



## BRIEF REPORT

# A Case of Irritant Contact Dermatitis Associated with *Pulsatilla koreana*

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Dear Editor:

A 52-year-old female patient was referred to our clinic with widespread bullae on both feet (Fig. 1A, B). One day before her visit, she had applied a mix of the ground stem, leaves, and roots of *Pulsatilla koreana* to her feet as she had heard that *Pulsatilla* was effective against plantar fasciitis, which she had been suffering from for the last 4 months. The patient reported feeling a burning sensation and pain 2 hours after applying the *Pulsatilla*, and 2 hours later, she was unable to tolerate the symptoms. She then removed the ground *Pulsatilla* and found multiple erythematous bullae on her feet. There was no history of application of other topical agents. She was diagnosed with irritant contact dermatitis (ICD) from topical application of *P. koreana*, which belongs to the Ranunculaceae family. The patient was treated with a systemic steroid, antibiotics, and antihistamines; further, daily dressings with topical steroid and antibiotics were applied. Her lesions resolved after 2 weeks, and some hyperpigmentation remained (Fig. 1C, D). We received the patient's consent form about publishing all photographic materials.

ICD triggered by plants is common and differs from allergic contact dermatitis in that it can occur in anyone ex-



**Fig. 1.** (A, B) Multiple and huge bullae accompanied by burning sensation on both feet. (C, D) The lesions were improving without recurrence but left hyperpigmentation on both feet. (E) Picture of *Pulsatilla koreana*. Modified from "Pulsatilla koreana NAKAI [Internet]", by Rural Development Administration, 2006, Jeonju: Rural Development Administration; [cited 2018 Nov 1]. Available from: <http://www.rda.go.kr/ptoPtoMainSearchFocusList.do?searchKey=title&searchVal=%ED%95%A0%EB%AF%B8%EA%B D%83>. Copyright 2006 by the Rural Development Administration. Reprinted with permission.

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**Table 1.** Summary of clinical informations of 4 cases reported as irritant reactions by *Pulsatilla koreana*

Author	Sex/age (yr)	Purposes and site	Times to develop symptom	Clinical presentation and symptom	Treatment
Kim et al. <sup>3</sup>	Female/20	Left facial nerve palsy	Immediately	Wide bullae upon erythematous patch with burning sensation	Not mentioned
Song et al. <sup>2</sup>	Female/67	Anti-wrinkle effects on face	20 minutes	Bullae with burning sensation	Antiseptic cream
	Female/57	Both knee pain due to rheumatic arthritis	2 hours	Burning sensation	Antiseptic cream
	Female/68	Right wrist pain due to rheumatic arthritis Whitening effects on face	1 hour	Burning sensation	Antiseptic cream
Present case	Female/52	Plantar fasciitis	2 hours	Wide bullae on both feet with burning and itching sensation	Systemic steroid, antibiotics, antihistamines Daily dressing with topical steroid, antibiotics

posed to an irritant<sup>1</sup>. *P. koreana* is a member of the genus *Pulsatilla*, which belongs to the Ranunculaceae family<sup>2</sup>, that has been used in folk remedies as an anti-inflammatory, analgesic, and astringent agent in Korea<sup>3</sup>. The plants of Ranunculaceae family are known to contain protoanemonin, a blister-causing compound. When protoanemonin reacts with sulfhydryl groups, it disrupts the disulfide bonds in the skin, destroying the subepidermal junction and creating blisters<sup>1</sup>. Protoanemonin is particularly abundant in the leaves and stems of *Pulsatilla* plants and is released when the leaves and stems are crushed. This compound causes irritant reactions even if it is applied to the skin for a short time<sup>4</sup>. Continuous exposure may cause erythema, edema, blistering, and hyperpigmentation.

Thus far, four cases of ICD due to *P. koreana* have been reported in Korea (Table 1)<sup>2,3</sup>. ICD cases associated with other Ranunculaceae species have also been reported<sup>1,4</sup>. The common features of ICD caused by the plants of Ranunculaceae family are the rapid appearance of the symptoms after exposure to the skin, protoanemonin-induced blisters, and prolonged hyperpigmentation. In this case, the lesions were limited to the contact area and occurred immediately after contact, and the clinical course was consistent with the preexisting reports, which enabling the diagnosis of ICD associated with *P. koreana*.

Despite the advancements in modern medicine, many cases with systemic problems, in addition to cutaneous problems, still occur due to unproven folk remedies. We have experienced a case of ICD associated with the topical application of *P. koreana* based on a folk remedy. We report this case to highlight that physicians' treatments are evi-

dence-based and have been proven effective and safe by many clinical studies conducted in a large number of patients. In addition, we aim to discourage the general public from resorting to indiscreet folk remedies with a review of the literature.

## CONFLICTS OF INTEREST

The authors have nothing to disclose.

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