

**LETTER****Severe palmar hyperkeratosis and hematochezia in COVID-19**

Dear Editor,

The outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections, which first appeared in China and then spread worldwide, raised several concerns related to daily and work activities due to the high infectious risk.<sup>1</sup>

SARS-CoV-2 belonging to the beta coronaviruses family, through the expression of spike protein (S), is able to bind with high affinity the angiotensin-converting enzyme 2 (ACE2), which acts as an entry for the pathogen.<sup>1</sup>

Clinical manifestations related to coronavirus disease 2019 (COVID-19) are variable, ranging from a flu-like syndrome with dry cough, sore throat and conjunctivitis, to dysgeusia and anosmia, up to a picture of bilateral interstitial pneumonia that, in the most severe cases, can evolve into acute respiratory distress syndrome and multi-organ failure, with a fatal outcome.<sup>1</sup>

Furthermore, compelling evidence has shown that the skin may be affected by the virus during the course of the infection.<sup>1,2</sup>

An 85-year-old white man was admitted to Spallanzani Hospital because of interstitial pneumonia and severe respiratory insufficiency. The patient tested positive to SARS-CoV-2 infection by reverse transcriptase-polymerase chain reaction performed on urine and oropharyngeal swab specimens. Notwithstanding, a new oropharyngeal swab performed 12 days later resulted negative.

He was later admitted to the intensive care unit (ICU) because of the development of severe myocarditis: he received invasive ventilation for 20 days before being delivered oxygen with a noninvasive option. His stay in the ICU was characterized by hematochezia and by the progressive development of severe palmar hyperkeratosis (Figures 1 and 2). Unfortunately, the patient died a few days later.

The values of fibrinogen, D-dimer and ferritin were abnormally high throughout the hospital stay of the patient (fibrinogen mean value = 558 mg/dL; fibrinogen highest value = 848 mg/dL; D-dimer mean value = 2664 ng/mL; D-dimer highest value = 5427 ng/mL; ferritin mean value = 789 ng/mL; ferritin highest value = 980 ng/mL). The drugs administered were hydroxychloroquine, lopinavir/ritonavir and clarithromycin.

The development of severe cutaneous hyperkeratosis observed in this patient is presumptively due to SARS-CoV-2 infection since it occurred in concomitance to the worsening of the clinical conditions of the patient.

Considering recently published data, the clinical cutaneous manifestations related to SARS-CoV-2 are rather widespread: they include, and are not limited to, varicella-like papulovesicular eruptions, different types of rashes, blistering lesions, livedo and necrosis.<sup>2-4</sup>

The pathogenesis of the skin involvement in COVID-19 has not been clarified yet; indeed, several hypotheses have been proposed: ACE2 receptor-mediated direct endothelial damage and indirect inflammatory injury have been postulated.<sup>5</sup> Genetic thrombophilia (factor V mutations, high serum lipoprotein a and specific ABO gene polymorphisms) and viral load are thought to play a role in disease severity.<sup>5</sup>

Moreover, in severe cases, the infection results in disseminated intravascular coagulation, which can further contribute to skin damage.<sup>5</sup>



**FIGURE 1** Severe hyperkeratosis on the palmar surface of the hand of a coronavirus disease 2019 (COVID-19) patient



**FIGURE 2** Severe hyperkeratosis on the forearm of a coronavirus disease 2019 (COVID-19) patient. Purple petechial lesions are also present

Elevated values of ferritin and coagulation markers have been associated with ominous clinical pictures in COVID-19.<sup>6,7</sup>

Our patient developed hematochezia during the ICU stay. As a matter of fact, 4% of 230 COVID-19 patients who were studied retrospectively by Wan et al<sup>8</sup> presented with bloody stools and a positive correlation between the presence of diarrhea and the severity of respiratory symptoms was made. Hematochezia has been reported as a chief complaint in a COVID-19 patient, although no further studies have been performed regarding the prognostic value of this symptom.<sup>9</sup>

All in all, the occurrence of severe hyperkeratosis in SARS-CoV-2 infection has not been reported yet among COVID-19-related clinical manifestations.

Besides, it would be interesting to know if there is any correlation between the type and severity of gastrointestinal symptoms and skin signs in the context of the infection by SARS-CoV-2 to develop novel treatment strategies.

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The patient in this manuscript has given written informed consent to publication of his case details.

## CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

## AUTHOR CONTRIBUTIONS

Antonella Tammaro is the primary physician of the patient and supervisor of the process. The author created the idea, reviewed the manuscript and was involved in photography, data collection and follow-up. Ganiyat Adenike Ralitsa Adebajo took part in diagnosis, patient care and follow-up. The author took part in literature review, writing and preparation of the manuscript. The author reviewed the manuscript and was involved in photography and literature review. Camilla Chello took part in diagnosis, patient care and follow-up. The author took part in literature review, writing and preparation of the manuscript. The author reviewed the manuscript and was involved in photography and literature review. Francesca Romana Parisella took part in literature review, writing and preparation of the manuscript. The author reviewed the manuscript and was involved in photography and literature review. Jordi Rello is the primary physician of the patient and supervisor of the process. The author created the idea, reviewed the manuscript and was involved in photography, data collection and follow-up. Franca Del Nonno is the primary physician of the patient and supervisor of the process. The author created the idea, reviewed the manuscript and was involved in photography, data collection and follow-up. Alessandra Scarabello is the primary physician of the patient and supervisor of the process. The author created the idea, reviewed the manuscript and was involved in photography, data collection and follow-up.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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