

Skin problems in an opera choir

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There are not many publications on contact allergy in the opera house environment. In a Swedish study, 116 singers and dancers and 16 makeup artists were investigated for cosmetics intolerance and contact allergy to colophonium.¹ That investigation involved an interview, an examination, and a patch test with a baseline series and materials from the opera house. Common skin lesions were found in one third of participants, and more than 50% had a history of intolerance to cosmetics. Colophonium gave positive patch-test reactions in only three subjects. The prevalence of positive patch-test reactions to fragrance mix I and *Myroxylon pereirae* was about the same as among dermatitis patients generally. The conclusion was that contact allergy to colophonium did not seem to be a problem regarding cosmetics.

We were recently contacted by the personnel manager of an opera choir because of skin problems among the majority of singers due to a blue-colored face cream they had to use during one performance. The personnel manager was afraid the choir would refuse to work due to skin problems. Because of this, we quickly started an investigation.

METHODS

The choir consisted of 34 individuals, both men and women. A questionnaire was submitted electronically to all 34 individuals consisting of 20 questions regarding skin problems before and during their employment in the choir; if they had or had had atopic dermatitis, asthma, or rhinitis; if they used the blue-colored face cream and hygiene products at work; and if they had been patch tested before or been to a doctor because of skin problems. Eight individuals, three men and five women, responded that they had experienced skin problems while working in the choir and that they wished to be investigated by clinical examination and patch testing. Our objective was thus to investigate if occupational exposure to cosmetics was the cause of skin problems reported by the choir.

Information was collected on the cosmetics and skin care products used by the choir at work and at the time of investigation by performing a work-site visit. Patch testing with the Swedish baseline

series (Chemotechnique Diagnostics, Vellinge, Sweden) plus an additional work series containing makeup and skin care products from the opera was performed: in total 64 test preparations. These test preparations were prepared at our laboratory. The eight individuals were first examined clinically and subsequently patch tested. Patch testing was performed using IQ-Ultra test chambers on a hypoallergenic carrier tape (Chemotechnique Diagnostics) and left on the back for 48 hours. Tests were read on day (D) 4 and (D) 7 (at the opera house) according to International Contact Dermatitis Research Group criteria.^{2,3}

RESULTS

Two individuals reacted to hydroperoxides of linalool 1.0% pet. and had a skin rash when using the blue cream. A third individual reacted to *Myroxylon pereirae*, a fragrance marker, and reported skin problems from the blue cream (Table 1). Linalool was identified as an ingredient in two of the products used at the opera, the blue cream used for the performance (Aqua Color soft cream from Kryolan) and a cleansing oil (Gilda) for makeup removal. Another two had skin or eye problems from the blue cream. Thus, five of eight had an occupational skin problem. In addition, positive test reactions to different preservatives were found in one individual.

DISCUSSION

In the opera performed during the time of investigation, the choir had to wear a strongly scented blue makeup cream covering the entire face. Due to many complaints, the person in charge of the choir's makeup products also procured a nonscented blue makeup cream from the same company. However, this did not make a big difference, and because there were so many complaints that the personnel manager dreaded a discontinuation of the opera, she contacted us. Of the eight choir members, three had positive patch test reactions to fragrance materials. Not only the blue make-up cream contained fragrance materials but also several other makeup products and products for make-up removal did.

TABLE 1 Patch-test results on either day 4 or 7 and atopic skin and mucous membrane diseases in eight choir members and their skin signs and symptoms at the time of investigation

Individual no.	Sex	Positive substances	Test reaction	Irritant test reactions	Atopic dermatitis	Rhinitis	Asthma	Skin signs and symptoms
1	F ^a	Hydroperoxides of linalool 1.0% pet. Cobalt 0.5% pet. FM If 8.0% pet. <i>Evernia prunastri</i> 2.0% pet.	+ + ?+ +	—	Yes	No	No	Gets skin rash from scented makeup, huge problems from blue cream
2	F			Cleansing oil Gilda 50% aq.	No	Yes	No	Gets skin rash in face from blue cream
3	F	—		—	Yes	No	?	—
4	M ^b	—		—	No	Yes	No	Seborrheic eczema in face, running and tingling in eyes when used blue scented /unscented cream
5	F	BITg 0.1% pet. Hydroperoxides of linalool 1.0% pet. Cobalt 0.5% pet.	+ + ++	—	Yes	Yes	Yes	Skin problems from blue cream and other scented products at work
6	M	Caine mix II 10.0% pet.	+	—	No	Yes	No	
7	M	<i>Myroxylon pereirae</i> 25% pet. MCI/MI ^c 0.02% aq. MDBGN ^d 0.5% pet.	+ + +	FM II ^e cleansing oil Gilda 50% aq.	No	No	No	Dry pruritic skin on eyelids from blue cream, history of intolerance to scented skin products
8	F	—		—	Yes	Yes	Probably yes	

^aF, female.^bM, male.^cMCI/MI, methylisothiazolinone/methylisothiazolinone.^dMDBGN, methyldibromo glutaronitrile.^eFM II, Fragrance mix II.^fFM I, Fragrance mix I.^gBIT, benzisothiazolinone.

Because use of the blue makeup cream was mandatory, one would expect that those who were sensitized to ingredients in the cream would have skin complaints from the cream, and this was indeed the case in those two persons who were sensitized to hydroperoxides of linalool.⁴ Both had a skin rash when using the blue cream. Another three had skin or eye problems from the blue cream, without proven contact allergy to hydroperoxides of linalool, probably due to irritation and a heavy scented smell, since all three informed us that they had sensitive skin. Thus, five of eight had an occupational problem. We wrote a statement to the officer in charge of the products to be used by the choir that all skin products must be fragrance-free and should also not contain sensitizing preservatives such as isothiazolinones or formaldehyde releasers. At the end, the personnel manager was very grateful for our rapid investigation that probably salvaged the performances.

We conclude that the heavy makeup used by choir member/actors may cause both irritant and allergic contact dermatitis. Exposure to fragrance materials present in makeup products may be

recognized as an important factor causing occupational skin disorders. When the use of makeup is mandatory in the professional setting it should be fragrance free and free from strongly sensitizing preservatives.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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REFERENCES

1. Färm G, Karlberg AT, Lidén C. Irritation from some products, it was a work related problem. Are opera-house artistes afflicted with contact allergy to colophony and cosmetics? *Contact Dermatitis*. 1995;32(5): 273-280.
2. Fregert S. *Manual of Contact Dermatitis*. 2nd ed. Copenhagen: Munksgaard; 1981:71-81.

3. Johansen JD, Aalto-Korte K, Agner T, et al. European Society of Contact Dermatitis guideline for diagnostic patch testing - recommendations on best practice. *Contact Dermatitis*. 2015;73(4):195-221.
4. Isaksson M, Karlberg AT, Nilsson U. Allergic contact dermatitis caused by oxidized linalool in a deodorant. *Contact Dermatitis*. 2019;81(3): 213-214.

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