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Drug-induced vasculitis in a patient with COVID-19

Editor,

A 57-year-old German woman with a history of skin reactions to unknown antibiotics, depression and high blood pressure presented with a 2-day history of symmetrically distributed pruritic pink-to-red maculopapular exanthema on the trunk and extremities.

Due to a 3-week history of a non-productive cough and intermittent fever, she has taken amoxicillin, ibuprofen and metemazole 3 days before. She did not take aspirin or other anticoagulants.

This prescription was discontinued and an intravenous bolus of prednisolone as well as antihistamines and topical glucocorticoids were administered.

After 2 days, her rash progressed in purpuric, non-blanching, pruritic and painful maculas and plaques on her trunk and extremities (Figs 1 and 2). Mucous membranes were spared. The patient was afebrile, and her oxygen saturation was 98% while she was breathing ambient air.

The blood count, prothrombin time and partial thromboplastin time were normal. An elevated D-dimer level by 2.051 µg/L was observed. A chest radiograph showed a right lower lobe



Figure 1 Symmetric, purpuric, non-blanching and palpable maculas and plaques on lower extremities of the patient.



Figure 2 Purpuric, non-blanching and palpable maculas and plaques on the trunk and upper extremities of the patient.

consolidation suggestive of pneumonia. A test to detect SARS-CoV-2 by real-time reverse-transcription-polymerase-chain-reaction (RT-PCR) assay of a throat swab was positive. A biopsy specimen of the skin lesion revealed a vasculitis. Blood tests for HIV, antinuclear antibodies and antineutrophil cytoplasmic antibodies were negative.

The patient was treated with 120 mg of prednisolone per day (1.5 mg per kilogram of body weight). After 9 days, the patient's skin lesions and her respiratory symptoms improved. Two negative SARS-CoV-2 by RT-PCR tests of throat swabs with sampling interval of 24 h were confirmed and the patient was discharged home.

Despite an antibiotic allergy could developed the rash and vasculitis in our patient, it is known that severe COVID-19 induces endothelial damage and thrombosis.^{1,2} Some reports have showed urticaria, rash, vesicles, purpura, chilblain-like and

erythema multiforme-like patterns as cutaneous manifestations in patients with COVID-19.^{2–6} This case report illustrates the potential of COVID-19 infections to trigger severe drug-related skin reactions such as vasculitis. More evidence is needed to understand the association of COVID-19 and cutaneous manifestations.

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Symmetric cutaneous vasculitis in COVID-19 pneumonia

Editor

Fever, cough, breathing difficulties, digestive issues and loss of smell and taste are the most common symptoms of novel SARS-CoV2 infection but cutaneous manifestations have been highlighted by several dermatologists. We found reports^{1–3} to be very interesting because it was underlined how the COVID-19

infection can also give cutaneous manifestations vasculitis – like. It has already been described how purple in children, when accompanied by fever, can be a rare but possible manifestation of novel SARs-CoV2 infection.⁴ Autopsy shows that lungs manifest significant pathological lesions, including alveolar and interstitial inflammation, epithelium proliferation and hyaline membrane formation; infection involves also heart, vessels, liver, kidney and other organs. It seems that many macrophages but very few lymphocytes intervene in interstitium. Expression of endothelial cells could trigger a cytokine storm which recruits macrophages and causes inflammatory reactions, similar to those of vasculitis, and the activation of thrombophilic states. Starting from these considerations, we share our experience: we documented two cases of skin involvement in young subjects with moderate to severe lung involvement and poor comorbidities. In one, we saw a widespread urticarial involving the thigh region and the perimalleolar area with spontaneous resolution in a few days. The other one, presenting a severe respiratory failure with ARDS framework, showed at first a legs vasculitic purpura (Figs 1 and 2) then a fleeting erythematous rash. Itching was low and lesions healed in few days with steroid therapy. Skin manifestations were similar to cutaneous involvement occurring during autoimmune diseases. COVID-19 can feature signs of small blood vessel occlusion. These can be petechiae or tiny



Figure 1 Purpuric rash of a leg with surrounding partially infiltrated rash areas.