

# Dermatologic findings in 2 patients with COVID-19



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## INTRODUCTION

The recent emergence of a novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has quickly developed into a global pandemic and public health emergency.<sup>1</sup> Coronavirus disease 2019 (COVID-19) primarily produces fever and respiratory symptoms, although involvement of other organ systems has been reported, including cardiovascular and gastrointestinal manifestations.<sup>2</sup> The cutaneous manifestations in COVID-19 are largely unknown but case reports and case series are accumulating in the literature. Here we describe 2 patients with cutaneous eruptions after SARS-CoV-2 infection and review the known literature on COVID-19–related dermatologic manifestations.

## CASE REPORT

Case 1 was a 60-year-old male physician with a history of a mitral valve replacement, paroxysmal atrial fibrillation, and depression, who was treated for a sudden-onset asymptomatic rash on the back, flanks, groin, and upper thighs. Three days before, he had developed flulike symptoms, including a low-grade fever (38°C), myalgias, fatigue, and a mild cough. His only medications were apixaban and duloxetine, and he had no known drug or food allergies. There were no recent changes to his medications. Additionally, no over-the-counter remedies, antibiotics, antivirals, or nonsteroidal anti-inflammatory drugs had been initiated. SARS-CoV-2 rapid respiratory panel resulted in a

### Abbreviations used:

COVID-19:	coronavirus disease 2019
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2

positive test result, but the patient was not tested for other viruses. On presentation, he was found to have scattered erythematous macules coalescing into papules on the back, bilateral aspect of the flanks, groin, and proximal lower extremities (Fig 1, A). No mucosal lesions were observed, nor was there any conjunctival injection or erythema. A punch biopsy specimen from the lower back revealed a mild perivascular infiltrate of predominantly mononuclear cells surrounding the superficial blood vessels (Fig 2). The epidermis showed scattered foci of hydropic changes, along with minimal acanthosis, slight spongiosis, and foci of parakeratosis. On the basis of both clinical and histologic findings, a diagnosis of a viral exanthem was made. The patient was advised to self-isolate for 7 days from symptom onset and until he was fever free for 72 hours without the use of fever-reducing medications. The patient recovered from his infection and did not require hospitalization. One week later, small round purpuric macules were observed in the formerly involved areas (Fig 1, B).

Case 2 was a 60-year-old woman with a history of a task-specific focal dystonia, mild hemifacial atrophy, and scoliosis who presented to the

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Stanger and authors Rivera-Oyola, Koschitzky, and Printy have no conflicts of interest to declare.

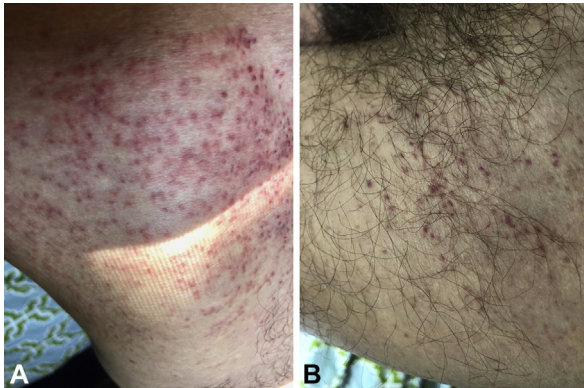
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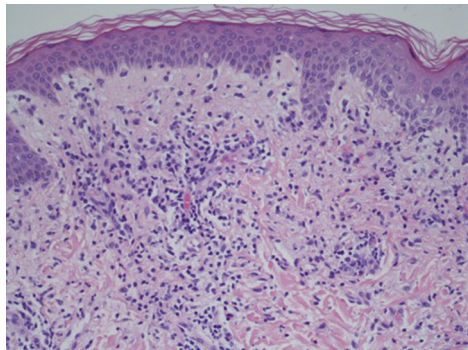
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**Fig 1.** Cutaneous findings in a 60-year-old man with a positive COVID-19 test result. **A**, Initial presentation: erythematous macules and papules on the left aspect of the upper back 3 days after symptom onset. **B**, One week later, purpuric round macules were noted in the areas of previous rash involvement.



**Fig 2.** Histologic findings suggestive of a viral exanthem. A perivascular infiltrate of predominantly mononuclear cells surrounds the vessels in the superficial dermis. (Hematoxylin-eosin stain; original magnification:  $\times 20$ .)

Dermatology Department with a 6-hour history of sudden-onset, generalized, pruritic rash on the trunk, head, and upper and lower extremities. Nine days before, she had developed flulike symptoms, including a low-grade fever ( $38.2^{\circ}\text{C}$ ), myalgias, fatigue, and a mild cough. Additionally, she developed gastrointestinal symptoms, including lower abdominal discomfort and loose stools. Her only medication was estradiol, which she had been receiving for many months before her visit, and she had a documented allergy to propofol. There were no recent changes to her medications. No over-the-counter remedies, antibiotics, antivirals, or nonsteroidal anti-inflammatory drugs had been initiated. SARS-CoV-2 rapid respiratory panel resulted in a positive test result, but she was not tested for other respiratory viruses. On presentation, she was found to have large, disseminated, urticarial plaques across the trunk, abdomen, head, and upper



**Fig 3.** Cutaneous findings in a 60-year-old woman with a positive COVID-19 test result. Initial presentation: pink urticarial plaques over the posterior aspect of the thighs.

and lower extremities (Fig 3). There were no mucosal lesions or conjunctival erythema. On the basis of clinical findings, a diagnosis of acute urticaria was made. The patient was given 180 mg of fexofenadine every 12 hours, resulting in complete resolution of the lesions within the ensuing 24 hours. The patient was advised to self-isolate under the same guidelines provided to the case 1 patient. The patient recovered from her infection without sequelae and did not require hospitalization. Urticarial lesions did not recur on her discontinuation of the fexofenadine 1 week after starting.

## DISCUSSION

It has been documented that COVID-19 can induce a significant systemic inflammatory response, potentially leading to end-organ injury.<sup>3</sup> Although the integumentary system may be similarly affected, data are limited. One study from Italy analyzed the incidence of cutaneous manifestations in a group of 88 COVID-19 patients.<sup>4</sup> Dermatologic manifestations were noted in 18 patients (20.4%) and included descriptions such as an erythematous rash (16%), widespread urticaria (3%), and chickenpox-like vesicles (1%), all primarily involving the trunk. Cutaneous involvement was observed both at symptom onset (8 patients) and after hospitalization (10 patients). A study from Thailand described a denguelike rash in a COVID-19 patient who initially had a misdiagnosis of dengue.<sup>5</sup> Additionally, a recent letter reported a COVID-19

patient who simultaneously developed a nonpruritic diffuse body rash, myalgia, and cephalgia.<sup>6</sup>

There is variability in clinical presentation of cutaneous findings after SARS-CoV-2 infection. The patient presented in case 1 developed maculopapular lesions 3 days after symptom onset, whereas our other patient presented with urticarial plaques 9 days after becoming symptomatic. Similarly, we observed a diversity of morphologic presentations and variability in time to onset of cutaneous manifestations in the literature.<sup>4-6</sup> It is unlikely that our patients' rashes were due to a medication reaction because there had been no changes to their medication regimen, the rashes had an acute onset after COVID-19 symptom onset, and, for the patient presented in case 1, the biopsy did not illustrate tissue eosinophilia.

At present, there are limited data regarding cutaneous manifestations after SARS-CoV-2 infection. Given the importance of prompt COVID-19 diagnosis during a global pandemic, it is necessary to highlight the possible dermatologic manifestations and to characterize their morphology. COVID-19 should be considered in the initial differential

diagnosis for a patient with acute skin changes after flulike symptoms. Future studies are needed to further elucidate the relationship between cutaneous eruptions and SARS-CoV-2 infection.

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