

Long-lasting allergic patch test reaction to phenylephrine

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Key words: long-lasting allergic patch test reaction; phenylephrine hydrochloride; squaric acid dibutyl ester. © Munksgaard, 1997.

Phenylephrine hydrochloride is a sympathomimetic drug with predominantly α -receptor stimulating properties. For these properties, it is widely used above all in the form of preparations for topical use as nasal decongestants, antihaemorrhoidal ointments and as a mydriatic in ophthalmology. The drug has a well-known sensitizing activity (1).

Case Reports

Case no. 1

A 65-year-old woman, without previous personal history of atopy, developed severe eyelid eczema caused by the phenylephrine contained in eye drops used to treat glaucoma. Patch tests with the GIRDCA standard series and with phenylephrine 1% pet. were positive with an erythematopapular reaction to the last substance only. This reaction persevered for 7 months, after which it disappeared with residual pigmentation.

Case no. 2

A 54-year-old woman, with no history of atopy, developed symmetrical eyelid dermatitis following application of eye drops containing phenylephrine for glaucoma. Patch tests were negative to the GIRDCA standard series and clearly positive to phenylephrine 1% pet. with an erythematopapular reaction. The reaction maintained its characteristics of palpable erythema for 5 months and then disappeared.

To evaluate the cutaneous reactivity of the 2 patients to other substances with sensitizing and irritant activity, informed consent was obtained and contact sensitization induced on the back of each woman by application of a patch test with squaric acid dibutyl ester (SADBE) 3% acet. for 3 days, and an irritant reaction by application of a patch test with dithranol 0.02% pet. for 2 days (2). At the same time, a patch test with phenylephrine 1% pet. was repeated. While the irritant reactions to dithranol disappeared in both cases after 10 days, the allergic contact reactions to phenylephrine and SADBE both persisted in the form of palpable erythema, disappearing almost simultaneously after 5 months in patient no. 1 and after 4 months in patient no. 2.

2 months after application of the tests, the allergic patch test reactions to phenylephrine were biopsied in both patients. Histologic examination showed a subacute dermatitis in both cases.

Discussion

Long-lasting allergic patch test reactions (LLAPTR) are by definition those in which the clinical signs of palpable

erythema are still present at the allergen application sites 2 or more weeks after the test (3). Allergic patch test reactions which persist for several months are unusual and the ones most frequently reported are those induced by gold salts (4). An open patch test reaction to *Parthenium hysterophorus* lasting 9½ months was described by Guin et al. (5). To our knowledge, no cases of LLAPTR to phenylephrine have been reported.

In our 2 cases, LLAPTR was elicited by both substances to which the patients had been sensitized, phenylephrine and SADBE, this latter substance being capable of inducing long-lasting allergic contact dermatitis (6). The case reported by Malanin et al. (7) also showed LLAPTR to all 3 substances (camphoroquinone and 2 acrylics) which had induced active sensitization by patch testing. In the case described by Patrizi et al. (8), on the other hand, only 2 (Disperse Yellow 3 and Disperse Blue 35) of the 6 patch-test-positive textile dyes induced an LLAPTR.

In spite of some studies (9, 10), the pathogenetic mechanisms underlying these LLAPTR are still unknown and it is only possible to hypothesize a localized persistence of the allergen or a defect in the down regulation of the contact hypersensitivity reaction.

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References

1. Angelini G. Topical drugs. In: Rycroft R J G, Menné T, Frosch P J (eds): *Textbook of contact dermatitis*. Berlin, Heidelberg: Springer-Verlag, 1995: 483.
2. Willis C M, Stephens C J M, Wilkinson J D. Experimentally-induced irritant contact dermatitis. Determination of optimum irritant concentrations. *Contact Dermatitis* 1988; 18: 20–24.
3. Allerdice D, Todd D, Gore H, Burrows D. An investigation to determine the duration of allergic patch test reactions. In: *Proceedings of 1st Congress of the European Society of Contact Dermatitis*. Brussels, 1992.
4. Fisher A A. Metallic gold: the cause of a persistent allergic "dermal" contact dermatitis. *Cutis* 1974; 14: 177–180.
5. Guin J D, Baker G F, Mitchell J C. Persistent open patch test reaction. *Contact Dermatitis* 1988; 18: 181–182.
6. Fowler J F Jr, Hodge S J, Tobin G R. Persistent allergic contact dermatitis from squaric acid dibutyl ester. *J Am Acad Dermatol* 1993; 28: 259–260.
7. Malanin K. Active sensitization to camphoroquinone

- and double active sensitization to acrylics with long-lasting patch reactions. *Contact Dermatitis* 1993; 29: 284–285.
8. Patrizi A, Lanzarini M, Tosti A. Persistent patch test reactions to textile dyes. *Contact Dermatitis* 1990; 23: 60–61.
9. Todd D J, Handley J, Walsh M, Dolan O, Burrows D. Keratinocyte expression of class II MCH antigens in long-lasting

allergic patch test reactions. *Contact Dermatitis* 1992; 26: 22–26.

10. Aro T, Kanerva L, Häyrynen-Immonen R, Silvennoinen-Kassinen S, Konttinen Y T, Jolanki R, Estlander T. Long-lasting allergic patch test reaction caused by gold. *Contact Dermatitis* 1993; 28: 276–281.

Allergic contact dermatitis from propyl gallate in desonide cream (Locapred®)

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Key words: allergic contact dermatitis; desonide; Locapred®; propyl gallate; corticosteroids; antioxidants; medicaments. © Munksgaard, 1997.

Relatively few cases of allergic contact dermatitis from propyl gallate (PG), an antioxidant, have been reported, and these mainly in cosmetics.

Case Report

A 59-year-old man presented with an acute lesion of his penis, with swelling, erythema and edema, after using Locapred® cream (desonide) for 2 days. He had previously used the same cream without adverse effects and had no personal history of atopy or contact dermatitis.

Patch tests produced positive reactions to neomycin and nickel in the European standard series, and to Locapred® cream and PG. Corticosteroids, preservatives and emulsifiers series were negative (Table 1).

Comment

PG has been used as an antioxidant and preservative since 1947 (1). It is commonly added to cosmetic products and food. Its primary function is to inhibit the oxidative deterioration of fats, vitamins, fragrances and essential oils (2). Although PG is regarded as a strong sensitizer, few cases of contact sensitivity have been reported and these more in cosmetics (lipstick, body lo-

tions) than in topical medicaments (3–6). Induced immunological tolerance from oral exposure and the low concentration of PG in the cosmetics have been suggested as an explanation of the relative lack of allergy despite its wide usage (1, 2, 7).

A considerable body of clinical research on corticosteroid allergy has been exhibited in the recent literature (8–11). Preservatives and emulsifiers are the compounds most commonly involved in contact allergy to topical corticosteroids. The antiinflammatory effect of corticosteroids usually masks allergic symptoms, and acute dermatitis or strong positive patch tests are rarely observed.

References

- Heine A. Contact dermatitis from propyl gallate. *Contact Dermatitis* 1988; 18: 313–314.
- Kraus A L, Stotts J, Altringer L A et al. Allergic contact dermatitis from propyl gallate: dose response comparison using various application methods. *Contact Dermatitis* 1990; 22: 132–136.
- Wilkinson S M, Beck M H. Allergic contact dermatitis from dibutyl phthalate, propyl gallate and hydrocortisone in Timodine®. *Contact Dermatitis* 1992; 27: 197.
- Athavale N V, Srinivas C R. Contact cheilitis from propyl gallate in lipstick. *Contact Dermatitis* 1994; 30: 307.
- Bojs G, Nicklasson B, Svensson A. Allergic contact dermatitis to propyl gallate. *Contact Dermatitis* 1987; 17: 294–298.
- Marston S. Propyl gallate on liposomes. *Contact Dermatitis* 1992; 27: 74–76.
- Valsecchi R, Cainelli T. Contact allergy to propyl gallate. *Contact Dermatitis* 1988; 19: 380–381.
- Dooms-Goossens A, Hugo J, Degreef M D et al. Contact allergy to corticosteroids: a frequently missed diagnosis? *J Am Acad Dermatol* 1989; 21: 538–543.
- Coopman S, Degreef H, Dooms-Goossens A. Identification of cross-reaction patterns in allergic contact dermatitis from topical corticosteroids. *Br J Dermatol* 1989; 121: 27–34.
- Dooms-Goossens A. Identification of undetected corticosteroid allergy. *Contact Dermatitis* 1988; 18: 124–125.
- Schoenmakers A, Vermorken A, Degreef H et al. Corticosteroid or steroid allergy? *Contact Dermatitis* 1992; 26: 159–162.

Table 1. Patch test results

	D2	D4
European standard series:		
nickel	+++	+++
neomycin	+++	+++
others	–	–
corticosteroids series:		
budesonide	–	–
tixocortol pivalate	–	–
hydrocortisone-17-butyrate	–	–
Locapred®	+++	+++
Preservatives, emulsifiers:		
propyl gallate	+++	+++
others	–	–

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