickel sulfate tests were performed at 0.01%, 0.1% and 1%. On the forearm, erythema appeared after 10 min with 1% NiSO_4 . After 1 h, erythema also appeared with 0.1%. Crust-covered erosions oc-

curred at all sites within 2 days. No corresponding reaction was noted on the patient's back, and the test material was removed after $3\frac{1}{2}$ h.

Finn Chamber tests were performed with NiSO_4 at 0.01%, 0.1% and 1%. The reactions elicited on the forearm were identical to those without occlusion. Wheals and erosions were found on the back at all 3 readings after 2 h, and the test material had to be removed.

An aluminium Finn Chamber was applied directly to the skin on the patient's forearm and back. After 2 h, erythema appeared, and after 5 h, the test areas were also infiltrated. After 2 days, there were crust-covered erosions. Pure aluminium powder in vaseline was applied directly to the skin. After 1 h, infiltration and erythema appeared; by 3 h, there were erosions. The test showed identical results on both the forearm and back. 3 control subjects were negative on the forearm. A pressure urticaria test was negative. IgE was 195 U/ml.

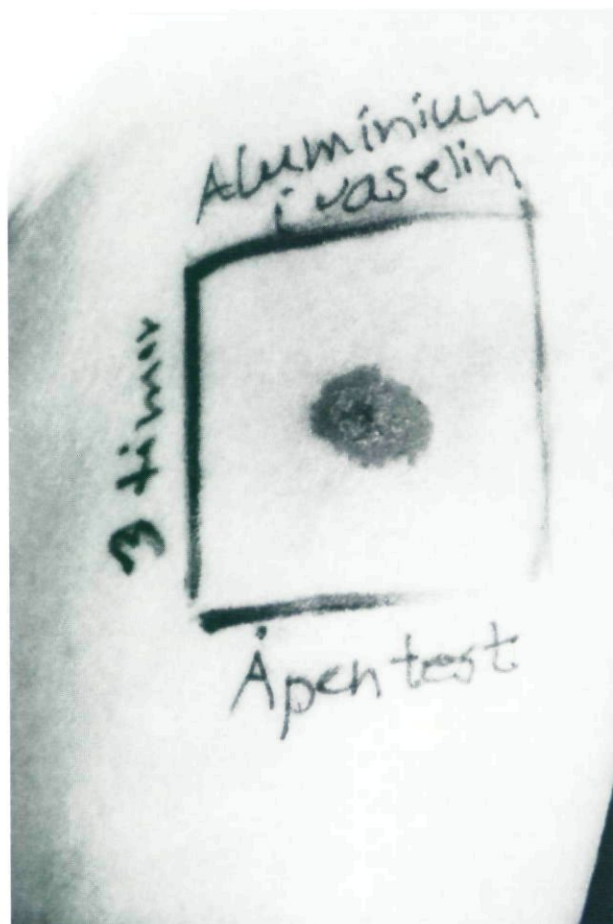


Fig. 1. Test area with erosions 3 h after application of pure aluminium powder to the patient's forearm.

A biopsy taken from an acute lesion on the arm after seconds of exposure to metal showed slight oedema and vasculitic changes compatible with urticarial vasculitis. Immunofluorescence showed complement deposits and fibrin in dermal vessels.

The patient was totally free of symptoms taking 10–20 mg cetirizine per day for 5 days. Continuous usage then kept the patient symptom-free for 6 years. Test exposures to nickel sulfate and aluminium, performed 4 days after withdrawal of antihistamine, has repeatedly shown return of urticaria.

Discussion

Our patient showed a contact-urticarial reaction to both nickel and aluminium. Aluminium is present in coins as a contaminant, with a maximum concentration of 0.01%, while the nickel content in Norwegian coins is up to 25% (10).

There are several substances that can elicit acute allergic contact urticaria, followed by a late eczematous reaction, among which is nickel (11). The anatomically differing patterns of reaction may be a consequence of previously eczematized skin retaining a compromised barrier to allergens (12). To our knowledge, this is the 1st report of contact urticaria from aluminium.

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Contact allergy to salicyl alcohol in aspen bark

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Case Report

A 38-year-old farmer developed dermatitis on the face, especially the eyelids, neck, wrists and legs. The dermatitis worsened during forestry work, when he used a chain saw. When he stayed away from the forest, his skin symptoms disappeared. He was patch tested with a modified European standard series (Chemotechnique Diagnostics AB, Sweden), and showed reactions to neomycin sulfate, balsam of Peru and chlorhexidine digluconate, but not to colophony. He showed no reactions to a modified Scandinavian photopatch test series including lichen compounds, i.e., lichen acid mix, atranorin, evernic acid, D-usnic acid and oak moss (Chemotechnique

Diagnostics AB, Sweden). He was also patch tested with sawdust from 5 tree trunks (sawdust moistened with a drop of water in the Finn Chambers). In the 1st patch test session, skin reactions were noted to rowan, i.e., European mountain ash, and European aspen (*Populus tremula*), but not to pine, spruce or alder. A test to the undiluted chain oil of his chain saw was also negative.

At our subsequent patch testing, he did not react to rowan, but allergy to aspen was confirmed: a test with the outer layer of bark gave a ++ reaction, with the inner layer, a +++ reaction, and with aspen wood, a + reaction. Patch tests with bark (layers unseparated) and wood extracts (50 mg of both samples extracted with 10 ml water) gave ++ and + reactions, respectively. Patch

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