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

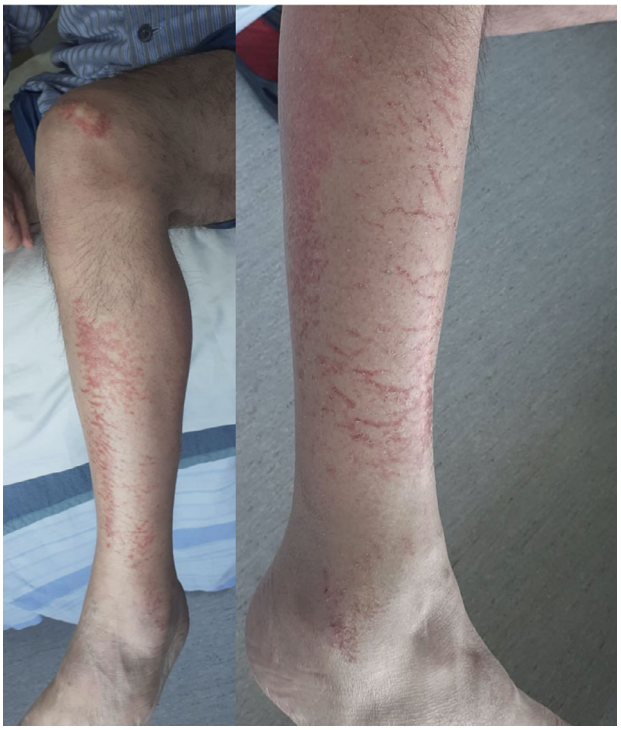

**Figure 1** Purpuric rash of a leg with surrounding partially infiltrated rash areas.


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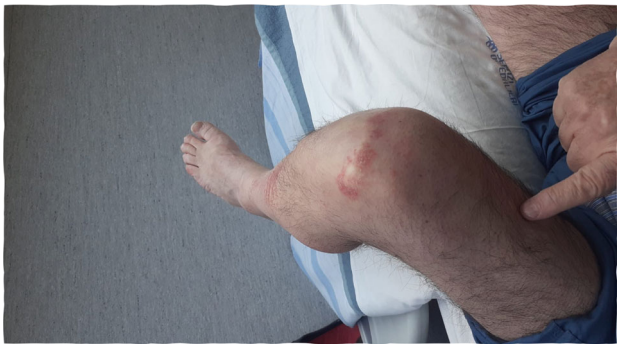

**Figure 2** Purpuric rash of a knee.

bruises, and transient livedoid eruptions. Currently, there are few reports about the possible dermatological manifestations of COVID-19; we need more experience to confirm and better understand skin involvement.

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The patients in this manuscript have given written informed consent to the publication of their case details.

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# Improvement of SARS-CoV-2 symptoms following Guselkumab injection in a psoriatic patient

*Dear Editor,*

We read with great interest the publication of. [1] reporting the first case of SARS-CoV-2 infection in a young patient of 32-year-old suffering from psoriasis and psoriatic arthritis treated by Guselkumab, a monoclonal antibody that targets specifically the p19 subunit of interleukin (IL)-23.[2] The patient contracted the SARS-CoV-2 infection after a dinner with some friends but fortunately she developed very discrete symptoms including only mild fever and rhinorrhea. These findings support the potential role of IL-23p19 inhibitors to counteract the "cytokine storm" triggered by the SARS-CoV-2 and which is potentially implicated in the severity of the symptoms.[3] In some patients, this immune response against SARS-CoV-2 is too exaggerated which may cause acute respiratory distress syndrome and end organ failure but the precise mechanisms underlying the progression from mild to severe complications are still under investigation.[3] Interestingly, the cytokine profile associated with SARS-CoV-2 infection severity is characterized by increased levels of tumour necrosis factor α, IL-1, IL-2, IL-6, IL-7, granulocyte colony-stimulating factor, interferon (IFN)-γ inducible protein 10, monocyte chemoattractant protein 1 and macrophage inflammatory protein 1-α among others.[4] Several clinical trials are ongoing to investigate the efficacy of systemic therapy combining an antiviral drug associated to a biologic drug that targets pro-inflammatory cytokines which may represent an attractive therapeutic option for SARS-CoV-2 infection.

We describe the case of a 40-year-old lady suffering from psoriasis since 2000. She is treated by guselkumab since January 2019 with complete clearance of her psoriasis. She was previously treated by conventional systemic treatments for psoriasis including methotrexate and cyclosporine. She is also suffering from Ehlers–Danlos syndrome but has no other comorbidity. On 3rd March, she was in contact with her sister and nephews who were all infected by SARS-CoV-2. On 9th March, she presented symptoms of SARS-CoV-2 infection with severe cough associated to myalgia, fatigue and fever (39.4°C). She reported a rapid worsening of her respiratory symptoms with shortness of breath and despite the use of paracetamol, the fever did not decrease. She administered her guselkumab injection scheduled for March 16. Surprisingly, the day after the injection, she reported a major improvement of her respiratory condition, a normalization of her body temperature and a progressive relief of myalgia and fatigue symptoms.

By targeting the IL-23p19 subunit, guselkumab does not increase the risk for viral, bacterial or fungal infections among psoriasis patients.[5] IL-23 does not seem to be essential for controlling virus clearance but may play a role in the deleterious hyperinflammatory state associated to severe symptoms. Viral clearance seems to be more depending on other cytokines such as IL-15, type I IFN and IFN-γ.[6]

In addition to the case reported by [1] our present observation strongly supports the need to identify patients who will develop an hyperinflammation during the SARS-CoV-2 infection and to recommend the use of existing and approved biologic therapies to taper down the immune reaction in order to reduce the

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