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COVID-19 skin manifestations: the new great imitator?

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To the Editor:

COVID-19 is a systemic viral syndrome with primarily respiratory involvement. However, reports of cutaneous manifestations associated with COVID-19 have emerged. This article aims to highlight these cutaneous eruptions to encourage dermatologists to stay up-to-date as they are uniquely positioned to be at the forefront of this global pandemic to recognize and diagnose COVID-19. Since the first report on cutaneous manifestations, they have been classified into 5 major patterns: acral discoloration and edema, urticarial eruption, morbilliform eruption, vesicular eruption, and purpuric, livedoid, and necrotic lesions. Studies are underway to further classify these manifestations histologically. Dermatologists can recommend appropriate SARS-CoV-2 testing, in addition to serving as diagnosticians, and educators to colleagues and the community.

In December 2019, SARS-CoV-2 was isolated from the respiratory tract of patients with viral pneumonia in Wuhan, China [1]. The latency period is from 3 to 7 days, but can last up to 14 days, during which the virus is known to be contagious [2]. Currently, COVID-19 is considered a systemic viral syndrome with primarily respiratory involvement [3]. The Centers for Disease Control and Prevention (CDC) offers guidance on who should receive testing for COVID-19, which broadly includes a fever and/or acute respiratory symptoms, but ultimately the decision to test falls to the discretion of clinicians and

testing availability [4]. Recent reports of cutaneous manifestations associated with COVID-19 have emerged. This article highlights the various cutaneous manifestations associated with COVID-19 so dermatologists can help to diagnose patients with COVID-19 and educate colleagues and patients about these cutaneous eruptions to help prompt early testing for SARS-CoV2 and quarantine if circumstances require.

The first report on cutaneous manifestations of COVID-19 came from dermatologists in Lombardy, Italy with data collected from 88 COVID-19 patients, who found that that 20.4% displayed cutaneous symptoms that included erythematous eruptions, urticaria, and vesicles [5]. Since then, numerous reports documenting a wide variety of COVID-19 cutaneous eruptions have been published. Recently, these cutaneous manifestations have been classified into 5 major patterns: 1) acral discoloration and edema resembling chilblains, 2) urticarial eruption, 3) morbilliform eruption that can mimic viral exanthems, erythema multiforme, erythema elevatum diutinum, and pityriasis rosea 4) monomorphic herpeticiform vesicles, and 5) purpuric, livedoid, and necrotic skin lesions representing vasculopathy (including acro-ischemia), (**Table 1**). Some important prognostic clinical features can be identified. Chilblain-like manifestations are typically associated with milder cases, affect younger patients, and often appear later in the disease course. Livedoid findings are typically associated with more severe disease and are found in older patients. Vesicular lesions more commonly appear prior to respiratory symptoms [6]. A prospective study is

Table 1. Cutaneous eruption patterns associated with COVID-19.

Pattern	Mimicker
Acral discoloration and edema	Chilblains
Urticarial	Urticaria
Morbilloform	Viral exanthem, erythema multiforme, erythema elevatum diutinum, pityriasis rosea
Vesicular	Disseminated herpes virus family rashes (HSV, VZV)
Purpuric, livedoid, and necrotic lesions	Livedo racemose representing vasculopathy [including acro-ischemia]

underway in Spain to help further classify the cutaneous manifestations based on histopathological features [7].

The varied cutaneous manifestations of COVID-19 raise the question of whether it is a new “Great Imitator,” a title that has been held by syphilis, another disease with a plethora of distinct cutaneous findings [8]. When physicians see these cutaneous manifestations, COVID should be included in the differential diagnosis, especially in patients with high exposure risks or those who have already developed respiratory/systemic signs suspicious for COVID. As more reports emerge revealing potential cutaneous manifestations of SARS-CoV-2, dermatologists are

uniquely positioned to play a vital role at the forefront of this global pandemic to recognize and help diagnose COVID both in the outpatient and inpatient settings. Suspicious cases, especially in the setting of mild respiratory symptoms and the aforementioned cutaneous findings, should warrant prompt testing for SARS-CoV-2 infection. Dermatologists should stay up-to-date as more reports of cutaneous manifestations from COVID emerge and serve as educators to front-line colleagues and the community at-large. More reports and epidemiologic studies are needed to better understand the implications of the various skin manifestations and their timing in relation to COVID infection. Further observation will allow us to determine if skin findings may reliably serve as prognostic signs for a patient’s COVID disease course.

Numerous emerging COVID-19 cases are displaying cutaneous manifestations. Dermatologists should stay up-to-date on the rapidly changing literature to continue to play a vital role in aiding in the diagnosis of COVID-19 and educating other physicians and the public about cutaneous signs of COVID-19.

Potential conflicts of interest

The authors declare no conflicts of interests

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