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The diagnosis of allergic contact dermatitis is a three-step procedure: (i) establishing contact allergy, (ii) demonstration of current exposure, and (iii) assessment of clinical relevance (1). Patch testing is usually performed to demonstrate contact allergy. The allergic patch test reaction (elicitation) is a dose-dependent reaction, which means that the test concentration of a test preparation, provided that the same patch test technique, vehicle, sensitizer, amount/volume of test preparation, and occlusion time are used, is decisive for the outcome. The test concentrations presently used in diagnostic patch testing are often chosen to be as high as possible with due consideration to adverse reactions, particularly active sensitization, and irritant reactions that may be difficult to distinguish from allergic reactions (1). Sometimes, the test concentrations and test preparation appear to be chosen arbitrarily based on the conditions prevailing when case/cases of allergic contact dermatitis from the sensitizer was/were diagnosed rather than based on systematic investigations to find the optimal concentration and test preparation. Patch testing with gold preparations illustrates this situation (2). Recently, patch testing with the previously recommended patch test preparation of aluminium chloride hexahydrate in pet. at 2% w/w was demonstrated to be inadequate to show contact allergy and allergic contact dermatitis from aluminium (3). This case report is a further demonstration of this inadequacy of aluminium chloride hexahydrate at 2% to show a clinically relevant aluminium allergy.

Aluminium chloride hexahydrate at 2% is insufficient to trace contact allergy to aluminium

Case Report

A 15-year-old girl had been treated with hyposensitization therapy over 4 years because of a severe rhinoconjunctivitis caused by broadleaf trees and grass pollens. She developed itchy nodules at the injection sites and was referred to us. On examin-

ation, six to seven subcutaneous nodules with scratch marks on the overlying skin were noted on the volar aspects of both upper arms.

Patch testing was performed with the baseline series recommended by the Swedish Contact Dermatitis Group supplemented with aluminium chloride hexahydrate at 2.0% w/w, 4.0% and 10.0% in pet. Finn Chambers[®] and Scanpor[™] tape (Epitest Ltd., Oy, Tuusula, Finland) were used. Occlusion was for two days, with readings performed at D3 and D7 according to ICDRG guidelines.

Results and Discussion

Positive reactions with morphology consistent with allergic reactions were noted to primin, fragrance mix, and lichen acid mix in the baseline series and to aluminium chloride hexahydrate at 10%. A doubtful reaction was noted to aluminium chloride hexahydrate at 4% and a negative reaction to 2%. There was no reaction to the Finn Chambers.

This case again illustrates that aluminium hexahydrate at 2% is insufficient to detect a clinically relevant aluminium allergy. Aluminium chloride hexahydrate at 10% in pet. and aluminium hydroxide at 10% have been used previously to show contact allergy to aluminium without giving irritant patch test reactions (3, 4). Itchy nodules at injection sites are statistically significantly correlated with aluminium allergy (3, 5, 6).

In summary, subcutaneous itchy nodules developing at injection sites after hyposensitization therapy containing aluminium hydroxide may be a manifestation of aluminium allergy. Aluminium Finn Chambers and the presently recommended 2% aluminium chloride hexahydrate in pet. may not be adequate to demonstrate clinically relevant aluminium allergy. Therefore, a higher test concentration is recommended: aluminium chloride hexahydrate at 10% w/w in pet. (20 mg of the preparation in a Finn Chamber) (7).

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