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The clinical spectrum of COVID-19–associated cutaneous manifestations: An Italian multicenter study of 200 adult patients

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Background: COVID-19 is associated with a wide range of skin manifestations.

Objective: To describe the clinical characteristics of COVID-19–associated skin manifestations and explore the relationships among the 6 main cutaneous phenotypes and systemic findings.

Methods: Twenty-one Italian Dermatology Units were asked to collect the demographic, clinical, and histopathologic data of 200 patients with COVID-19–associated skin manifestations. The severity of COVID-19 was classified as asymptomatic, mild, moderate, or severe.

Results: A chilblain-like acral pattern was significantly associated with a younger age ($P < .0001$) and, after adjusting for age, significantly associated with less severe COVID-19 ($P = .0009$). However, the median duration of chilblain-like lesions was significantly longer than that of the other cutaneous manifestations

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taken together ($P < .0001$). Patients with moderate/severe COVID-19 were more represented than those with asymptomatic/mild COVID-19 among the patients with cutaneous manifestations other than chilblain-like lesions, but only the confluent erythematous/maculo-papular/morbilliform phenotype was significantly associated with more severe COVID-19 ($P = .015$), and this significance disappeared after adjustment for age.

Limitations: Laboratory confirmation of COVID-19 was not possible in all cases.

Conclusions: After adjustment for age, there was no clear-cut spectrum of COVID-19 severity in patients with COVID-19–related skin manifestations, although chilblain-like acral lesions were more frequent in younger patients with asymptomatic/pauci-symptomatic COVID-19. (J Am Acad Dermatol 2021;84:1356-63.)

Key words: coronavirus; COVID-19; infection; skin manifestations; SARS-CoV-2.

COVID-19 is an infectious illness caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that may affect multiple organs, including the skin (the prevalence of cutaneous involvement was 7.8% in a binational Chinese-Italian cohort of 678 hospitalized adults with laboratory-confirmed disease).[1]

CAPSULE SUMMARY

- There are 6 main COVID-19–related cutaneous phenotypes, but only the chilblain-like acral pattern was significantly associated with younger age.
- After adjustment for patient age, there was no spectrum of COVID-19 severity in relation to cutaneous phenotypes, although the longer-lasting chilblain-like acral pattern was significantly associated with milder disease.

A number of skin manifestations have been described in individual case reports and nationwide case series. Galván Casas et al[2] published the first large clinical study of 375 patients with various COVID-19–associated skin manifestations and, on the basis of the available literature and direct clinical experience, 3 of the authors of this article (AVM, GG, and CM) have identified 6 main phenotypes: (1) urticarial rash, (2) confluent erythematous/maculopapular/morbilliform rash, (3) papulovesicular exanthem, (4) a chilblain-like acral pattern, (5) a livedo reticularis/racemosa-like pattern, and (6) a purpuric vasculitic pattern.[3] However, there have been reports of a miscellany of other cutaneous presentations that cannot be included in this classification, including erythema multiforme–like,[4] pityriasis rosea–like,[5] and Grover disease–like manifestations.[6] Galván Casas et al[2] found that maculopapular eruptions accounted for almost half of the cutaneous manifestations in their study, but the majority of published studies have focused on chilblain-like acral lesions,[7-10] which are generally associated with a benign clinical course and more frequently reported in children.[11-13]

The aim of this nationwide multicenter study was to provide clinical data concerning COVID-19–associated skin manifestations to improve the clinical and demographic characterization of the cutaneous phenotypes that have been defined only on the basis of previously published preliminary data.[3] The main study objective was to explore the possible associations between these phenotypes, extracutaneous symptoms, and the severity of COVID-19.

MATERIALS AND METHODS

Patients

With the support of the Italian Society of Dermatology and Sexually Transmitted Diseases, 21 Italian dermatology units contributed to collecting the clinical data of patients with COVID-19–associated skin manifestations who were examined between March 1 and 18, 2020. The data included sex, age at the time of onset of COVID-19, the presence/absence of comorbidities, cutaneous patterns, the presence/absence of mucous lesions, the duration of skin manifestations, skin-related symptoms, systemic symptoms, the duration of systemic symptoms, the latency between the cutaneous manifestations and systemic symptoms, death, and the severity of COVID-19.

Each participating center was asked to provide data on the basis of the following patient inclusion criteria: (1) an age of 18 years or older, (2) probable or laboratory-confirmed COVID-19, and (3) the presence of COVID-19–related skin manifestations confirmed by an expert dermatologist. A COVID-19 diagnosis was considered to be laboratory confirmed in the case of a nasopharyngeal swab with a positive result for SARS-CoV-2 RNA or positive serology result

Abbreviations used:

CI:	confidence interval
IQR:	interquartile range
OR:	odds ratio
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2

for anti–SARS-CoV-2 IgG/IgM antibodies. COVID-19 was considered probable in any patient meeting the clinical criteria (dry cough, fever, dyspnea, the sudden onset of hyposmia or hypogeusia) who had been in close contact with someone with confirmed COVID-19 in the 14 days before symptom onset. A history of new medications in the 15 days before the onset of the skin manifestations was considered an exclusion criterion.

Clinical assessment

Systemic symptoms were taken from the charts of hospitalized patients or reported by outpatients and assessed by a physician (a pulmonologist or a specialist in internal/emergency medicine or infectious diseases). The duration of the skin manifestations was directly evaluated by a dermatologist in the case of hospitalized patients or reported by outpatients. Each patient was examined at least twice (during the period of skin manifestations and after their resolution).

The severity of COVID-19 was classified as asymptomatic, mild (in the presence of fever, cough, and/or gastrointestinal symptoms with no imaging sign of pneumonia), moderate (in the presence of dyspnea and/or radiologic findings of pneumonia), or severe (a need for invasive assisted ventilation, the occurrence of thromboembolic events, or death)[14] and was assessed by considering the worst systemic symptoms over the entire course of the disease, as shown in hospital records or self-reported by outpatients.

Statistical analysis

Continuous variables are expressed as median values and interquartile ranges (IQRs), and dichotomous variables are provided as absolute numbers and percentages. Quantitative variables (disease severity, symptoms, cutaneous phenotypes) were compared between groups using the nonparametric Wilcoxon-Mann-Whitney test.

Logistic regression analysis was used to assess the role of the 6 predefined skin phenotypes as risk factors for extracutaneous symptoms (fever, cough, dyspnea, pneumonia, gastrointestinal symptoms, hyposmia/hypogeusia) and the severity of COVID-19 (dichotomized as asymptomatic or mild vs moderate or severe). Univariate logistic regression models of each cutaneous phenotype were fitted by considering the severity of COVID-19 and the 6 extracutaneous symptoms as dependent variables (7 separate models); the phenotype was considered an independent variable. In addition, age-adjusted logistic regression analyses were made because of the possible confounding effect of age on symptoms and the severity of COVID-19. Odds ratios (ORs) and their 95% confidence intervals (CIs) were obtained from the estimates of the logistic model parameters. Differences in the prevalence of symptoms among phenotypes were assessed by using chi-square tests. Given the small number of patients with a livedo reticularis-like/racemosa-like pattern, only 5 phenotypes were considered (the purpuric and reticularis/racemosa-like patterns were merged). Patients with more than 1 cutaneous phenotype were not included in the statistical analyses, which were performed with SAS statistical software, release 9.4 (SAS Institute, Inc). A 2-sided P value of less than .05 was considered statistically significant.

Ethical approval and consent to participate

The study was conducted in accordance with the Declaration of Helsinki, and the full protocol was approved by the institutional review board of the ethics committee of the principal investigator's center (Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy; protocol no. 464_2020). All of the participants enrolled in the study gave their written informed consent.

RESULTS

Patients and cutaneous manifestations

The demographic and clinical features of the 200 patients are summarized in Table I. The patients were predominantly male (n = 108; 54%), and their median age at the time of the diagnosis of COVID-19 was 57 years (IQR, 40.25-72.25). Eighty-six of the 195 patients with available data (43%) had experienced at least 1 comorbidity.

Thirteen patients (6.5%) presented with more than 1 cutaneous phenotype. Of the 187 patients with only 1 phenotype, 19 (10.2%) developed urticarial rash; 48 (25.7%) confluent erythematous/maculo-papular/morbilliform rash; 29 (15.5%) papulovesicular exanthem; 46 (24.6%) a chilblain-like acral pattern; 4 (2.1%) a livedo reticularis/racemosa-like pattern; and 13 (6.9%) a purpuric vasculitic pattern (Supplemental Fig 1; available via Mendeley at https://doi.org/10.17632/tj6m9v2gky.1). Cutaneous manifestations other than those included in the classifications mentioned[3] were observed in 28

Table I. Demographic data and clinical features of 200 patients with COVID-19–associated cutaneous manifestations

Analyzed parameters	Values
Age at the time of the onset of COVID-19, y, median (IQR)	57 (40.25-72.25)
Male, n (%)	108 (54)
Female, n (%)	92 (46)
Latency between cutaneous manifestations and systemic symptoms, days, median (IQR)*	14 (4-27)
Duration of cutaneous manifestations, days, median (IQR)†	12 (8-20)
Cutaneous phenotypes, n (%)	
Urticarial rash‡	19 (10.2)
Confluent erythematous/maculopapular/morbilliform rash‡	48 (25.7)
Papulovesicular exanthem‡	29 (15.5)
Chilblain-like acral pattern‡	46 (24.6)
Livedo reticularis-like/racemosa-like pattern‡	4 (2.1)
Purpuric vasculitic pattern‡	13 (6.9)
Other cutaneous phenotypes‡	28 (15)
More than 1 phenotype	13 (6.5)
Duration of cutaneous manifestations, days, median (IQR)	
Urticarial rash	8 (5-13)§
Confluent erythematous/maculopapular/morbilliform rash	10 (7-14.5)¶
Papulovesicular exanthem	10 (7-14)¶
Chilblain-like acral pattern	22 (15-32)#
Livedo reticularis/racemosa-like pattern	14 (5-27)**
Purpuric vasculitic pattern	11 (6.5-15.5)††
Latency between cutaneous manifestations and systemic symptoms, days, median (IQR)	
Urticarial rash	12 (5-23)‡‡
Confluent erythematous/maculopapular/morbilliform rash	21.5 (12-28.75)§§
Papulovesicular exanthem	4 (1.25-8)¶¶
Chilblain-like acral pattern	16 (9-39)¶¶
Livedo reticularis/racemosa-like pattern	24.5 (4-48.25)##
Purpuric vasculitic pattern	16 (3.5-34)***
Skin-related symptoms, n (%)	
Pruritus	81 (40.5)
Pain/burning	22 (11)

Data were available for the following numbers of patients: 155,* 171,† 19,§ 49,‖ 21,¶ 43,# 5,** 17,†† 24,‡‡ 44,§§ 28,‖‖ 23,¶¶ 6,## and 17.***

‡Percentages of 187 patients (excluding the 13 with more than 1 cutaneous phenotype).

patients (15.0%): pityriasis rosea–like lesions in 10; erythema multiforme–like lesions in 8; erythema nodosum–like lesions in 4; panniculitis in 4; and angioedema in 2. No mucosal lesions were recorded.

The most frequent skin-related symptom was pruritus (n = 81; 40.5%), followed by pain/burning (n = 22; 11%).

Among the 168 patients for whom data were available, the median duration of the skin manifestations was 12 days (IQR, 8-20). However, the median duration of chilblain-like acral lesions was significantly longer than that of the other cutaneous manifestations taken together (21.5 [15-31] vs 10 [7-15] days; $P < .0001$). The median latency between the cutaneous manifestations and systemic symptoms was 14 days (IQR, 4-27) in the 155 patients for whom the data were available. The median duration of the individual skin manifestations and the latency between these and systemic symptoms are detailed in Table I.

Interestingly, the median (IQR) age of patients with a chilblain-like acral pattern was significantly lower than that of patients with all of the other cutaneous phenotypes taken together (38.5 [23-55] vs 60 [50-75] years; $P < .0001$). The median (IQR) age of the patients with purpuric and livedo reticularis–like/racemosa-like patterns was significantly higher than that of patients with the other manifestations taken together (66 [58-84] vs 55 [39-71] years; $P = .0022$), and the median (IQR) age of the patients with confluent erythematous/maculopapular/morbilliform rash was also significantly higher than that of the patients with the other manifestations taken together (61 [51.5-78] vs 55 [36-71] years; $P = .029$). There was no statistically significant association with age in the case of the papulovesicular and urticarial phenotypes.

As shown in Table II, the median (IQR) age of patients with moderate/severe COVID-19 was significantly higher than that of those with asymptomatic/mild COVID-19 (64 [54.5-78] vs 40 [27-57] years; $P < .0001$). It was also significantly higher in the patients with fever than in those without (59 [50-75] vs 38 [26-61] years; $P < .0001$), in those with cough than in those without (58.5 [50-74] vs 52 [30-71] years; $P = .0077$), in those with dyspnea than in those without (65 [55-78] vs 49 [30.5-63] years; $P < .0001$), and in those with pneumonia than in those without (65 [55-80] vs 41.5 [28-57] years; $P < .0001$). There was no statistically significant difference in median age in the case of gastrointestinal symptoms or hypogeusia/hyposmia.

Clinical features of COVID-19

COVID-19 was laboratory confirmed in 124 patients and was regarded as probable in the remaining 73 (Table III). Thirty-one patients (15.5%) were asymptomatic, 51 (25.5%) had mild disease, 95 (47.5%) had moderate disease, and 23 (11.5%) had

Table II. Comparison of the median age of patients with COVID-19–associated skin manifestations (n = 187)*

Analyzed parameters	Median (IQR)	*P* value
Cutaneous phenotypes		
Urticarial rash		
Yes (n = 19)	54 (36-58)	.1663
No (n = 168)	57.5 (41-74)	
Confluent erythematous/maculopapular/morbilliform rash		
Yes (n = 48)	61 (51.5-78)	.029
No (n = 159)	55 (36-71)	
Papulovesicular exanthem		
Yes (n = 29)	57 (44-75)	.4863
No (n = 158)	57 (40-73)	
Chilblain-like acral pattern		
Yes (n = 46)	38.5 (23-55)	<.0001
No (n = 141)	60 (50-75)	
Livedo reticularis/racemosa-like and purpuric vasculitic pattern		
Yes (n = 17)	66 (58-84)	.0022
No (n = 170)	55 (39-71)	
Disease severity		
Asymptomatic status and mild COVID-19 (n = 75)	40 (27-57)	<.0001
Moderate and severe COVID-19 (n = 112)	64 (54.5-78)	
Systemic symptoms		
Fever		
Yes (n = 136)	59 (50-75)	<.0001
No (n = 51)	38 (26-61)	
Cough		
Yes (n = 102)	58.5 (50-74)	.0077
No (n = 85)	52 (30-71)	
Dyspnea		
Yes (n = 71)	65 (55-78)	<.0001
No (n = 116)	49 (30.5-63)	
Pneumonia		
Yes (n = 101)	65 (55-80)	<.0001
No (n = 86)	41.5 (28-57)	
Hyposmia/hypogeusia		
Yes (n = 41)	55 (44-65)	.3337
No (n = 146)	57.5 (40-75)	
Gastrointestinal symptoms		
Yes (n = 43)	55 (44-71)	.9462
No (n = 144)	57 (38.5-73.5)	

IQR, Interquartile range.
*Patients with more than 1 cutaneous phenotype were excluded from the statistical analysis.

Table III. The severity of COVID-19 and the clinical features of its systemic symptoms

Analyzed parameters	Values
Patients with at least 1 comorbidity, n (%)*	86 (43)
Median duration of systemic symptoms, days (IQR)†	23 (12-31)
Systemic symptoms, n (%)	
Fever	146 (73)
Cough	108 (54)
Pneumonia	106 (53)
Dyspnea	77 (38.5)
Gastrointestinal symptoms	46 (23)
Hypogeusia/hyposmia	44 (22)
Thromboembolic complications	11 (5.5)
Death	7 (3.5)
Disease severity, n (%)	
Asymptomatic	31 (15.5)
Mild	51 (25.5)
Moderate	95 (47.5)
Severe	23 (11.5)
Diagnosis of COVID-19, n (%)	
Suspected	73 (36.5)
Laboratory confirmed	127 (63.5)
Duration of systemic symptoms, days, median (IQR)	
Urticarial rash‡	21 (11-39.5)
Confluent erythematous/maculopapular/morbilliform rash§	28 (19-38)
Papulovesicular exanthema‖	19 (12-28.5)
Chilblain-like acral pattern¶	13 (7-21)
Livedo reticularis/racemosa-like pattern#	26 (11.75-48.25)
Purpuric vasculitic pattern**	22 (8.75-33.5)

Data were available for the following numbers of patients: 195,* 124,† 17,‡ 39,§ 13,‖ 21,¶ 6,# and 12.**

severe disease. Among the 124 patients for whom the data were available, the median duration of systemic symptoms was 23 days (IQR, 12-31).

Skin signs predated systemic symptoms in 11 patients; among the remaining 189, they followed (n = 186) or were concomitant with systemic symptoms (n = 3). Fever was the most frequent systemic symptom (n = 146; 73%), followed by cough (n = 108; 54%), pneumonia (n = 106; 53%), dyspnea (n = 77; 38.5%), gastrointestinal symptoms (n = 46; 23%), and hypogeusia/hyposmia (n = 44; 22%). Thromboembolic complications occurred in 11 patients (5.5%) and death in 7 (3.5%).

The median duration of systemic symptoms by each cutaneous phenotype is detailed in Table III.

Relationships between cutaneous phenotypes and the severity of COVID-19/extracutaneous features

As shown in Table IV, it is worth noting that, after adjustment for age, chilblain-like acral lesions

were associated with a decreased risk of experiencing more severe COVID-19 (OR, 0.23; 95% CI, 0.09-0.55; P = .0009). On the other hand, confluent erythematous/maculopapular/morbilliform rash was associated with more severe COVID-19 before (OR, 2.49; 95% CI 1.19-5.18; P = .015) but not after adjustment for age (OR, 1.9; 95% CI, 0.83-4.37; P = .1307).

Although patients with moderate/severe COVID-19 were more represented than those with asymptomatic/mild COVID-19 among patients with cutaneous phenotypes other than chilblain-like lesions, there was no statistically significant association with the severity of COVID-19.

After adjustment for age, confluent erythematous/maculopapular/morbilliform rash was identified as a significant risk factor for cough (OR, 2.25; 95% CI, 1.1-4.63; P = .0269), the urticarial pattern as a significant risk factor for gastrointestinal symptoms (OR, 6.10; 95% CI, 2.25-16.59; P = .0004), and the livedo-like/vasculitic pattern as a significant risk factor for dyspnea (OR, 4.17; 95% CI, 1.05-16.5; P = .042).

DISCUSSION

With the exponential increase in the number of patients with COVID-19 worldwide, the clinical features of the disease are being better defined, and a number of reports have documented the occurrence of various cutaneous manifestations. In our nationwide cohort, patients mainly presented with the 6 cutaneous phenotypes previously identified by our group.[3]

The most frequent cutaneous phenotypes were confluent erythematous/maculopapular/morbilliform rash and a chilblain-like acral pattern, which affected, respectively, 25.7% and 24.6% of the 187 patients included in the statistical analysis, whereas the least frequent was a livedo reticularis-like/racemosa-like pattern (2.1%). The median latency between the onset of the cutaneous manifestations and systemic symptoms was 14 days (varying from 4 days in the case of papulovesicular exanthem to 24.5 days in the case of a livedo reticularis-like/racemosa-like pattern). The median duration of the cutaneous manifestations was 12 days (ranging from 8 days in the case of urticarial rash to 22 days in the case of a chilblain-like acral pattern).

Pityriasis rosea–like and erythema multiforme–like patterns were the most frequently reported skin manifestations falling outside our classification, but it is still debated whether the former is directly mediated by SARS-CoV-2 or caused by COVID-19–related immune system dysfunction leading to human herpes virus 6/7 reactivation[5,15,16]

Table IV. Age-adjusted ORs and 95% CIs of COVID-19 severity and systemic symptoms by skin phenotype in patients with COVID-19–associated skin manifestations (n = 187)*

	Moderate/severe COVID-19		Fever		Cough		Dyspnea		Pneumonia		Hyposmia/hypogeusia		Gastrointestinal symptoms	
Cutaneous phenotypes	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value
Urticarial rash	1.24 (0.43-3.62)	.6938	2.69 (0.72-10.10)	.1418	1.036 0.394 2.723	.9433	1.78 (0.63-5.02)	.2781	1.351 0.467 3.906	.579	2.23 (0.81-6.12)	.1196	6.10 (2.25-16.59)	.0004
Confluent erythematous/maculopapular/morbilliform rash	1.9 (0.83-4.37)	.1307	0.83 (0.37-1.87)	.6462	2.25 (1.1-4.63)	.0269	2.05 (0.99-4.24)	.0519	1.5 (0.7-3.3)	.3121	0.67 (0.28-1.59)	.3632	0.82 (0.37-1.85)	.6391
Papulovesicular exanthem	1.44 (0.55-3.79)	.4565	2.44 (0.77-7.71)	.1283	0.96 (0.42-2.16)	.9185	0.71 (0.29-1.74)	.4507	1.34 (0.53-3.41)	.5387	1.83 (0.76-4.41)	.1814	0.65 (0.23-1.82)	.4154
Chilblain-like acral pattern	0.23 (0.09-0.55)	.0009	0.21 (0.1-0.46)	.0001	0.28 (0.13-0.6)	.001	0.2 (0.07-0.56)	.0024	0.29 (0.12-0.70)	.0063	0.19 (0.06-0.61)	.0054	0.51 (0.2-1.30)	.1579
Livedo reticularis/racemosa-like and purpuric vasculitic pattern	1.05 (0.25-4.39)	.9462	1.18 (0.24-5.85)	.8382	1.5 (0.43-5.18)	.5223	4.17 (1.05-16.5)	.0420	0.6 (0.17-2.16)	.4302	1.19 (0.30-4.64)	.8054	0.25 (0.03-1.97)	.1864

CI, Confidence interval; *OR*, odds ratio.
*Patients with more than 1 cutaneous phenotype were excluded from the statistical analysis.

and whether the latter is triggered by SARS-CoV-2 or other viruses.[4]

In line with previous observations, none of our patients experienced mucous membrane lesions.[17]

Although the angiotensin-converting enzyme 2 (ACE2) receptor of the spike protein of SARS-CoV-2 has been described as being not only expressed on keratinocytes[18] but also in the oral cavity,[16] mucous membrane lesions have very rarely been reported in patients with COVID-19.[17]

The main strength of this study is our exploration of the relationships between cutaneous phenotypes and the severity of COVID-19. Two studies of large cohorts of patients with COVID-19–related skin manifestations have found a gradient of increasingly severe systemic symptoms, going from chilblain-like lesions to a livedo/necrotic pattern.[2,19] However, unlike these studies, our study adjusted for patient age and failed to confirm this spectrum. Only the chilblain-like acral phenotype was significantly associated with less severe COVID-19 and although patients with severe disease were prevalent in each of the other 5 phenotypic categories, none of them was significantly associated with an increased risk of more severe COVID-19.

Moreover, in line with the findings of other studies,[7] the chilblain-like acral phenotype was associated with a younger age at the time of COVID-19 diagnosis, whereas the livedo-like/vasculitic and maculopapular phenotypes were associated with an older age at the time COVID-19 diagnosis. The pathologic mechanisms underlying these relationships remain unclear but, in line with the acknowledged correlation between age and COVID-19 severity,[20] we found that patients with more severe disease, fever, or respiratory symptoms (cough, dyspnea, and pneumonia) had a higher median age, thus confirming the need for careful observation and an early intervention to prevent the development of severe COVID-19 in the elderly.

The close association between the urticarial phenotype and gastrointestinal symptoms found in our study is intriguing and suggests that this phenotype is predictive of COVID-19–related gastrointestinal involvement. The pathophysiologic link between skin and digestive manifestations needs further investigation, but it is likely that SARS-CoV-2 is a triggering factor for both.

The main limitation of this study is the absence of laboratory confirmation of COVID-19 in 73 patients (36.5%), which was mainly due to the fact that asymptomatic and pauci-symptomatic patients did not undergo SARS-CoV-2 testing during the first wave of COVID-19 in Italy for economic reasons.

Selection bias due to the fact that the study included only patients whose COVID-19–related skin lesions had been evaluated by an expert dermatologist may be considered another limitation, but we believe that this is actually a strength insofar as it avoided the misdiagnoses that may have been made by nonspecialists.

In conclusion, this study further defines the demographic and clinical features of the 6 main clinical phenotypes of COVID-19–associated skin manifestations by assessing the relationship between them and the extracutaneous symptoms and severity of COVID-19. The only correlation between the cutaneous phenotype and the severity of COVID-19 was observed in the case of chilblain-like acral lesions, a phenotype that is generally associated with the benign/subclinical course of COVID-19.

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Conflicts of interest

None disclosed.

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