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The underrepresentation of “COVID toes” in skin of color: An example of racial bias or evidence of a tenuous disease association?



To the Editor: We read with interest the article by Avancini et al¹ describing the absence of cutaneous manifestations associated with coronavirus disease 2019 (COVID-19) in a large, dedicated severe acute respiratory syndrome coronavirus 2 hospital in Brazil. Of the 3982 patients hospitalized with COVID, dermatology was consulted for 98, with no “COVID toes” identified among them. Previously, Daneshjou et al² published a series of 6 cases (1 positive for COVID) of this pernio-like condition in skin of color, citing a lack of representative imagery in dermatologic literature. This deficiency was subsequently publicized in a *New York Times* article, suggesting that the dearth of reported cases is related to inadequate training in the recognition of erythematous lesions in dark skin phototypes.³ Another article in Medscape attributed the scarcity of such findings to entrenched institutionalized racial biases in dermatology. Although the lack of imagery and degree of training in skin of color undoubtedly needs to be addressed, the paucity of documentation of a low-frequency event with a tenuous association to laboratory-confirmed coronavirus infection may not be the best place to begin the discussion.

We previously published a lack of such pernio-like diagnoses in 5635 patients treated by dermatology between March and June 2020 in a minority-predominant safety-net hospital system in New York City.⁴ Pangti et al⁵ similarly reported that cutaneous manifestations were uncommon in pigmented skin

in a series of 138 patients with confirmed COVID-19 diagnoses. Given that the study by Pangti et al⁵ was performed in India by Indian dermatologists and the one by Avancini et al¹ in Brazil by Brazilian dermatologists, it is likely they did not have inadequate training in skin of color.

To reevaluate the association of COVID-19 and chilblains in skin of color in our population, we identified all diagnoses of COVID-19, “pernio,” “chilblains,” and “vasculitis limited to the skin” in a retrospective analysis. This study was institutional review board exempt as only unidentifiable, aggregate-level data was used (Slicer/Dicer, Epic, Verona, WI). Between March 1 and August 31, 2020, 19 patients (0.003%) received a diagnosis of chilblains or cutaneous vasculitis, a number (14) and percentage (0.004%) similar to what we found the year before during spring and summer. A larger number of patients, 43 (0.008%), received a diagnosis from September 1, 2019 to February 29, 2020, likely related to the association of this condition with colder weather (Table I).

After restricting the number to solely patients treated by dermatology from March 1 to August 31, 2020, 12 patients (11 skin of color and 1 white) were identified as having chilblains or cutaneous vasculitis. During this timeframe, 14,649 patients tested positive for COVID-19, of whom 289 (262 skin of color and 27 white) were directly evaluated by dermatology. Since this finding is considered primarily a condition of well individuals, we delineated the number of outpatient visits (280) from inpatient consultations (9). No patients with COVID-19 received a diagnosis of chilblains or cutaneous vasculitis (Table II). These data, together with the results from our Brazilian and Indian colleagues, suggest that the association of

Table I. Patients with diagnoses of chilblains/cutaneous vasculitis and COVID-19 evaluated by all departments

Variable	Prepandemic		Pandemic
	March 1, 2019, to August 31, 2019	September 1, 2019, to February 29, 2020	March 1, 2020, to August 31, 2020
Total patients*	328,232	490,584	566,701
No. of COVID-19 tests performed (serology and PCR) [†]	0	0	96,380
No. of positive COVID-19 test results (serology and PCR) [†]	0	0	14,649
No. of diagnoses of chilblains/cutaneous vasculitis [‡]	14	43	19
Incidence of chilblains/cutaneous vasculitis, % [‡]	0.004	0.008	0.003

COVID-19, coronavirus disease 2019; COVID19BRL, COVID BioReference Laboratory; COVIDLR, COVID laboratory reference; PCR, polymerase chain reaction.

*Locations included Cumberland, Metropolitan, Elmhurst, Lincoln, Woodhull, Coney Island, Kings County, and Jacobi Hospitals.

[†]Laboratory component criteria included COVID-19, COVIDLR, COVID19BRL, COVIOPRESFLAG, and COVID19NASOPHARYNGEAL.

[‡]Diagnosis criteria included chilblains, sequela (*International Classification of Diseases, 10th Revision, Clinical Modification [ICD-10-CM]* code: T69.1XXS); chilblains, initial encounter (*ICD-10-CM* code T69.1XXA); chilblains, subsequent encounter (*ICD-10-CM* code T69.1XXD); vasculitis limited to the skin, unspecified (*ICD-10-CM* code L95.9); vasculitis limited to the skin, not elsewhere classified (*ICD-10-CM* code L95.*); or other vasculitis limited to the skin (*ICD-10-CM* code L95.8).

Table II. Patients with diagnoses of chilblains/cutaneous vasculitis and COVID-19 evaluated by dermatology

Variable	Pandemic: March 1 to August 31, 2020
No. of patients evaluated at combined hospital sites*	563,139
No. of patients tested for COVID-19 (serology and PCR) [†]	96,380
No. of patients with positive COVID-19 test results (serology and PCR) [†]	14,649
No. of patients evaluated by dermatology	13,080
No. of patients tested for COVID-19 [†] evaluated by dermatology	2178
No. of patients with positive COVID-19 test [†] results evaluated by dermatology	289
Ratio of outpatient (office and televisits)/inpatient (consultations) in patients with positive COVID-19 test [†] results evaluated by dermatology	280/9
Ratio of skin of color/white patients with positive COVID-19 test [†] results evaluated by dermatology	262/27
No. of patients with a diagnosis of pernio, chilblains, or vasculitis limited to the skin [‡] evaluated by dermatology	12
Ratio of skin of color/white patients with a diagnosis of pernio, chilblains, or vasculitis limited to the skin [‡] evaluated by dermatology	11/1
No. of patients with a positive COVID-19 test [†] result and a diagnosis of pernio, chilblains, or vasculitis limited to the skin [‡]	0

COVID-19, coronavirus disease 2019; COVID19BRL, COVID BioReference Laboratory; COVIDLR, COVID laboratory reference; PCR, polymerase chain reaction.

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chilblain-like lesions with COVID-19 deserves further careful consideration.

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