

LETTER TO THE EDITOR

Papular-purpuric exanthem in a COVID-19 patient: clinical and dermoscopic description

Editor

Acute coronavirus disease 2019 (COVID-19) has become a global health concern associated with a broad spectrum of clinical presentations. Cutaneous lesions in COVID-19 are still under continuous study. We report a case of COVID-19 (+) patient with late-onset cutaneous rash associated with a systemic inflammatory response during the second hospitalization.

A 39-year-old woman with known COVID-19 exposure presented to the emergency department with a seven-day history of fatigue, fever, dry cough and shortness of breath. Physical examination revealed pulmonary bilateral basal crepitations. Laboratory tests showed high levels of C-reactive protein 6.4 mg/dL (reference range, 0.1–0.5 mg/dL) and D-dimer 604 ng/mL (reference range, 0–500 ng/mL). Nasopharyngeal swab for COVID-19 was positive (genesig[®] Real-Time PCR assay, Primerdesign, UK). Chest computed tomography (CT) showed peripheral

ground-glass opacities in the lower zones of the lungs and mild opacities in the right upper lobe. The patient was hospitalized with the diagnosis of pneumonia due to COVID-19. She had a previous history – since adolescence – of autonomic dysfunction with recurrent episodes of hypotension. She was treated with rivaroxaban, acetaminophen, ipratropium bromide and fenterol hydrobromide. On day 9 of the first hospitalization, the C-reactive protein level diminished to 2 mg/dL, dysautonomia was controlled, and later she was discharged.

After 10 days, the patient was re-hospitalized due to hypotension episodes with intense malaise and myalgia. During the second hospitalization, both C-reactive protein (6.3 mg/dL) and D-dimer (3602 ng/mL) showed very high levels. A computed tomography pulmonary angiography (CTPA) ruled out a pulmonary embolism. On the second day of rehospitalization, the patient developed an acute symmetric purpuric rash on the buttocks, thighs and axillae characterized by petechiae and multiple erythematous-purpuric papules, forming well-defined plaques (Fig. 1a). Following strict sanitary measures, we obtained dermoscopic images (Dermlite[®] DL4, 3gen, USA). Under dermoscopy (10×

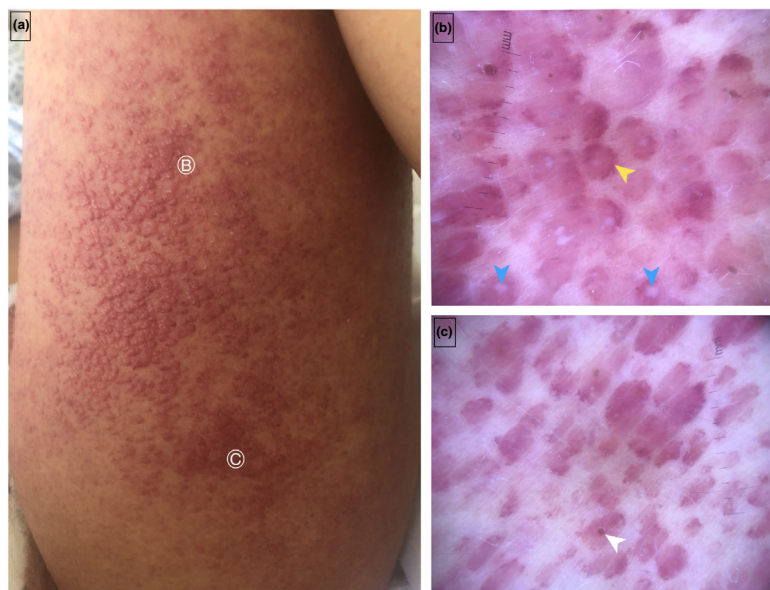


Figure 1 Papular-purpuric exanthem on COVID-19(+) patient (second day of readmission). Erythematous-purpuric papular rash on patient's left thigh. Biopsies were taken on zones B and C (a). Dermoscopy shows multiple monomorphic papules with an incomplete violaceous rim at the periphery (yellow arrowhead), and a central yellow globule in some papules (blue arrowheads) (b). Other papules had a central purpuric globule with an erythematous background (c).

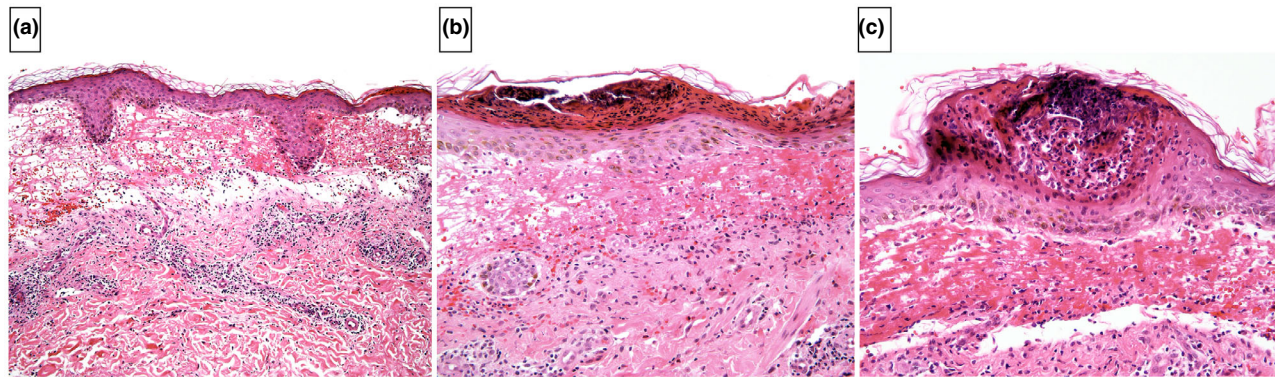


Figure 2 Histopathologic findings. Histopathology shows acute oedema, extravasation of red blood cells and neutrophils in the papillary dermis, a perivascular mononuclear infiltrate around superficial plexus, endothelial swelling (a,b, H&E 100 \times) and a subcorneal pustule (c, H&E 20 \times).

magnification), multiple monomorphic papules with an incomplete violaceous rim at the periphery and a central yellow globule were found (Fig. 1b). Other papules had a central purpuric globule with an erythematous background (Fig. 1c). The skin biopsy of the papules in zone 'b' showed mild spongiosis, subcorneal micropustules, focal exocytosis of neutrophils, marked oedema of the papillary dermis, red cells extravasation, perivascular and interstitial lymphocytic inflammatory infiltrate and endothelial swelling (Fig. 2). No signs of vasculitis were observed, and direct immunofluorescence was negative. The patient received supportive therapy and high-potency topical corticosteroids for the rash. After six days of treatment, D-dimer (581 ng/mL) and C-reactive protein level (0.5 mg/dL) diminished to almost normal levels, and skin lesions disappeared.

Recent studies^{1,2,3} have described various cutaneous patterns in COVID-19 patients; pseudo-chilblain, vesicular, urticarial, maculopapular and livedo/necrotic. Petechial rash has also been associated with COVID-19 infection⁴. In our patient, we have described a papular-purpuric pattern. High levels of D-dimer and C-reactive protein were associated with this papular-purpuric exanthem. Clinically, we found papules with a central micropustule that under dermoscopy was seen as a yellow globule. Other papules had a homogenous red-violaceous colour that under dermoscopy was characterized by an incomplete dark red-violaceous rim at the edge of the papule. D-dimer and C-reactive protein levels had a direct correlation with skin lesions. During the acute phase of the exanthem, characterized by red papules with dermatoscopic signs of epidermal and dermal damage, both levels were high. During the fading period, these markers diminished along with the rash. To our knowledge, this is the first published observation of a papular-purpuric rash using dermoscopy in a COVID-19 patient.

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Conflict of interest

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