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Comment on “The spectrum of COVID-19-associated dermatologic manifestations: An international registry of 716 patients from 31 countries”



To the Editor: We read with great interest the article by Freeman et al¹ reviewing a case series collected from the COVID-19 Dermatology Registry, an international registry of COVID-19 cutaneous manifestations. In this study, healthcare workers globally were invited by the American Academy of Dermatology and the International League of Dermatologic Societies to submit data to the COVID-19 Dermatology Registry.¹ We agree that this study effectively raises awareness of the numerous dermatologic findings potentially associated with COVID-19 infection, such as morbilliform, pernio-like, urticarial, papulosquamous, vesicular, and retiform purpura lesions. Additionally, the cases highlight the importance and success of national and international collaboration among providers to further elucidate the dermatologic manifestations of COVID-19.

Although this case series broadens the knowledge of possible cutaneous manifestations of COVID-19, we note that non-dermatologists made a little over half of the diagnoses (47% dermatologists, 37% other physicians, and 16% other healthcare providers, such as nurses and physician assistants).¹ We also note that cutaneous findings were not confirmed with photo evidence and only 14 of the 171 laboratory-confirmed COVID-19 cases were biopsied. Photographs of the skin lesions would be useful to confirm accurate lesion description and diagnosis and could be presented in supplemental materials of the manuscript for interested readers.

We appreciate the inclusion of patient symptoms, comorbidities, and complications in the article. The authors make an important observation that livedo racemosa, retiform purpura, and acro-ischemia may be manifestations of thrombotic disease in critically ill COVID-19 patients. Information regarding the temporal relationship between the development of retiform purpura and other thrombotic events would be helpful as 64% of patients with retiform purpura suffered other thrombotic events associated with COVID-19.¹ Future research could examine whether retiform purpura serves as a warning sign of hypercoagulability in patients with COVID-19.

Like many studies on COVID-19, we also note the lack of racial diversity among the patients in this case series. The increased and disproportionate risk of infection, severe illness, and death from COVID-19 among people of color is well known.² There were

only 34 Hispanic/Latinx and 13 Black/African American patients out of total 682 patients represented in the case series.¹ This disparity may point to a deficiency in identifying lesions in the skin of color among providers recording data in the COVID-19 Dermatology Registry. A previous systematic review of articles describing cases of cutaneous manifestations associated with COVID-19 found no clinical images representing very dark skin (Fitzpatrick type V or VI).³ Additionally, in 6 articles identifying race and ethnicity, 91% of patients were White.³ Inadequate education in recognizing and diagnosing cutaneous disease in people of color may lead to decreased reporting of lesions in these patients.^{4,5}

The article adds valuable insight to the literature and is important in recognizing how cutaneous findings may add to the diagnosis and understanding of COVID-19. Future studies, including images of dermatologist-diagnosed lesions, especially in people of color, will allow us to further identify and characterize the cutaneous manifestations of COVID-19.

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Conflicts of interest

None disclosed.

REFERENCES

1. Freeman EE, McMahon DE, Lipoff JB, et al. The spectrum of COVID-19-associated dermatologic manifestations: an international registry of 716 patients from 31 countries. *J Am Acad Dermatol.* 2020;83(4):1118-1129.
2. Moore JT, Ricaldi JN, Rose CE, et al. Disparities in incidence of COVID-19 among underrepresented racial/ethnic groups in counties identified as hotspots during June 5-18, 2020 — 22 States, February-June 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69(33):1122-1126.

3. Lester JC, Jia JL, Zhang L, Okoye GA, Linos E. Absence of images of skin of colour in publications of COVID-19 skin manifestations. *Br J Dermatol*. 2020;183(3):593-595.
4. Lester JC, Taylor SC, Chren MM. Under-representation of skin of colour in dermatology images: not just an educational issue. *Br J Dermatol*. 2019;180(6):1521-1522.
5. Nijhawan RI, Jacob SE, Woolery-Lloyd H. Skin of color education in dermatology residency programs: does residency training reflect the changing demographics of the United States? *J Am Acad Dermatol*. 2008;59(4):615-618.

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