

Contact dermatitis to hydrolyzed wheat protein

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Hydrolyzed wheat proteins (HWP) are often added to both skin cosmetics and industrial food. The manifestations of immediate hypersensitivity to HWP have frequently been reported. We describe here a new case of contact dermatitis to HWP in a child with atopic dermatitis.

Case Report

A 3-year-old girl with a history of moderate atopic dermatitis (SCORAD–SCORing Atopic Dermatitis–of 30) presented with an intolerance to a common emollient (Lipikar emollient® containing HWP). Eczema-like skin eruption was observed at unusual sites for atopic eczema (Fig. 1). The scaly erythematous lesions were also observed on the knees, a site uncommon for atopic dermatitis. There was no evidence of associated contact urticaria.

Initially, closed patch tests were performed using the European standard series and the emollient. Patch tests were positive for Lipikar emollient® on day 2 (D2) and D3 (+/+).

Additional patch tests with individual components of the emollient were performed and were positive only for palmitoyl HWP on D2 and D3 (++/+). Prick test as well as open test and open-patch test for palmitoyl HWP were negative. Also, the prick test and the radioallergosorbent test with wheat produced no positive responses.



Fig. 1. Contact and atopic dermatitis.

Discussion

We present a patient with eczematous allergic contact dermatitis to an emollient caused by HWP. This does not represent a classical case of protein contact dermatitis, because it has no associated immediate and delayed manifestations. Animal and/or plant-derived hydrolyzed proteins are added to skin cosmetics because of their moisturizing properties. Such proteins are also added to foods presumably for their binding properties.

Among these proteins, HWP is often used in both cosmetic and food industries. The hydrolysis of wheat proteins is associated with the formation of new epitopes, which are not present in unmodified wheat proteins (1). This explains hypersensitivity to HWP in the absence of allergy to wheat. HWP can be associated with manifestations of immediate hypersensitivity ranging from urticaria to anaphylaxis. Already 4 observations of contact dermatitis from HWP added in cosmetics have been reported (2–4). Only 1 of these involves HWP added to cosmetic cream (2). In 1 observation, the HWP was added to a shampoo and in the third case to shower gel (3, 4). It is possible that in our case the anomalies of skin barrier due to the atopic eczema may be associated with the skin's increased permeability to HWP.

In conclusion, the HWP added in cosmetics may produce manifestations both of immediate hypersensitivity as well as delayed-type hypersensitivity, as contact dermatitis. Atopic eczema may be a predisposing factor for these manifestations.

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