

BRIEF REPORT

Allergic contact dermatitis to slime: The epidemic of isothiazolinone allergy encompasses school glue

Abstract

The slime craze is all the rage among tweens. Slime is a homemade stretchy play material created by mixing together household items such as school glue, borax, shaving cream, and contact lens solution. We present a case of allergic contact dermatitis secondary to methylchloroisothiazolinone/methylisothiazolinone (MCI/MI) in school glue used to make slime; mass spectroscopy confirmed MCI/MI in the patient's glue. Clinicians should be aware of slime as an emerging source of MCI/MI contact allergy.

1 | CASE REPORT

A 10-year-old female presented to patch clinic with a 1.5-year history of light pink, pruritic, eczematous papules and plaques on the distal dorsal and palmar fingers (Figure 1A). Triamcinolone ointment, clobetasol ointment, and mupirocin ointment prescribed by her dermatologist were minimally helpful. Her hands contacted slime daily as she created slime to play with and to sell to classmates. Because of concern for borax causing an irritant contact dermatitis, she

switched to a recipe using glue, shaving cream, and contact lens solution. Her glue of choice was Crayola Washable Glue.

The patient was patch tested to the North American Contact Dermatitis Group (NACDG) screening series, as well as to selected corticosteroids, preservatives, emulsifiers, and other ingredients, in addition to personal products including three slime samples. Clinically relevant reactions included a strong (2+) reaction to methylchloroisothiazolinone/methylisothiazolinone (MCI/MI) 0.01% aqueous (Figure 1B) and mild (1+) reactions to methylisothiazolinone (MI) 0.2% aqueous (Figure 1C) and to the three slime samples (Figure 1D). Pertinent negative reactions included triethanolamine (in the shaving cream the patient used to make slime) and ethylenediaminetetraacetic acid, ethylenediamine dihydrochloride, and polyaminopropyl biguanide (in the contact lens solution the patient used to make slime).

We identified MCI/MI in the patient's hand soap. Additionally, we suspected these ingredients in her Crayola Washable Glue. Glue ingredients are typically not available as the formulas are proprietary. In a separate study (data not shown), mass spectroscopy performed at the Centers for Disease Control and Prevention revealed the presence of both MCI and MI in five of six school glues tested: Crayola

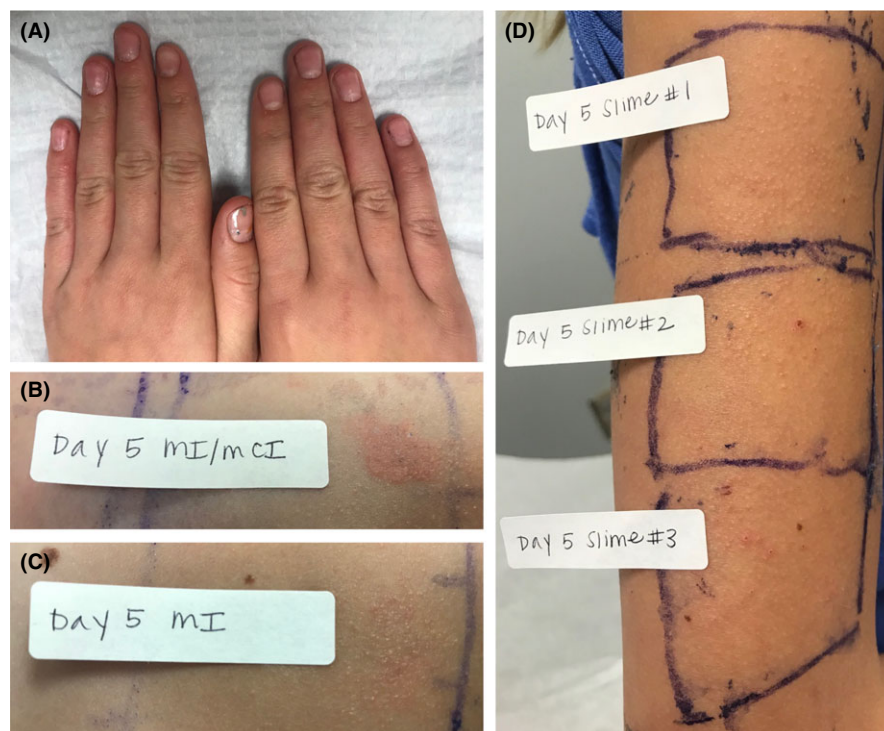


FIGURE 1 A, Light pink eczematous papules and plaques on the fingers, B, 2+ reaction to methylchloroisothiazolinone/methylisothiazolinone 0.01% aqueous on patch test day 5, C, 1+ reaction to methylisothiazolinone 0.2% aqueous on patch test day 5, and D, 1+ reactions to three slime samples on patch test day 5

Washable Glue, Elmer's X-TREME School Glue, Aleene's School Tacky Glue, Aleene's Clear School Tacky Glue, and Up & Up Washable School Glue. MCI and MI were not detected in Elmer's School Glue.

A follow-up phone call confirmed that the patient's finger dermatitis cleared completely after 2 months of using MCI/MI free products and wearing gloves each time she handled slime.

2 | DISCUSSION

Slime is a gooey, stretchable material resembling Silly Putty that has recently become very popular among tweens. There are a variety of recipes available, and slime is easily created from common household ingredients including school glue, borax, shaving cream, and contact lens solution.¹ It has become such a sensation that some stores have run out of glue, and the most searched "how to" query on Google in 2017 was "how to make slime," both worldwide and in the United States.^{1,2}

Methylchloroisothiazolinone and methylisothiazolinone are preservatives commonly found in personal care products such as cosmetics, shampoos, and conditioners.³ They can also be found in nontoolery products such as glues. There have been case reports of allergic contact dermatitis (ACD) to MI in shoe glue,⁴ MI and benzisothiazolinone in wallpaper glue,⁵ and MCI/MI and N-methylol-chloroacetamide in carpentry white glue.³

This is the first reported case of ACD to slime, with mass spectroscopy confirmation of MCI/MI in a school glue used to make slime. Clinicians should be aware of slime as an emerging source of MCI/MI contact allergy.

Keywords

allergy, contact dermatitis

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