Cutaneous small-vessel vasculitis associated with novel 2019 coronavirus SARS-CoV-2 infection (COVID-19)

To the editor

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has rapidly become a global health issue. Although it is known to produce diverse cutaneous manifestations, some of them have yet to be described. This letter reports new dermatologic findings associated with a confirmed COVID-19 case.

A 71-year-old woman presented to our emergency department in April 2020, in the midst of the COVID-19 pandemic. She reported the onset of fever, cough and malaise 9 days before admission, and she noticed the appearance of pruritic skin lesions in both legs on the seventh day from the start of symptoms. Her husband had also been hospitalized 2 weeks before due to COVID-19-induced pneumonia. No new drugs had been initiated the year prior to this episode. She did not complain of arthralgia, abdominal pain nor other systemic symptoms.

Dermatological examination showed purpuric macules and papules in both legs, extending from the ankle and up to the thigh. Koebner phenomenon was present in the right knee (Fig. 1). No palmar, plantar or mucosal lesions were present. No nodules, livedo reticularis, ulcers or retiform purpura was found.

Blood test revealed a slightly raised C-reactive protein of 19 mg/L (0–5 mg/L). Complete blood count was normal. No coagulation abnormalities were found. Serologies for syphilis, Hepatitis A Virus, HBV, HCV, HIV, EBV, CMV, ASLO, parvovirus B19, Mycoplasma pneumoniae and Chlamydia pneumoniae were negative. ANA, RF and cryoglobulins were negative. Complement levels and serum proteinogram were normal. Chest radiographs, both posteroanterior and lateral, were performed, showing a pulmonary infiltrate in the right lower field compatible with COVID-19-induced pneumonia. No other signs of acute lung pathology were present. Real-time reverse transcription polymerase chain reaction (rRT-PCR) for SARS-CoV-2 was taken from a nasopharyngeal swab, rendering a positive result.

Three 4-mm punch biopsies [one for each: H&E examination, direct immunofluorescence (DIF) and rRT-PCR] were taken from the most recent lesions in the anterior upper right thigh. H&E showed small-vessel damage with fibrinoid necrosis of vessel walls, transmural infiltration by neutrophils with karyorrhexis, leukocytoclasia and extravasated erythrocytes (Fig. 2a). DIF showed granular deposition of C3 within vessel walls (Fig. 2b), being negative for IgM and IgG. Skin rRT-PCR was negative for SARS-CoV-2.

The patient was hospitalized. COVID-19 pneumonia was treated with hydroxychloroquine 200 mg b.i.d. and lopinavir–ritonavir 200/50 mg b.i.d for 5 days. The cutaneous small-vessel vasculitis was treated with betamethasone dipropionate 0.05% cream b.i.d. Lesions continued to appear until the first week of hospitalization was finished, and in the third week of follow-up, lesions had already healed, leaving only slightly residual hyperpigmentation.

Some of the cutaneous manifestations of SARS-CoV-2 have already been described, being among them petechial exanthems, pernio-like lesions and maculo-papular exanthems. At the time of manuscript redaction, there are no reports of histopathologically confirmed cutaneous small-vessel vasculitis (CSVV) in a SARS-CoV-2 positive patient.

Although the rRT-PCR from skin biopsy was negative, we believe that CSVV arising in the context of a COVID-19 infected person is no coincidence and should not be categorized as idiopathic. There are numerous reports of viral-induced vasculitis, either associated with cryoglobulin presence (as in HCV infected patients), or unrelated to them (as in individuals with influenza-vaccine-induced vasculitis). We believe that this negative rRT-PCR result has two possible explanations, the first and most likely, that immunocomplexes involved in this CSVV do not...
carry viable viruses, and the second being a lack of sensitivity of the test.

By sharing this case we hope to improve the scarce knowledge we have on this disease. Doctors dealing with CSVV in undiagnosed patients during this pandemic may take into consideration testing for SARS-CoV-2.

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Conflict of interest
The authors have no conflict of interest to declare.

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A case of cefditoren-induced acute generalized exanthematous pustulosis during COVID-19 pandemics. Severe cutaneous adverse reactions are an issue

Dear editor
We read with interest the article by Recalcati et al. about the report of cutaneous manifestations in Coronavirus disease 2019 (COVID-19) patients. We would like to highlight that some potentially severe manifestations in these patients are not directly related to the coronavirus but to the medications administered.1

A 49-year-old woman with morbid obesity, and no other relevant antecedents, was admitted in the Intensive Care Unit, due to severe respiratory failure. Chest X-ray showed bilateral lung diffuse opacities predominantly involving the upper and middle

Figure 2  (a) High magnification (H&E stain; ×20) showing perivascular inflammatory infiltrate, composed of small and mature lymphocytes, neutrophils, nuclear dust and red blood cell extravasation. (b) (C3 direct immunofluorescence, ×10) DIF shows positive immunofluorescence for C3 in a granular pattern within vessel walls.