

Allergenic ingredients that may be found in toothpastes include cocamidopropyl betaine, propylene glycol, essential oils, parabens, and propolis. However, the most common allergen seems to be flavoring.² One of the challenges of identifying allergens in toothpastes is that products typically do not specify flavors used, instead referring to them as “flavors” on the ingredients list. Of 153 toothpastes examined by Scheman et al,³ 95% did not list specific flavors. This causes difficulty in finding an appropriate toothpaste for individuals allergic to typical flavors such as mint.

Peppermint (*M. piperita*) is an herb whose oil extract is often used in various cosmetic, personal hygiene, food, and pharmaceutical products because of its flavor and fragrance. It is composed primarily of menthol and menthone, with other constituents including eucalyptol, menthyl acetate, limonene, and pulegone.⁴ Although peppermint is generally regarded safe, adverse allergic reactions to peppermint oil and its constituents, most notably menthol, have been reported in the literature.⁴ Possible allergic reactions include anaphylaxis.⁵

ZEBRA

When a health care provider is confronted with cheilitis, it is important to consider a hypersensitivity reaction to toothpastes as a potential cause.

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Formaldehyde in Hypoallergenic Household Gloves

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PRECÍS

Mr. Clean Bliss latex-free gloves are commonly recommended as protective wear for patients with allergic hand dermatitis to natural rubber latex and rubber accelerators.

DISCUSSION

A 66-year-old, right-handed woman was referred for patch testing for a 5-year history of persistent rash on her bilateral hands. She believed that the rash first started when she worked as a custodian at a fitness center. However, the rash worsened when she began working in a school cafeteria with rapid spread and associated oozing, bleeding fissures, and intense pruritus affecting her digits and bilateral palmar and dorsal hands (left greater than right) as well as the development of pruritic, well-defined, pink papular plaques on her lower forearms (Fig. 1). At work, she was contacting multiple industrial dishwashing products and wearing Handgards plastic lunch gloves and rubber gloves. When cleaning at home, she wore nitrile and Mr. Clean Bliss gloves. She had tried multiple topical steroid treatments including triamcinolone and clobetasol ointment with minimal improvement.

Given her history and concern for allergic contact dermatitis, she underwent patch testing to the North American Contact Dermatitis Group standard series, in addition to our corticosteroids, personal care products, preservatives, emulsifiers, perfumes, plants/woods, rubbers, vinyl, and antipruritic panels, as well as samples of her personal gloves.

Day 7 patch testing results showed a variety of strong positive (++), mild positive (+), and doubtful reactions. Notably, she had reactions to several of the gloves she was using: Mr. Clean Bliss Gloves (++), Handgards Comfort Poly Gloves (+), and her green rubber dishwashing gloves (+). She did not react to any rubber allergens nor to the following 3 allergens that are associated with plastic gloves allergy: bisphenol A, triphenyl phosphate, and tricresyl phosphate.¹ She also did not react to her nitrile gloves. She did, however, have reactions to several formaldehyde preparations including formaldehyde 2% (++), formaldehyde 1% (+), quaternium-15 (doubtful), Groton BK (doubtful), and methenamine (doubtful).

Because of the strong reactions to multiple formaldehyde ingredients and Mr. Clean Bliss gloves (Fig. 2), we sought to investigate the presence of any formaldehyde in these gloves. Personal communication with Mr. Clean customer service personnel revealed that the gloves are made with a proprietary material, Nyplex, which is made from a nonlatex cotton polyester blend. The production manager stated that neither formaldehyde nor its related formaldehyde releasers were used in the production of Mr. Clean Bliss gloves, with 99% certainty. Despite this reassurance, we opted to further test the gloves for presence of formaldehyde using the chromotropic acid test.² We purchased 2 new pairs of Mr. Clean Bliss gloves, each with a different packaging.

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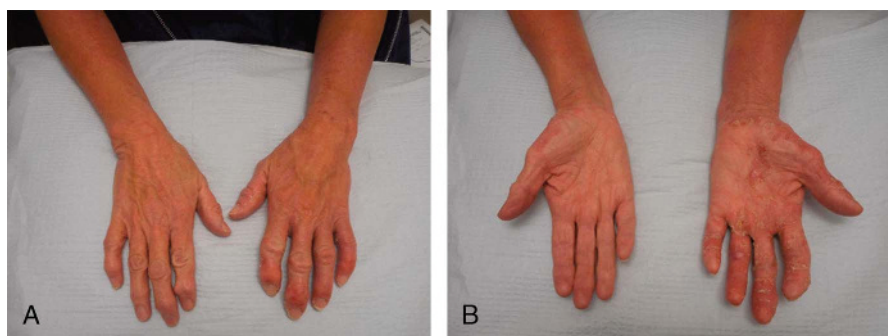


Figure 1. Persistent allergic contact dermatitis on the hands of a patient using several plastic and rubber gloves on a daily basis on the (A) dorsal surfaces and (B) palmar surfaces.



Figure 2. Patch test on day 7 showing a strong positive (++) reaction to Mr. Clean Bliss gloves.



Figure 3. Chromotropic acid test for Mr. Clean Bliss gloves (samples 29 and 30) compared with positive (sample 32) and negative (sample 33) controls.

A 1 × 1-in piece was cut from the cuff of each left glove for testing. After the standard 48 hours of incubation, a mild purple color change was observed from both samples (Fig. 3), indicating that a small amount of formaldehyde was released from both glove samples.

In conclusion, our patient developed allergic contact dermatitis to Mr. Clean Bliss gloves, likely caused by exposure to formaldehyde released from the gloves. Although Mr. Clean Bliss gloves provide a suitable alternative for patients with allergic hand dermatitis to latex

and rubber accelerators, they should be avoided in patients with allergy to formaldehyde.

PEARL

Caution should be taken when recommending Mr. Clean Bliss gloves to patients with hand dermatitis who are patch tested positive to formaldehyde and its releasers.

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A Subtle Historical Clue Unlocks a Contact Puzzle

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PRECÍS

A case of allergic contact dermatitis to ketotifen-containing eye drops highlights the significance of conjunctivitis evolving into periorbital dermatitis in solidifying the diagnosis.

DISCUSSION

A 61-year-old woman with inflammatory bowel disease and ankylosing spondylitis, treated with infliximab infusions, presented with a several-year history of episodic red eyes and periorbital rash. Three years ago, she underwent patch testing that was reportedly positive for gold and lanolin. The patient continued wearing gold jewelry but avoided wool alcohol products, with resolution of symptoms. However, several weeks before presentation, she again had conjunctival injection and pruritus that progressed to involve the periorbital skin. Repeated oral prednisone tapers resulted in moderate improvement of eye redness only. A month before presentation, she discontinued use of contact lenses, antihistamine eye drops, sunscreen, and cosmetics but continued to use shea butter on the face.

She had seen an ophthalmologist who advised her to avoid gold, discontinue ophthalmic solutions, and apply only petrolatum to the skin. She was then seen at our dermatology clinic, where patch testing was performed with the North American Contact Dermatitis Group 80 series (Chemotechnique) and her personal cosmetic products and eye drops. To minimize the potential of infliximab masking patch test results, we conducted the procedure at a time point most distal to her next infliximab infusion.

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Patch testing revealed a single positive reaction, to Alaway eye drops, which contained ketotifen, benzalkonium chloride, and glycerin. Pertinent negative reactions included lanolin, gold, and benzalkonium chloride, as well as her other ophthalmic products, including contact lens solutions. Since avoiding Alaway eye drops, she has remained symptom-free.

The positive reaction to Alaway eye drops, coupled with a negative reaction to benzalkonium chloride, led us to conclude that ketotifen in the eye drops was the relevant causative agent. The progression of her symptoms from conjunctivitis to periorbital dermatitis plus resolution of the eruption after avoidance of the offending eye drops validates this conclusion. For more definitive patch testing, we requested a sample of ketotifen used by Alaway's manufacturer, but the company refused.

Ketotifen is a recognized contact sensitizer, with 9 previous cases reported. One retrospective review of 49 patients from Japan with documented sensitivity to ophthalmic drops found 8 cases due to products containing ketotifen fumarate, although only 6 confirmed causality with patch testing.¹ Aschenbeck and Warshaw² documented the first case of allergic contact dermatitis due to ketotifen-containing eye drops in North America. Smets et al³ reported a case of isolated conjunctivitis without involvement of surrounding skin due to ketotifen, and Niizeki et al⁴ described a case of bilateral periorbital erythema without eye involvement.

Ketotifen has both antihistaminic and mast cell-stabilizing properties. It is available over-the-counter in topical ophthalmic form in the United States for allergic conjunctivitis, and the oral form is available in a limited number of countries for asthma.⁵ In our patient, previous positive testing to lanolin and gold were historical confounders that delayed correct management, especially because neither gold nor lanolin was a suitable cause of the initial conjunctivitis.

PEARL

Subtle historical clues (eg, conjunctivitis preceding periorbital dermatitis) can assess relevance of patch test–positive allergens. Inclusion of personal products in testing can clinch the diagnosis.

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