

Botanical Briefs:

Primula obconica Dermatitis

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PRACTICE POINTS

- *Primula obconica* is a household plant that can cause contact dermatitis (CD). Spent blossoms must be pinched off to keep the plant blooming, resulting in fingertip dermatitis.
- In the United States, *P obconica* is not a component of routine patch testing; therefore, it might be missed as the cause of an allergic reaction.
- Primin and miconidin are the principal allergens known to be responsible for causing *P obconica* dermatitis.
- Treatment of this condition is similar to the usual treatment of plant-induced CD: avoiding exposure to the plant and applying a topical steroid.

Primula obconica, a household plant originally found in China that was introduced in Europe in the 1880s, has been reported to cause plant-induced contact dermatitis (CD). The condition more commonly is reported in Europe and less frequently in the United States, where the plant is not commonly included in patch testing protocols. Clinical features of *P obconica* CD can include facial and hand as well as fingertip dermatitis. The main allergens known to cause these findings are primin and miconidin. Treatment of *P obconica* CD mainly involves avoiding contact with the plant and applying a topical steroid.

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Etiology

Calcareous soils of central and southwest China are home to *Primula obconica*¹ (also known as German primrose and Libre Magenta).² *Primula obconica* was introduced to Europe in the 1880s, where it became a popular ornamental and decorative household plant (Figure).³ It also is a frequent resident of greenhouses.

Primula obconica is a member of the family Primulaceae, which comprises semi-evergreen perennials. The genus name *Primula* is derived from Latin meaning “first”; *obconica* refers to the conelike shape of the plant’s vivid, cerise-red flowers.

Allergens From *P obconica*

The allergens primin (2-methoxy-6-pentyl-1,4-benzoquinone) and miconidin (2-methoxy-6-pentyl-1,4-dihydroxybenzene) have been isolated from *P obconica* stems, leaves, and flowers. Allergies to *P obconica* are much more commonly detected in Europe than in the United States because the plant is part of standard allergen screening in dermatology clinics in Europe.⁴ In a British patch test study of 234 patients with hand dermatitis, 34 displayed immediate or delayed sensitization to *P obconica* allergens.⁵



Primula obconica (also known as German primrose and Libre Magenta).

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However, in another study, researchers who surveyed the incidence of *P obconica* allergic contact dermatitis (CD) in the United Kingdom found a notable decline in the number of primin-positive patch tests from 1995 to 2000, which likely was attributable to a decrease in the number of plant retailers who stocked *P obconica* and the availability of primin-free varieties from 50% of suppliers.³ Furthermore, a study in the United States of 567 consecutive patch tests that included primin as part of standard screening found only 1 positive reaction, suggesting that routine patch testing for *P obconica* in the United States would have a low yield unless the patient has a relevant history.⁴

Cutaneous Presentation

Clinical features of *P obconica*-induced dermatitis include fingertip dermatitis, as well as facial, hand, and forearm dermatitis.⁶ Patients typically present with lichenification and fissuring of the fingertips; fingertip vesicular dermatitis; or linear erythematous streaks, vesicles, and bullae on the forearms, hands, and face. Vesicles and bullae can be hemorrhagic in patients with pompholyxlike lesions.⁷

Some patients have been reported to present with facial angioedema; the clinical diagnosis of CD can be challenging when facial edema is more prominent than eczema.⁶ Furthermore, in a reported case of *P obconica* CD, the patient's vesicular hand dermatitis became pustular and spread to the face.⁸

Allergy Testing

Patch testing is performed with synthetic primin to detect allergens of *P obconica* in patients who are sensitive to them, which can be useful because *Primula* dermatitis can have variable presentations and cases can be missed if patch testing is not performed.⁹ Diagnostic mimics—herpes simplex, pompholyx, seborrheic dermatitis, and scabies—should be considered before patch testing.⁷

Prevention and Treatment

Preventive Measures—Ideally, once CD occurs in response to *P obconica*, handling of and other exposure to the plant should be halted; thus, prevention becomes the mainstay of treatment. Alternatively, when exposure is a necessary occupational hazard, nitrile gloves should be worn; allergenicity can be decreased by overwatering or introducing more primin-free varieties.^{3,10}

Cultivating the plant outdoors during the winter in milder climates can potentially decrease sensitivity because allergen production is lowest during cold months and highest during summer.¹¹ Because *P obconica* is commonly grown indoors, allergenicity can persist year-round.

Pharmacotherapy—Drawing on experience treating CD caused by other plants, acute and chronic *P obconica* CD are primarily treated with a topical steroid or, if the face or genitals are affected, with a steroid-sparing agent, such as tacrolimus.¹² A cool compress of water, saline, or Burrow solution (aluminum acetate in

water) can help decrease acute inflammation, especially in the setting of vesiculation.¹³

Mild CD also can be treated with a barrier cream and lipid-rich moisturizer. Their effectiveness likely is due to increased hydration and aiding impaired skin-barrier repair.¹⁴

Some success in treating chronic CD also has been reported with psoralen plus UVA and UVB light therapy, which function as local immunosuppressants, thus decreasing inflammation.¹⁵

Final Thoughts

Contact dermatitis caused by *P obconica* is common in Europe but less common in the United States and therefore often is underrecognized. Avoiding contact with the plant should be strongly recommended to allergic persons. *Primula obconica* allergic CD can be treated with a topical steroid.

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