

**Contact dermatitis
from Welsh poppy
[*Meconopsis cambrica*
(L.) Vig.]**

Contact Dermatitis 2010: 62: 184–186

Evvy Paulsen¹ and Gitte I. Strauss²

¹Department of Dermatology and Allergy
Centre, Odense University Hospital,

University of Southern Denmark, 5000 Odense C, Denmark and ²Department of Dermatology, Gentofte University Hospital, University of Copenhagen Denmark, 2900 Hellerup, Denmark

Key words: allergic contact dermatitis; compositae; *Meconopsis cambrica*; Papaveraceae; plants; Welsh poppy.

New allergenic plants are often found in an occupational setting due to the special conditions favouring sensitization. However, here we report the first case of contact allergy to a common perennial garden plant, Welsh poppy [*Meconopsis cambrica* (L.) Vig.], accompanied by concomitant sensitization to Compositae.

Case Report

In the summer of 2007, a 61-year-old female secretary was referred on suspicion of allergic contact dermatitis. She had a history of atopic dermatitis as a child and hay fever since the age of 20. Furthermore, she had a long history of recurrent vesicular hand eczema localized to palms and lateral sides of fingers. Patch testing about 15 years previously had shown positive reactions to *Myroxylon pereirae* and parabens.

Her symptoms began in April 2004 with dermatitis of the face and neck, worst around the left eye. She also had an exacerbation of her hand eczema in the summer of 2004. In the following years, the facial dermatitis recurred in April–May and lasted until the end of September.

Patch testing in October 2007 with an extended baseline series (including primin and sesquiterpene lactone mix) and her own topical products, using Finn Chambers[®] (Epitest Ltd Oy, Tuusula, Finland) on Scanpor[®] tape (Actavis Norway AS, Vennesla, Norway) and readings according to ICDRG criteria on day (D) 2, 3, and 7, revealed no contact allergies.

In April 2008, the dermatitis recurred with severe oedema around the left eye after gardening. Treatment with topical corticosteroid and tacrolimus had to be supplemented with systemic corticosteroid for 3 months. In August 2008, the patient was patch tested with a series of compounds used in topical products, four of her own plants (bleeding heart (*Dicentra spectabilis*), a species of Forget-me-not (*Myosotis*), a species of *Ficus* and leaves of an unknown bush, all kept in a freezer for 3 months),

Table 1. Results of patch testing in September 2009

Allergen	Reading (D4)	Reading (D7)
<i>Meconopsis cambrica</i> flower wetted with ethanol	++ ^a	++ erosion
<i>Meconopsis cambrica</i> leaf wetted with ethanol	++ ^a	+
<i>Meconopsis cambrica</i> stalk wetted with ethanol	++ ^a	++
Sesquiterpene lactone mix 0.1% pet.	?+ Follicular	+
Parthenolide 0.1% pet.	?+ Follicular	+
Compositae mix 6% pet.	++	++
Compositae mix 5% pet.	++	++
Chrysanthemum extract 3% pet.	++	+
Feverfew flower extract 1% pet.	+	++

^aTreated with clobetasol propionate ointment.

?+, doubtful positive.



Fig. 1. Welsh poppy [*Meconopsis cambrica* (L.) Vig.].

and a photopatch test series with sun protectors supplemented with the sesquiterpene lactone mix. The only positive reaction was to ethylhexyl-4-dimethylaminobenzoate, which elicited a 1+ response on the irradiated side. As the sunscreen used in 2008 did not contain this, the allergy could not account for all of her symptoms. Skin prick test with standard inhalant allergens supplemented with chlorhexidine gluconate 0.5% aqua showed positive reactions to grass pollen, dog and cat dander, and house dust mite (*Dermatophagoides pteronyssinus*), whereas skin prick tests with 20 fresh fruits and vegetables were negative.

After recurrence of the facial dermatitis in May 2009, the patient was patch tested in September 2009 with special reference to a possible plant allergy. The positive results are shown

in Table 1. Welsh poppies (Fig. 1) had been introduced in her garden 10 years previously, but due to the prolific growth, the patient began treating them as weeds. She did not use gardening gloves before her hand eczema recurred in 2004. Ten consecutive eczema patients were tested with dried plant parts (flower, leaf, and stalk), wetted with ethanol, from the patient's original specimen of Welsh poppy; none tested positive.

Discussion

The genus *Meconopsis* belongs to the poppy family (Papaveraceae) and comprises about 40 species. Only one of these, namely the Welsh poppy, is native to Europe and more specifically the northern part of Spain, western part of France, and the British Isles (1). The other species are indigenous to

south-central temperate Asia, especially the Himalayas (1). However, the famous Himalayan Blue poppy, *Meconopsis betonicifolia* Franchet, of the same genus, is also used in herbaceous borders in European gardens due to its beautiful sky-blue flowers (1).

Chemical investigations of the Welsh poppy have confirmed the occurrence of several alkaloids (2). Mecambrine and mecambidine have been isolated from roots and aerial parts on more than one occasion, whereas the occurrence of magnoflorine and sanguinarine, previously isolated from some Asian species, indicates a closer chemical affinity between *Meconopsis* species from different continents (2).

Alkaloids may act as contact allergens, albeit rarely (3). The genus *Meconopsis* is closely related to the genus *Papaver*, and contact allergy from opium alkaloids of the opium poppy (*Papaver somniferum*) has been reported (4). Likewise, *Papaver dubium* has been considered a cause of contact dermatitis (4) and more recently, a report from the United Kingdom described the first case of sensitization from Icelandic poppy (*Papaver nudicaule*) (5). The Icelandic poppy is also used in herbaceous borders and resembles the Welsh poppy. The patient who was allergic to Icelandic poppy had a long previous history of eczema and was an amateur gardener (5). She developed acute eczema of her palms and perioral skin and the dermatitis cleared after avoidance of the plant (5). In this case, the sensitization to Welsh poppy may be the most important, but not necessarily the only, contributory factor to the development of the periorbital dermatitis because the patient was also allergic to Compositae and a sunscreen ingredient. Concerning Compositae, the results point to chrysanthemum as the primary sensitizer. Even though the patient no longer had chrysanthemum plants at home, she was still exposed when visiting her family and once she noticed exacerbation of the eczema around her right eye after sitting next to chrysanthemums. Incidentally, some years ago we saw an elderly gentleman with summer-related dermatitis of face, hands, and arms and 2+ patch test reactions to the leaves and stalk of a yellow poppy as well as to Compositae mix 6% pet. The patient had treated the poppies, which he claimed to be Icelandic poppies, as weeds; botanical identification of the plants

was never established and hence the case was not reported.

There are no reports on the occurrence of sesquiterpene lactones in Papaveraceae. It is therefore likely that the two patients had concomitant sensitization to Compositae and Papaveraceae through gardening. The allergens of the poppy family seem to be quite strong and present in flowers, stems, and leaves. If the allergens are alkaloids, they are relatively stable and not destroyed by drying of the plant (Professor Lars P. Christensen, University of Southern Denmark, personal communication).

In conclusion, at least two species of the poppy family from the related genera *Meconopsis* and *Papaver* are sensitizing. Pre-existent skin disease and long-standing exposure through weeding may be risk factors for development of contact allergy.

Acknowledgements

We thank Ms. Charlotte Andersen, Langeskov Planteskole A/S, Langeskov, Denmark for her help with identification of *Meconopsis cambrica*, and the patient for providing the photograph of the plant.

References

1. Clapham A R, Tutin T G, Moore D M. Papaveraceae. In: *Flora of the British Isles*, 3rd edition. Cambridge, Cambridge University Press, 1987: pp. 59–60.
2. Hemingway S R, Phillipson J D. Alkaloids of *Meconopsis cambrica*. *J Pharm Pharmacol* 1975; 27: Suppl. 84.
3. Hausen B M, Vieluf I K. *Allergiepflanzen-Pflanzenallergene: Handbuch und Atlas der allergieinduzierenden Wild- und Kulturpflanzen. Kontaktallergene. Allergische Frühreaktionen*. Landsberg/München, Ecomed Verlagsgesellschaft mbH, 1997.
4. Mitchell J C, Rook A. *Botanical Dermatology: Plants and Plant Products Injurious to the Skin*. Vancouver, Greengrass, 1979.
5. Jury C S, Lever R. Allergic contact dermatitis due to Icelandic poppy (*Papaver nudicaule*). *Contact Dermatitis* 2000; 42: 300–301.

Address:
Evy Paulsen
Department of Dermatology and Allergy
Centre
Odense University Hospital
Sdr. Boulevard 29
5000 Odense C

Denmark
Tel: +45 6541 2705
Fax: +45 6612 3819
e-mail:
evy.paulsen@ouh.regionsyddanmark.dk