

Idiopathic Aquagenic Wrinkling of the Palms in Korean Patients

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Dear Editor:

A 23-year-old Korean man presented with wrinkled, whitish plaques on both palms with a 2-month history. On physical examination, whitish discoloration and intense edematous wrinkling appeared on his palms within 3 min after water immersion. This condition was transient and almost completely resolved within 25 min after drying of his palms (Fig. 1). At the onset of this phenomenon, dullness and mild hyperhidrosis were present on his palms. Neither his feet nor any other part of his body was affected. He had no relevant family or medical history of systemic diseases. He was not taking any regular medication. The laboratory and radiologic examinations showed nonspecific findings. The histopathologic findings of the lesional skin revealed orthokeratotic hyperkeratosis and mild acanthosis; however, there were no significant differences compared with the unaffected skin. He was treated with topical 20% aluminum hydrochloride, and his condition improved.

Aquagenic wrinkling of the palm (AWP), a rare dermatosis, is also known as aquagenic syringeal acrokeratoderma, aquagenic palmoplantar keratoderma, aquagenic acrokeratoderma, or transient reactive papulotranslucent keratoderma¹. Excessive and early palmar wrinkling occurs within 3 min after water exposure in AWP, whereas

water immersion wrinkling is a normal physiologic response to prolonged water immersion and occurs at 11.5 min after water exposure². It is often associated with hyperhidrosis, pruritus, and a burning or tingling sensation. AWP mainly occurs in Caucasian adolescent women. The diagnosis of AWP is primarily based on clinical manifestations, which is the rapid development of transient whitish edematous plaques with excessive wrinkling on the palm after water exposure ("hand-in-the-bucket" sign)^{3,4}. Because of the whitish discoloration and tingling sensation in the acral area, it may be confused with the Raynaud phenomenon; however, it can be easily differentiated by its excessive wrinkling and the irrelevance of cold temperature. Histopathologic examination in a previous study revealed hyperkeratosis and dilated eccrine ostia^{3,5}. Various treatment modalities, including topical 20% aluminum chloride solution, iontophoresis, or botulinum toxin injection, have all shown good response through the reduction of hyperhidrosis⁴.

Although the exact pathogenesis is unclear, AWP is postu-



Fig. 1. Clinical images of the palms after the water provocation test. Whitish discoloration and edematous intense wrinkling were observed after 3 min of water immersion.

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Table 1. Summary of the cases of aquagenic wrinkling of the palm reported in Asians

Case No.	Author	Age (yr) /sex	Ethnicity	Symptom	Location	Associated systemic condition	Histopathological finding	Treatment and progression
1	Kabashima et al. ¹	23/M	Japanese	Tingling, pain, hyperhidrosis	Both palms	-	Mild orthokeratotic hyperkeratosis, hyperplastic eccrine glandular epithelium	Topical 20% aluminum chloride hexahydrate: not effective
2	Yoon et al. ³	14/M	Korean	-	Dorsum of the fingers	-	Orthohyperkeratosis, dilated eccrine ostia, hyperplastic glandular epithelium, irregular-shaped lumina of the eccrine glands	-
3	Lim et al. ⁴	16/M	Singaporean	-	Both palms	Congenital cardiac anomaly (TGA)	-	Spontaneous resolution after 6 months without treatment
4	Ibusuki et al. ⁵	27/M	Japanese	-	Right palm	-	Orthohyperkeratosis, mild acanthosis, hyperplastic eccrine glandular epithelium, enlarged glandular cells	Topical 20% aluminum chloride solution, urea-containing cream, and iontophoresis: not effective
5	Present case	23/M	Korean	Dullness, hyperhidrosis	Both palms	-	Orthokeratotic hyperkeratosis and mild acanthosis	Topical 20% aluminum hydrochloride: slightly effective

M: male, TGA: transposition of the great artery.

lated to be caused by a sweat electrolyte disturbance that results in sodium retention within epidermal keratinocytes, resulting in an increase in osmotically induced cell volume¹. Several conditions including cystic fibrosis (CF) and drug (tobramycin, rofecoxib, or aspirin) use have also been reported with AWP². The association between CF and AWP is well established; Gild et al.² suggested that patients with AWP should be offered a screening test for both CF and the carrier state. The occurrence of AWP in Asians is very rare. All five Asian AWP cases occurred idiopathically in young men with no evidence of association with either CF or drugs (Table 1)^{1,3-5}. Further studies should be performed to elucidate the complete pathogenesis of AWP in Asians.

To date, only one case of AWP in Koreans, with an unusual presentation on the dorsum of the fingers, has been reported as "aquagenic syringal acrokeratoderma"³. Here, we report the second Korean case of AWP showing typical presentations, including a literature review of Asian cases.

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