

LETTER TO THE EDITOR

Allergic contact dermatitis due to carrots

Dear Editor

Carrot is a member of the Umbelliferae family, which also includes parsley and celery. Falcarinol is a natural pesticide and fatty alcohol, and an allergen common to the Umbelliferae family and the Araliaceae family, which includes ivy and fatsia.¹ Here, we describe a case of allergic contact dermatitis that seemed to be caused by falcarinol in carrots.

The patient was a 46-year-old man who worked as a beautician. He had pruritic erythema and swelling with serous papules on his hands (Fig. 1) on the day after he cooked with potatoes, carrots and onions, and ate the dish. The eruptions worsened and he visited our hospital 2 days after onset. He had no eruptions around his mouth and no symptoms other than the skin symptoms. He had suffered twice from eruptions on his hands that were similar to the present eruption after cooking with vegetables, including carrots. The eruptions improved within a month with treatment with oral antihistamines and topical steroids. We suspected allergic contact dermatitis caused by one or more vegetables. Patch testing was performed on the back of the patient using potatoes, carrots and onions, and the results were assessed after 48 and 72 h, based on the recommendations of the International Contact Dermatitis Research Group. Positive reactions (+ +) occurred with carrots (as is). The results of patch testing with potatoes and onions (as is) were negative. Patch testing was performed with potatoes, carrots and onions for three normal subjects. All results showed negative reactions in these normal subjects. To identify the exact allergen, further patch testing was carried

out with α -pinene (15% pet., Brial), d-limonene (3% pet., Brial), oil of rosemary (0.5% pet., Brial), and oil of eucalyptus (2% pet., Brial), all of which have allergic fragrant components common to carrots. All of these materials showed negative reactions. We also performed patch testing with celery, parsley, and ivy, all of which include falcarinol, which is also found in carrot. Positive reactions (+) were found for all samples of celery, parsley, and ivy (as is). Therefore, we diagnosed the case as allergic contact dermatitis due to common components of carrot, celery, parsley, and ivy including falcarinol. With subsequent avoidance of vegetables and plants containing falcarinol, the patient has not developed further skin symptoms.

There have been several previous reports of allergic contact dermatitis to carrots.^{2–4} These reports have mostly described patients who were cooks or gardeners and often handled vegetables and plants, explaining their sensitization to carrots. However, our patient rarely cooked carrots and had never handled other vegetables and plants containing falcarinol. Some anticellulitic creams and gels, shampoos, and hair lotions also include crude and fractionated extracts of ivy.⁵ He had previously used shampoos and hair lotions including plants, but it was unclear whether the products contained ivy. If he had previously used shampoo and cosmetics including ivy, this may have led to sensitization to common components of carrot and ivy such as falcarinol.

CONFLICT OF INTEREST: The authors have declared no conflicts.

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Figure 1. Allergic contact dermatitis. Serous papular lesions of the fingers.

REFERENCES

- 1 Lovell CR, ed. *Plants and the Skin*. Oxford: Blackwell, 1993; 86–92, 142–145.
- 2 Murdoch SR, Dempster J. Allergic contact dermatitis from carrot. *Contact Dermatitis* 2000; **42**: 236.
- 3 Machado S, Silva E, Massa A. Occupational allergic contact dermatitis from falcarinol. *Contact Dermatitis* 2002; **47**: 113–114.
- 4 Kanerva L, Estlander T, Jolanki R. Occupational allergic contact dermatitis from spices. *Contact Dermatitis* 1996; **35**: 157–162.
- 5 Hausen BM, Bröhan J, König WA, Faasch H, Hahn H, Bruhn G. Allergic and irritant contact dermatitis from falcarinol and dihydrofalcarinol in common ivy (*Hedera helix* L.). *Contact Dermatitis* 1987; **17**: 1–9.

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