

Vesicular Hand Dermatitis in a Child: Allergy to Methylisothiazolinone

Abstract: A 7-year-old girl presented with a history of vesicular hand dermatitis that only partially improved with the use of steroids. Patch testing revealed a 1+ reaction to 0.2% aqueous methylisothiazolinone (MI) and 0.01% aqueous methylchloroisothiazolinone/methylisothiazolinone (MCI/MI). Dyshidrosiform hand dermatitis is rare in children younger than 10 years of age, and this pattern has not been reported with MCI/MI allergy.

A 7-year-old girl with atopic dermatitis presented with a 2-year history of refractory, pruritic, dyshidrotic vesicles and papules on the hands, including the lateral surfaces of the fingers, webbed spaces, volar wrists, lateral palms, and dorsal hands (Fig. 1). The dermatitis improved only partially with potent topical steroids.

Patch testing to a modified standard series (Chemotechnique Diagnostics, Vellinge, Sweden) was performed in the typical fashion with patch removal at 48 hours and a final reading at 96 hours. The patient had a 1+ reaction to 0.2% aqueous methylisothiazolinone (MI) and a 1+ reaction to 0.01% aqueous methylchloroisothiazolinone/methylisothiazolinone (MCI/MI). Liquid soaps

containing MCI and MI were found in the child's home. After 1 month of allergen avoidance, she had significant improvement of the dermatitis.

MCI and MI have been used since the 1980s as preservatives in a 3:1 mixture under the trade name Kathon GC (Dow Chemical, Midland, MI). Limits on Kathon GC concentrations are 15 parts per million (ppm) in wash-off products and 7.5 ppm in leave-on products, resulting in a maximum exposure to MI of 3.75 ppm (1). In 2005, MI alone was approved as a preservative at a maximum concentration of 100 ppm, resulting in a 25-fold increase in MI exposure for consumers (2). Commonly found in many skin, hair, and household products, MI is an emerging source of allergic contact dermatitis. It was reported to have a 2.5% frequency of positive reactions in a sample of more than 4,000 people, but it can be a missed allergen if patients are tested with MCI/MI mix and not MI alone (1). Sensitization rates to MI have shown a significant increase, from less than 1% in 2005 to 10.9% in 2013, in many centers and studies (3).

Common patterns of MI allergy include perianal dermatitis (stemming from MI-containing wet wipes), eyelid dermatitis (from MI-containing makeup remover), and hand dermatitis, but hair care products are the most common factor in MI allergy and can lead to a shampoo pattern and pustular dermatitis on the scalp (1). MI allergy has been observed with the use of leave-on products, which are more sensitizing; as a result, MI was removed from leave-on products in Europe as of July 16, 2015 (4).

Vesicular hand dermatitis in children is rare and is more commonly reported in patients 10 years of age and older (5). The case presented is unique in that the



Figure 1. Patient's hand shows papular and vesicular hand dermatitis before patch testing.

girl presented with an MI allergy in the form of dyshidrosiform dermatitis, a novel pattern of allergic contact dermatitis that has not been reported in a child.

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