

# Allergic contact dermatitis from *Grevillea* masquerading as toxicodendron dermatitis



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## INTRODUCTION

*Grevillea* 'Robyn Gordon' is one of several hybrid *Grevillea* genus plants. This species is characterized by attractive, tall bushes with toothbrush-like flowers and leathery seed capsules. Despite the oak-like appearance of the tree's bark, the *Grevillea* species belongs to the *Proteaceae* family and is unrelated to the true-oak (*Quercus*) species.<sup>1-3</sup> Native to Australia, *Grevillea* species are highly adaptable, and thus, have also been imported to the warmer and semitropical regions of the United States, including parts of Arizona, California, Florida, and Hawaii.<sup>1,4</sup> They produce perennial flowers and are increasingly used as ornamental plants.<sup>3</sup> The medium-to-large trees of the *Grevillea* species can also be used as shade trees for tea and coffee plantations<sup>4</sup> and as timber for furniture, flooring, and, less commonly, wooden jewelry.<sup>2,5,6</sup>

*Grevillea* species contain long chain alkyl resorcinols, which are phenolic compounds that are structurally similar to the sensitizing urushiols from poison ivy.<sup>2</sup> They are a known cause of occupational dermatitis among arborists in Australia,<sup>2,3</sup> and along with the poodle-dog bush, one of 2 plant species known to cause eruptions that closely mimic *Toxicodendron* dermatitis. Despite its growing use as an ornamental shrub, *Grevillea* is not a well-recognized cause of phytodermatitis in the United States.<sup>6,7</sup> Herein, we present a case of allergic contact dermatitis (ACD) in the setting of *Grevillea* 'Robyn Gordon' exposure in Oakland, California.

## CASE REPORT

A 46-year-old woman with past medical history notable for flexural eczema presented with recurrent episodes of erythematous, strikingly linear

### Abbreviation used:

ACD: allergic contact dermatitis

papulovesicular pruritic plaques on the extremities (Fig 1). The rash subsequently generalized to include her face and torso, on several occasions requiring short courses of oral corticosteroids to abate symptoms. Upon initial presentation, the patient was diagnosed with ACD secondary to suspected, yet never confirmed, poison oak exposure. Despite strict avoidance of *Toxicodendron* plants, the patient noted recurrent episodes of dermatitis and was thus referred for patch testing.

She underwent testing with the North American Contact Dermatitis Group series, fragrance and plant series, and assorted personal care products. At 96 hours, all patch-test sites were negative. The patient remained highly motivated to identify the etiology of this disabling and severe dermatitis. Having reported that the most recent episode had occurred shortly after she had trimmed some bushes in her backyard, she was asked to bring samples of the culprit plant (which was subsequently identified by her landscaper as *Grevillea* 'Robyn Gordon') for additional testing. Shavings from the bark and leaves and flower fragments of the plant were obtained, crushed, and diluted in petrolatum (1%), as previously reported.<sup>1,6</sup> At 96 hours, the patient had 2+ reactions to both *Grevillea* 'Robyn Gordon' flower fragments (1%, petrolatum and bark shavings (1%, petrolatum). This was followed by a mild recrudescence of her more generalized eruption in subsequent days. With *Grevillea* 'Robyn Gordon' identified as the likely source of her dermatitis, the

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**Fig 1.** Initial papulovesicular eruption on the medial aspect of her left forearm.

patient had the plants (Fig 2) removed from her home and completed a prednisone taper, which resulted in complete resolution of her dermatitis. At follow-up several months later, the dermatitis had not recurred.

## DISCUSSION

Given its attractive appearance and its practical uses for shade and timber, *Grevillea* species have grown in popularity in the United States.<sup>3</sup> In Australia, ACD secondary to *Grevillea robusta* exposure is often referred to as “Australia’s poison ivy” and is a common cause of occupational dermatitis among woodworkers, including landscapers, carpenters, and saw-mill workers, and possibly the most common cause of phytodermatitis in the region.<sup>2,5,8</sup> There are few reported cases of ACD developing from exposure to *Grevillea* species outside of Australia.<sup>1,3,7</sup> To our knowledge, the most recent reports of *Grevillea*-related ACD in the United States, besides the case presented here, were in Hawaii in 1992 as described by Knight and Whitesell.<sup>9</sup> In their report, they described 3 cases of dermatitis, including 1 patient who recently used silk-oak timber for woodworking and 2 patients, who were exposed to sawdust in the home after their spouses worked directly with the plant.<sup>9</sup>

*Grevillea* dermatitis closely mimics *Toxicodendron* dermatitis, presenting with linear papulovesicular plaques at the sites of exposure to one of several plant-specific resorcinol derivatives with long-side chains that structurally resemble and may indeed cross-react with urushiol—a concerning prospect given the high prevalence of *Toxicodendron* sensitization in the United States.<sup>1,2,6</sup> In addition to *Grevillea robusta* and the hybrid ‘Robyn Gordon’, other less popular *Grevillea* species, including *Grevillea banksii*, *Grevillea hookeriana*, and the “Mason’s hybrid” are also known phytoallergens.<sup>10</sup>



**Fig 2.** The *Grevillea* ‘Robyn Gordon’ plant.

One other plant, the poodle-dog bush (*Eriodictyon parryi*), has also been described to elicit a dermatitis that closely mimics that of the *Toxicodendron* family. This is a perennial woody bush in the *Hydrophyllaceae* family native to California that thrives in soil that has been disrupted by fires or landslides. In the setting of the worsening wild fires plaguing the west coast, it is positioned to become a potentially important source of phytodermatitis of which dermatologists should also be aware. The treatment in both cases includes strict avoidance of the plant, which may necessitate the removal of the plant from home gardens.

While patch testing is the gold standard for the diagnosis of ACD, it is generally not recommended for confirmation of *Toxicodendron* dermatitis given the high risk of sensitization and potential for eliciting a severe reaction.<sup>8</sup> In cases where other plants are suspected as the cause of ACD, commercially available allergens may not be readily available; thus, preparation of custom patches may be necessary. In such cases with thornless flowering plants, like *Grevillea* species, trimmings from the root, flower, leaf, or stem, diluted in petrolatum or ethanol, may be used for testing.<sup>9</sup>

This case highlights the importance of eliciting a thorough history from patients, who present with pruritic eruptions, including exposures to plants, as well as the potentially vital role of patch testing in the diagnostic evaluation of ACD. Our case underscores the importance of awareness of emerging phytoallergens that may mimic the more well-recognized eruptions of the *Toxicodendron* family of plants.

## Conflicts of interest

None disclosed.

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