

sulfate) and Lanette® 16 (cetyl alcohol) were only occasionally associated with a positive patch test to pure cetyl alcohol. Furthermore, Pasche-Koo et al. (2) found that patients allergic to Lanette® N (containing 80% Lanette® O, that is cetyl stearyl alcohol) rarely reacted to Lanette® O. Therefore, the allergenic potential of emulsifiers with a complex molecule (such as Eumulgin® and Lanette® N) seems to be different from that of emulsifiers with a simpler chemical structure.

The widespread persistent non-eczematous urticarioid dermatitis observed in our patient made us prefer a ROAT to a closed patch with the deodorant, as is, the strong positive reaction observed confirming the deodorant as the cause, while avoiding the risk of a possibly dangerous closed patch test. To our knowledge this is the 1st documented case of allergic contact dermatitis from Eumulgin® L.

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Contact dermatitis from sodium-cromoglycate-containing eyedrops

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Key words: sodium cromoglycate; cromolyn; ophthalmics; eye drops; soft contact lens; allergic contact dermatitis; allergic contact conjunctivitis; thimerosal; benzalkonium chloride; medicaments; compound allergy; preservatives.

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A 32-year-old woman, the wearer of soft contact lenses for 17 years had, for a long time, used the same lens-cleaning product. For 6 months, she had complained of ocular discomfort, with severe itching and burning sensations, photophobia and conjunctival injection. She had continued to use the same contact lenses and cleaning solution, while being prescribed Cusicrom® eye drops. A few weeks later, a severe, itchy, erythematous edematous periorbital dermatitis appeared, spreading over the cheeks. She had used Cusicrom® from time to time in the past, on the advice of her ophthalmologist.

Patch testing was performed with the GEIDC standard series, a cosmetics series (Chemotechnique), the lens cleaning solution (Boston-Cronoptica®) and the eye drops (Cusicrom-Cusi®). Finn Chambers® on Scanpor® were used. Reactions were read at 2 and 4 days.

Positive patch test results were:

thimerosal	0.1%	+	D4
	pet		
Boston-Cronoptica®	as is	+	D2 and D4
Cusicrom®	as is	++	D2 and D4

Cusicrom® contains 40 mg/ml sodium cromoglycate (cromolyn) in aqueous solution. To confirm suspicion of allergic reaction to this compound, pure sodium cromo-

glycate was tested at 1% aq. and pet., with negative results.

After a short time, the patient recovered completely from her ocular and skin problems. She continued to use her contact lenses, but never again her cleaning solution or cromolyn therapy. A new patch test study was then performed, with ROAT. A use test with 2 × daily application of Cusicrom®, on the volar surface of the arm, elicited a severe vesicular eczema after 4 days. However, patch tests with the components of the product, tested separately, remained negative at 2 and 4 days. Only sodium cromoglycate 1% with benzalkonium chloride 0.1% pet. was positive.

Components Cusicrom

		D2	D4
sodium cromoglycate	1% pet.	–	–
EDTA	1% pet.	–	–
Tween 80	10% pet.	–	–
benzalkonium chloride	0.1% pet.	–	–
Na cromoglycate 1% pet. + benzalkonium chloride	0.1% pet.	++	++

All these above series tested in 10 normal controls were negative. In our patient, allergic contact conjunctivitis and allergic contact dermatitis were caused by thimerosal contained in the lens-cleaning solution and also probably by sodium cromoglycate (cromolyn) present in prescribed eyedrops. For demonstration of this allergy, a mixture of sodium cromoglycate and benzalkonium chloride was necessary for patch testing.

Allergy to cromoglycate has been poorly described and adverse reactions to cromolyn are unusual. Some of them, due to inhalation, are irritant. Nevertheless, angioedema, urticaria and anaphylaxis with eosinophilia have been described. Furthermore, generalized eczema after oral therapy, and acute conjunctival reaction after the use of therapeutic eyedrops, are reported. An immunological basis for respiratory reactions has been not proven. Dermatological effects have been poorly studied (1-6).

In certain cases, patch testing requires subtle variations in the concentration and vehicle of the allergen, to obtain the right conditions, to reach the epidermal antigen-presenting cell (7). In this case, the addition of benzalkonium chloride to cromoglycate was essential ('compound allergy'). Repeated patch tests with 0.1% pet. benzalkonium chloride were negative. A ROAT with the eyedrops and a patch test with sodium cromoglycate 1% plus benzalkonium chloride 0.1% pet. produced strongly positive reactions, suggesting a rôle for cromolyn. A possible in-

hibitory effect of cromoglycate on patch test reactions has also been described (8-10).

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Hydroxylammonium chloride as sensitizer in a water laboratory

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Hydroxylammonium chloride (CAS 5470-11-1), $\text{NH}_2\text{OH} \cdot \text{HCl}$, also called, e.g., hydroxylamine hydrochloride and oxammonium hydrochloride, is a low molecular weight (MW 69.5) crystalline, hygroscopic salt of hydroxylamine which is soluble in water and alcohol. It is slightly or moderately irritating to the skin. The dusts of the salt may also irritate the eyes and the throat. The chemical easily penetrates the skin and can cause methemoglobin formation in the blood (1).

Hydroxylammonium chloride was found to be a sensitizer in guinea pigs at the end of the 1950s, when cases of dermatitis were connected with the substance (2). As a reactive chemical it is extensively used in various branches of industry (1), but reports on human sensitization are still few (3-5).

Case Report

A non-atopic, previously healthy, 32-year-old woman had worked as a laboratory technician in a water laboratory for 13 years. During the past 3 years, she had had worsening hand dermatitis, which had lately also spread to her arms and face. The dermatitis always disappeared even during short sick leaves and holidays. In her job, she handled about 200 chemicals, some of them daily, 15 of which, including potassium dichromate and formaldehyde, were known contact sensitizers. Hydroxylammonium chloride was used as a reagent in determinations of iron and manganese in water. Our patient dissolved up to 200 g chemical powder in water 1× a week to prepare a 10% reagent solution. She handled the solution for 0.5-2 h a day without any gloves, but started to

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