

BRIEF REPORT

Refractory Head and Neck atopic dermatitis pattern treated with Dupilumab: Allergic contact dermatitis caused by decyl glucoside. Should surfactants be patched?

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The persistent head and neck eruption pattern in patients with atopic dermatitis has been published in several articles,¹ especially after the introduction of dupilumab as a treatment for this dermatoses. Possible causes include seborrheic dermatitis, rosacea and allergic contact dermatitis (ACD). Eyelid involvement is a guiding sign to suspect ACD, indicating patch testing. The most common allergens are fragrances and preservatives, although others such as surfactants should be patched as well.

CASE REPORT

A 45-year-old man was referred to our Contact Eczema Department due to refractory head and neck atopic dermatitis despite treatment with Dupilumab. Dupilumab treatment was started 12 months ago. The patient improved from atopic dermatitis over the entire body surface, except the head and neck. The patient used the same shampoo for many years (Eucerin Dermo Capillary calming urea shampoo). The patient denied the use of facial and/or sunscreen cosmetics. The topical application of medium-strength corticosteroids (Methylprednisolone aceponate 0.1% cream) temporarily improved

the lesions, with rapid recurrence of the dermatitis. Treatment with oral itraconazole 50 mg/day combined with cyclopiroxolamine 0.1% cream did not show improvement. On physical examination, head and neck dermatitis was the area affected by the patient, mainly the eyelids (Fig. 1A) and lateral facial areas including the neck (Fig. 1B). No signs consistent with seborrheic dermatitis or rosacea were observed in this patient. IgE titre against *Malassezia* was normal. The prick test with *Malassezia* allergens was negative. Patch tests were performed with the European Comprehensive Baseline Series (Chemotechnique Diagnostics, Vellinge, Sweden), cosmetic series (Chemotechnique Diagnostics), and semi-open test with the patient's own shampoo. The results were interpreted according to the criteria of the International Contact Dermatitis Research Group. Patch tests were read on day (D) 2 and D4. The patient showed a positive patch test reaction to decyl glucoside 5% pet (++) (Fig. 1C) and the patient's own shampoo (++) (Fig. 1D). Decyl glucoside was confirmed as one of the ingredients of his shampoo.

Allergic contact dermatitis caused by decyl glucoside was diagnosed. The patient was recommended to change from Elution Rebalancing shampoo Ducray®. Complete improvement of head and neck dermatitis was observed at 2 months follow-up (Fig. 2).

DISCUSSION

Alkyl glucosides are the condensation products of fatty alcohols and glucose. Since 1990, these compounds have been used in both rinse-off and leave-on cosmetics. Its properties include surfactant, cleansing, and emulsifying power. Although the sensitization capacity has been considered low, recently severe cases of ACD due to these surfactants have been published.² Shampoos and sunscreen creams seem to be the main sources of contact. Decyl glucoside has been described as an allergen in patients using sunscreen with methylene bis-benzotriazolyl tetramethylbutylphenol (Tinosorb M).³ A new source of contact has been foam wound dressing.⁴ Atopic dermatitis patients are

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Figure 1 (a) Head and neck dermatitis pattern, with bilateral palpebral involvement (b) Localized dermatitis in the lateral facial area with extension to the neck (c) Patch test positive for decyl glucoside at D4.



Figure 2 Complete improvement of head and neck pattern dermatitis after changing the shampoo.

possibly at increased risk of sensitization to these allergens, especially in women. Other relevant surfactants with sensitization capacity are cocamidopropyl betaine, oleamidopropyl dimethylamine, which should be studied in these type of patients.

Decyl glucoside (and lauryl glucoside) is the third most prevalent allergen surfactant group. Currently, these

allergens are being patched in the European Comprehensive Baseline Series on petrolatum vehicles. Petrolatum appears to be a better vehicle for these allergens, unlike the patch that was done in previous publications on vehicle water.⁵

It is currently being considered whether dupilumab could affect the reading of patch tests. We know that some

allergens can be negative, whilst others can be positive.⁶ It is clear that the immune system and dependence on Th1 or Th2 lymphocytes will allow these changes. Regarding decyl glucoside and lauryl polyglucoside, we have not found any bibliography in this regard; however, we can suspect that ACD will depend on Th1 mainly, both due to the positivity of the patch tests, as well as the head and neck dermatitis that our patient displayed despite being on dupilumab treatment.

In conclusion, we present a new case of ACD to decyl glucoside in a patient with atopic dermatitis. The head and neck pattern refractory to dupilumab, mainly if associated with eyelid involvement, should prompt patch tests including the most common surfactants, such as alkyl glucosides.

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