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Genital allergic contact dermatitis caused by cocamide DEA

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Case report

An otherwise healthy 50-year-old non-atopic woman was referred to our Contact Eczema Department with a genital, pruritic eruption lasting 2 months. She had started the daily use of a new intimate hygiene cosmetic “*Gel íntimo Dermonatural pH7*” (Sanasur Laboratorio Natural, Andalucía, España) one month before the onset of the dermatitis (Fig. 1A-B). The application of topical corticosteroids did not improve the dermatitis, but stopping the use of the gel made the dermatitis settle. A ROAT (twice daily on the forearm) with the intimate gel, albeit undiluted, was considered positive after 3 days. The event was communicated to the manufacturer, who supplied us the ingredients for additional patch testing.

Patch tests were performed with the European Comprehensive Baseline Series and Cosmetic series (Chemotechnique Diagnostics, Vellinge, Sweden), the 1% aq. diluted intimate gel, and its ingredients with the dilutions as indicated in Table 1. The patch tests were read, according to criteria of the International Contact Dermatitis Research Group, on day (D) 2 and D4. The patient showed a positive patch test reaction to the cosmetic product diluted 1% aq. (Fig. 1C), and to cocamide DEA 0.5% pet. from the Cosmetic series as well as the ingredient received by the manufacturer (both +) (Fig. 1D). A slight edge pattern (irritant) reaction was observed to cocamidopropyl betaine 1% aq. Patch tests with the 1% aq. diluted intimate gel were negative in 10 control patients. Allergic contact dermatitis caused by cocamide DEA was thus diagnosed.

Discussion

Cocamide diethanolamine (DEA; CAS no. 68603-42-9), manufactured from coconut oil, is used as a surfactant, foam booster or viscosity increasing agent in cosmetics, mainly rinse-off products, such as shampoos, hand gels, hand-washing liquids, and skin conditioning agents¹. Other sources are hair colouring agents, bath soaps, tonics, hair styling preparations, shaving creams, deodorants, antifungal creams and foaming antiseptic solutions². Cocamide DEA is considered safe as used in rinse-off and leave-on products, the latter allowed to contain up to 10%³. It is recommended to patch test this substance at concentrations <10% (preferably between 0.1% and 3%) to avoid irritant reactions that could compromise the interpretation of the results.

Severe occupational allergic contact dermatitis caused by cocamide DEA has been reported in hairdressers, metal workers, healthcare workers⁴, fitters, food handlers, printers, and cleaners. Hand cleansers and metalworking fluids are important sources of contact⁵, and hand dermatitis⁶ is the most frequent clinical presentation in this regard. Non-occupational allergic dermatitis caused by cocamide DEA is, however, rare. Although the hands are then also the most frequently affected, other locations, such as the chest, legs, feet or arms, may also be involved. Allergic contact dermatitis from cocamide DEA in the genital area has not previously been reported.

Mertens et al⁷ concluded that cocamide DEA allergy is relatively rare. Most patients usually display an impaired skin barrier, such as atopic dermatitis or contact dermatitis. Patients who are positive for cocamide DEA are often also co-sensitized to other

allergens; cross-reactivity between cocamide DEA and cocamide MEA might not necessarily occur.

In conclusion we presented a case of non-occupational, allergic contact dermatitis due to cocamide DEA in an intimate gel, highlighting that, also in “natural” rinse-off (and leave-on) cosmetics it might be important to consider the allergenic potential of this surfactant.

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Figures

Figure 1. (A-B) Intimate gel used by the patient. **(C)** Positive patch test to the intimate gel 1% aq. on D4 (++). **(D)** Positive patch test to cocamide DEA 0.5% pet (+) on D4.

Ingredients	Patch test dilutions
Cocamide DEA	0.5% pet
American red cranberry	1% pet
Glycerinated grapefruit	1% pet
Iscaguar BA	1% pet

Imidazolidinyl urea	2% pet
Salvia Officinalis (Salvia)	1% pet
Soy	1% pet
Cocamidopropyl betaine	1% aq
Chamomile EMG	1% pet
Aloe vera	1% pet

Table 1. Ingredients from the manufacturer: *Gel íntimo Dermonatural pH7*



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