

ALLERGIC CONTACT DERMATITIS DUE TO COSMETICS

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Abstract: Allergic contact dermatitis is a cutaneous disease, which occurs as a result of cosmetics use. We mention different clinical forms, pathogenetic mechanisms and diagnostic methods. This essay presents the case of a 42-year-old female patient who presented allergic contact dermatitis, manifested by oedema at lips level accompanied by very pruriginous erythematous-vesicular plaques at perioral and lips level. The cause of this affection was the use of a cosmetic cream.

Keywords: contact dermatitis, cosmetics, allergy

Rezumat: Dermatita de contact alergică este o afecțiune cutanată, care poate să apară secundar folosirii produselor cosmetice. Menționăm diferitele forme clinice, calea de producere și metoda de diagnostic ale acesteia. Prezentăm cazul unei paciente în vârstă de 42 de ani, care a prezentat dermatită de contact alergică, manifestată prin edem la nivelul buzelor, însoțit de plăci eritemato-veziculoase la nivelul buzelor și perioral, foarte pruriginoase, cu identificarea cremei cosmetice cauzatoare.

Cuvinte cheie: dermatită de contact, cosmetice, alergie

Allergic contact dermatitis was described for the first time in 1895 by Jadassohn, who also invented the patch skin test to establish if an allergic component exists in the contact reaction.

Allergic contact dermatitis is the most severe cutaneous disease, which can appear after using cosmetic products. Of course, this affects more frequently the women, after a variable period of using a cosmetic product component and its incidence increases with age. In general, a cosmetic product contains more substances, and most of them have an allergenic potential, too.

MECHANISM OF PRODUCTION

The mechanism of production is the late type IV hypersensitivity reaction, which involves several cell types: Langerhans cells from epidermis (which takes over the contact allergen, processes it and presents it to T lymphocytes), T1 helper allergen specific to lymphocytes (which produces gamma-interferon), cytotoxic T lymphocytes, macrophages (1). Atopy is a favouring factor.

CLINICAL MANIFESTATIONS

Allergic contact dermatitis may present different forms:

1. Pruritus: in the area and often beyond the area of the cosmetic product administration;
2. Erythema: redness of different sizes, which disappears after digital pressure;
3. Eczema (dermatitis), which can be acute, chronic or may have numerous intermediate forms, which are sometimes difficult to diagnose:
 - acute eczema: redness, oedema, vesicles, pruritus;
 - chronic eczema: characterized by thickening of the skin with accentuated skin lines, also referred to as lichenoid eczema.
4. Urticaria: red slightly elevated patches (wheals), most of time times occurring in the areas of application of the cosmetic product, rarely spread out over the whole body. It is violently itchy. It may disappear spontaneously in a few hours or, on the contrary, it may spread further if the respective cosmetic product continues to be used. Urticaria is caused by the use of cosmetics less frequently than other types of reaction. The possibility of an allergy must be taken into consideration, any time pruritus occurs.

Sensitization takes place gradually after repeated contacts of the skin with a product. That can occur in different ways (3):

 - by *direct contact* (e.g.: eczema of the eyelids due to mascara);
 - by reaction to a product used „at a distance” (e.g.: eczema of the eyelids due to a product applied elsewhere on the face)
 - by *hand contact*: a product applied elsewhere on the body and brought by the hand to the face or neck (e.g.: nail varnish responsible for eczema of the neck)
 - by *air contact*: the allergen is carried in the air and enters into contact with the skin (e.g.: drops of perfumes sprayed on the face, toilet deodorants spraying);
 - by *vicarious contact*: contact reaction with a product that is present on another person's body (e.g.: eczema of a man's thorax due to contact with the hair dye of his partner)

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- by *sun contact and exposure* (in the presence of sunlight, a molecule, which is normally well tolerated, becomes a photoallergen. The eruption associated with the product only appears on the areas exposed to the sun.

DIAGNOSIS

The diagnosis is established by anamnesis, completed by epicutaneous testing. Allergologic skin patch tests are used for the final positive diagnosis, but also for the differential diagnosis with irritating contact dermatitis (2). These consist of the application on the skin (on dorsum or anterior forearm) of the incriminated substance, following the appearance of redness, papula and vesicles, accompanied by an intensive pruritus, at this level. The reaction reading is made 48-96 hours after the application under occlusion of the respective substance. A positive patch test must always be correlated with the patient's history and physical examination. It is important to differentiate the diagnosis from the irritating form, because in this form, the immune component is missing, the cutaneous lesion being a consequence of a direct toxic effect. Therefore, previous sensitization contact or contacts are not necessary, a single contact with a sufficient high dose being enough for emphasizing the clinical manifestations.

Irritating contact reaction	Allergic contact reaction
Does not suppose previous sensitization contacts;	Supposes previous sensitization contacts;
After patch removal, it tends to disappear;	Later appearance as a result of the patch test, with progressive aggravation;
Does not cross the contact limits of the patch;	Frequently crosses the contact limits of the patch;
Non-specific dermatitis of hands is a possible late complication of the atopic skin;	Could be even rarer in atopic patients;
At the level of finger-tips.	On dorsal side of hands, where the skin is thinner and allows the penetration of allergen.

TREATMENT

Regarding the treatment of an allergic reaction, it is indicated for the patient to consult an allergologist. Topic cortisone medications are usually used, possibly associated with H1 antihistaminic for additional amelioration of the itching.

It must be mentioned that there is no possibility of desensitization regarding the contact allergens

contained in the cosmetic products. The only way of healing is the total and permanent avoidance of the allergen.

CASE PRESENTATION

We present the case of a 42 years old woman, a teacher by profession, who came to our allergologic office in November, 2007 for oedema of the lips, accompanied by very itchy erythematous-vesicular plaques, localized at lips and perioral level.

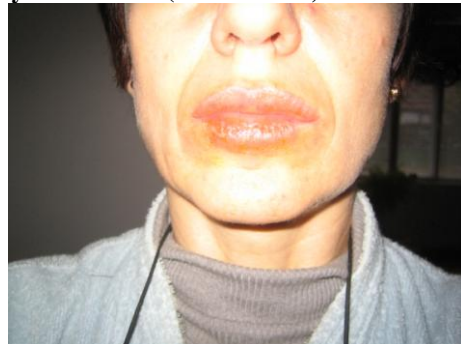
The patient's history revealed that she daily used 3 alternative hydrating creams. She used two of them for 7 years and the third one has been used for the past 2 years, once a week. She used the creams for the lips and did not use other cosmetics like lipstick, mascara, eye shadow, hair dye or nail varnish.

She is a non-smoker patient and does not use other toxics or chronic medication.

Three days before, she used one of the creams on the lips, and soon after, xerosis and intensive pruritus occurred at this level. Hoping to heal, she used the same cream again for three times a day.

At the physical examination of the lips and perioral area, very itchy erythematous-vesicular plaques could be observed, with certain yellow crusts (pictures no. 1 and 2).

Picture no. 1: Erythematous-vesicular plaques with certain yellow crusts (frontal view)



Picture no. 2: Erythematous-vesicular plaques with certain yellow crusts (lateral view)



The lips have a fragile structure and in the absence of the local secretion of sebum they are constantly hydrated with saliva. So, they may become

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easily irritated, and this is a favouring factor for allergic reactions.

The intermediary diagnosis was the allergic contact dermatitis of the lips and perioral region.

Administration of an antihistaminic (Levocetirizine 2 tb./day, 2 weeks) and a local corticosteroids (Hydrocortisone 1% cream 2x1 local application/day, 7 days) was recommended. Symptomatology improved gradually and finally it disappeared. The patient was asked to come back for the atopy evaluation.

A week after ending the antihistaminic treatment, skin prick tests were performed, which revealed intensive cutaneous sensitization to acarids from the house dust (*Dermatophagoides pteronissinus* and *Dermatophagoides farinae*) and *Candida albicans*. The presence of atopy was also evidenced and skin patch tests were performed on the anterior forearm with the 3 creams used by the patient (with the mention not to wet those areas). Two of the creams were standardized (belonging to well known companies), the third one was an unstandardized mixture of substances. 30 minutes after, no modifications could be observed at the patch test, but 48 hours later, at the level of the unstandardized cream, an intensive pruritus and redness were observed that exceeded the contact limits of the patch (fig. 3, 4).

Picture no. 3: Positive patch test



Picture no. 4: Positive patch test



Among the allergens involved in producing allergic contact dermatitis due to cosmetics and for which there are standardized reagents for testing, we mention (4): paraphenylenediamine (from hair dye), mixed perfumes, balsam of Peru, formaldehyde, paraben,

lanolin, colophony, quaternium 15, imidazolidinyl-urea, cynamide aldehyde, formaldehyde resins or toluenesulfonamide. Other involved substances are: kathon CG, euxyl K 400, thimerosal, benzofenones and glyceryl-thyoglycolate.

The final diagnosis was allergic contact dermatitis of the lips and perioral region and atopy, the latter being a favouring factor. Exclusion of the incriminated cream was recommended, as well as the avoidance of all unstandardized creams use.

In order to avoid irritation **recurrence**, all patients are suggested to:

- reduce and limit the number of hygiene products, particularly the highly scented ones;
- use cleaning agents without soap or non-detergent soaps which do not interfere with the hydrolipid film of the skin;
- do not use pure products; do not mix products (liquid soaps, shampoos), respectively to maintain the dilutions given by the manufacturer;
- only use products whose formula is clearly indicated (not like in our case);
- choose natural textile fibres (cotton, linen, silk, wool) instead of synthetic fibres which increase irritation due to antiperspirants and deodorants.
- To avoid allergic skin reactions, it is recommended:
- to choose products according to the skin type
- to use the products correctly, after reading the instructions carefully.

CONCLUSIONS

Allergic contact dermatitis represents a potential severe pathology, which must be also taken into consideration from the point of view of its impact on the quality of life. If a correct diagnosis is missing, it may represent a severe pathology, which should also indicate the materials and the products to be avoided. Therefore, the skin patch test, together with a rigorous allergologic anamnesis are very important.

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