

BRIEF REPORT

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Allergic Contact Dermatitis Due to Methylisothiazolinone in a Young Girl's Laundry Detergent

Abstract: Methylisothiazolinone (MI) is an emerging and increasing cause of allergic contact dermatitis (ACD) in children. We present the case of a 7-year-old girl with an unusual dermatitis suspicious for contact allergy. Patch testing confirmed allergy to MI, found only in the patient's laundry detergent. This case highlights the importance of checking household product ingredients and the role of MI as an increasing cause of ACD in children.

A 7-year-old girl presented with a 2-year intermittent history of pruritic dermatitis involving the trunk and proximal extremities, most prominent in the axillae and periaxillary skin, buttocks, and abdomen. The dermatitis first appeared upon moving to the United States from Japan. Changing soaps and lotions and prior treatment with antifungals, antibiotics, and

over-the-counter topical corticosteroids had not improved her dermatitis. The patient had a history of persistent diaper rash as an infant that resolved only with toilet training. Physical examination revealed erythematous, edematous, eczematous papules coalescing into nummular plaques in the axillae and abdomen (Fig. 1A–C). Dry skin care and fluocinonide 0.05% ointment did not resolve the dermatitis.

Patch testing using the Thin-Layer Rapid Use Epicutaneous Patch Test (T.R.U.E.; Smart Practice, Phoenix, AZ) showed a 2+ positive reaction to methylisochlorothiazolinone (MCI) and methylisothiazolinone (MI), with a notable flare of her dermatitis. MCI was not identified in any personal care products and MI was only found in her laundry detergent. The patient was counseled on avoidance of products with MCI and MI.

Two months later, the patient was avoiding MCI and MI. After wearing a jacket washed in the old detergent, she had a flare of her dermatitis that responded to triamcinolone 0.025% cream, supporting the relevance of her positive reaction to MCI and MI. Her dermatitis has completely resolved with continued avoidance.

DISCUSSION

Allergic contact dermatitis (ACD) is not uncommon in children (1). MCI and MI are a common combination

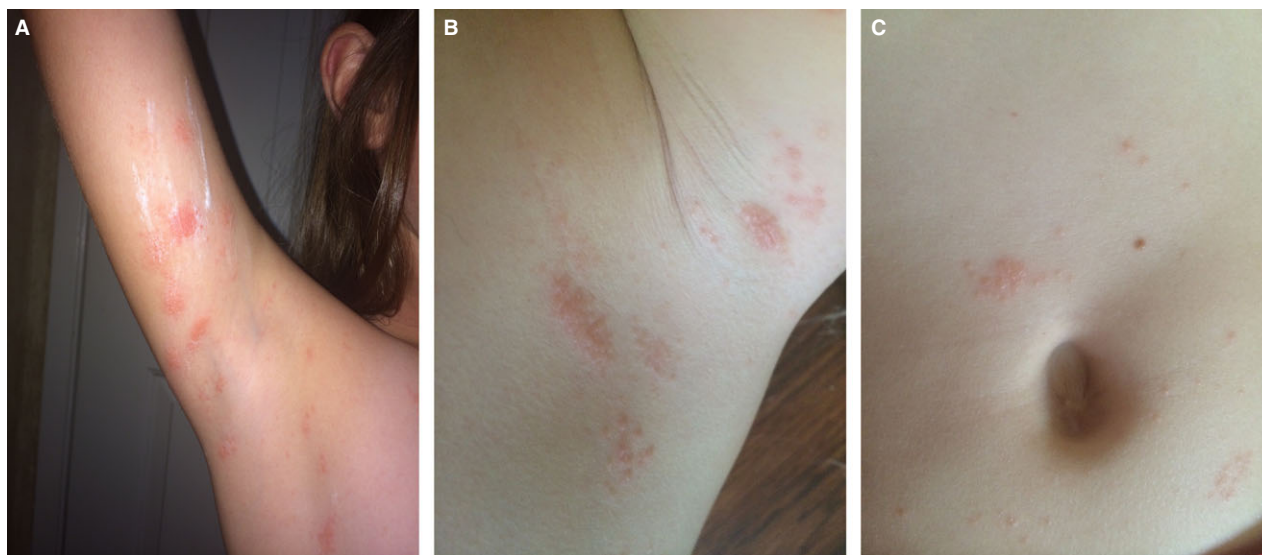


Figure 1. Intertriginous eczematous dermatitis of the (A) right axilla, (B) left axilla, and (C) abdomen. Moisturizing lotion can also be seen on the patient's skin.

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TABLE 1. *Online Resources with Product Ingredients for Individuals with Contact Dermatitis*

Organization	Website
U.S. Department of Health and Human Services	http://householdproducts.nlm.nih.gov
National Institutes of Health	http://dailymed.nlm.nih.gov/
Cosmetic Industry Category Ingredient Database	www.cosmeticsinfo.org
S.C. Johnson Product Ingredients	www.whatsinsidescjohnson.com
Personal Care Products Council	www.personalcarecouncil.org/
U.S. Food and Drug Administration	www.fda.gov/Cosmetics/ProductsIngredients/Ingredients/default.htm
Contact Allergen Management Program Database	www.acdscamp.org (American Contact Dermatitis Society members only)

TABLE 2. *Commonly Found Detergents and Whether or not they Contain Methylisochlorothiazolinone (MCI) or Methylisothiazolinone (MI) as of April 2017*

Contain MCI or MI	Do not contain MCI or MI
7th generation free & clear natural laundry detergent, liquid	7th generation free & clear natural laundry detergent, packs
Caldrea aromatherapeutic laundry detergents	Cheer brightclean powder detergent, free & gentle
ECOS hypoallergenic laundry detergent, free & clear and all scents	Dreft, powder detergent
Kirkland signature liquid laundry detergent free & clear	Dreft high efficiency ultra liquid detergent
Mrs. Meyer's clean day laundry detergents	Ultra gain powdered detergent, all varieties
	Ultra tide free powdered detergent
	Whole foods organic laundry detergent

Brands may change their ingredients at any time, so it is recommended that patients check detergents against the resources provided in Table 1.

as a preservative in household products. MI is an increasing cause of ACD in children and was the 2013 "Contact Allergen of the Year" (2,3). MCI with MI is tested as a mix in the T.R.U.E. test, which may miss up to 40% of MI allergies because of a low concentration of MI (3). Testing of MI alone may provide a more specific diagnosis and identify false negatives. Most reports of pediatric ACD to MI have been to wet wipes (4). MCI and MI are increasingly present and have caused contact allergy in many "hypoallergenic" and "sensitive skin" personal care items (2,4).

This is an interesting presentation of ACD in a child due to MI in laundry detergent. Worsening severity in areas where clothing is held tight against

the skin originally raised suspicion of clothing dye allergy, although detergent fits this same pattern. During infancy, the patient's mother used several brands of wet wipes, which may have sensitized her to MI and caused persistent diaper rash.

Fragrances and preservatives are common in personal care products and detergents. One study found MCI and MI in approximately half of detergents containing preservatives (5). Many detergents and cleaners no longer list ingredients on the container. Several helpful resources list the ingredients of thousands of products (Tables 1 and 2). The Contact Allergen Management Program can provide a personalized list of safe-to-use products.

This case highlights the need to check the ingredients in laundry detergent and household cleaners if an allergy to MCI or MI is detected. It also supports the growing body of evidence that MCI and MI are an increasing cause of ACD from a number of products.

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