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**Cholinergic Urticaria After
COVID-19 Infection**

To the Editor:

A 39-year-old Japanese woman developed a fever and cough and was diagnosed with coronavirus disease 2019 (COVID-19) infection 2 months prior. Both symptoms resolved spontaneously within a few days. However, 1 week later, tingling pain and wheals appeared over her entire body, sparing her head and the distal portion of the extremities. They appeared a few minutes after bathing and quickly resolved with cooling (Figure). The patient was diagnosed with cholinergic urticaria using an acetylcholine injection test, which induced both pain and wheals. No suggestive findings of anhidrosis were observed in a thermoregulatory sweat test. Symptoms improved with oral administration of antihistamine.

Cholinergic urticaria is a skin disorder triggered by sweating or stimuli that simulate sweating, such as bathing.¹ It is common in young adults, and presents as a military to azuki bean-sized erythematous rash, but a rash does not always appear.¹ Cholinergic urticaria may present with tingling pain rather than itching.¹ Four subtypes of cholinergic urticaria have been proposed: Cholinergic urticaria with 1) poral occlusion; 2) acquired generalized hypohidrosis; 3) sweat allergy; and 4) idiopathic origin.² Acetylcholine injection test is useful in the diagnosis of cholinergic urticaria.^{1,2} Antihistamines are an effective treatment for cholinergic urticaria, and in cases of cholinergic urticaria with a sweat allergy, desensitization therapy is added.³ Even in the case of anhidrosis, improving the function of the sweat glands by increasing opportunities for sweating, such as exercise, can help prevent a recurrence.³ Various infections can cause urticaria,⁴ and urticaria has been reported to develop after COVID-19 infection.⁵ Cholinergic urticaria can occur after a COVID-19 vaccination; however, cholinergic urticaria after a COVID-19 infection has not been previously reported.⁶



Figure Tingling pain and wheals appeared a few minutes after bathing and quickly resolved with cooling.

In conclusion, pain and wheals induced by thermal stimuli should be considered cholinergic urticaria, which can occur after COVID-19 infection.

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