


Images in Rheumatology

Livedo Reticularis After COVID-19 Vaccination

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Livedo reticularis occurs when there is increased visibility of the venous plexus, often caused by reduced arterial inflow or venodilation.¹ Although livedo reticularis has been reported in patients with COVID-19,^{2,3} it has also been reported following COVID-19 vaccination.⁴

An 80-year-old woman presented with eruption. She had received a third dose of the coronavirus disease 2019 (COVID-19) vaccine (Pfizer-BioNTech9) 40 days prior to presentation and had high fever and pain at the injection site for a week. The day following vaccination, livedo reticularis was observed at the injection site on her left upper arm and its periphery, with intense redness that gradually faded and pigmented but did not disappear (Figure 1A). Laboratory examination revealed elevated C-reactive protein (0.58 mg/dL; normal range < 0.15) but no remarkable findings of coagulation, autoimmune diseases, or infectious diseases. Skin tissue biopsy showed mild infiltration and edematous changes of inflammatory cells around the small blood vessels from the superficial dermis to the boundary with subcutaneous fat, which were consistent with livedo reticularis (Figure 1B). No recurrence of fever and pain was observed after presentation, and there was no exacerbation of the eruption. Since her symptoms did not worsen after that, the

patient was followed up for half a year without treatment. The rash gradually faded; however, the pigmentation did not disappear.

In postvaccination cases, endotheliosis and vasoconstriction have been hypothesized as mechanisms that lead to livedo reticularis during COVID-19 infection³ or after COVID-19 vaccination.⁴ Our findings suggest that COVID-19 vaccination may induce livedo reticularis local to the inoculation site in patients receiving anticoagulant therapy.

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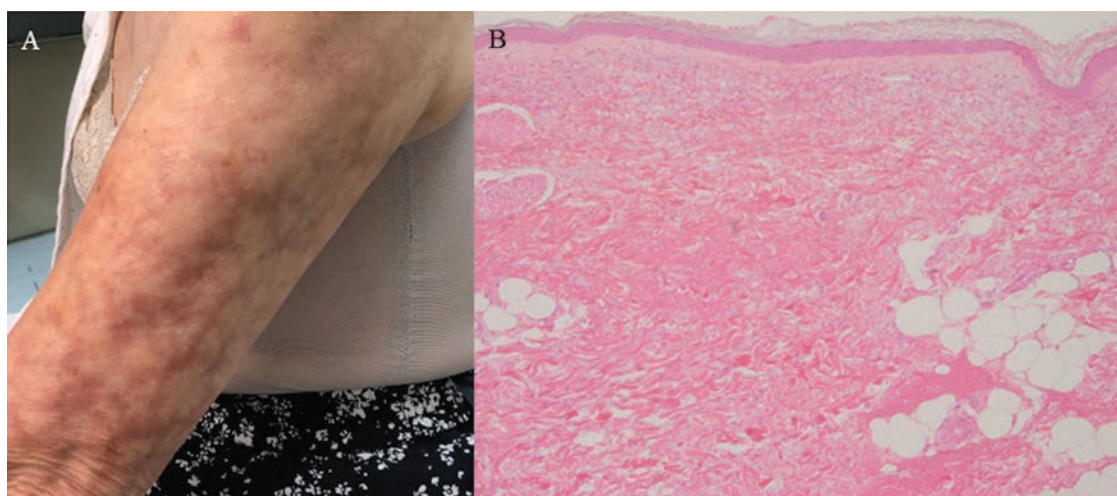


Figure 1. Macroscopic and histological findings of livedo reticularis in the present case. (A) Livedo reticularis is observed at the injection site in the left upper arm and its periphery 40 days after the third dose of COVID-19 vaccination. (B) Skin biopsy specimen showing mild infiltration and edematous changes of inflammatory cells such as lymphocytes and plasma cells around the small blood vessels from the superficial dermis to the boundary with subcutaneous fat, 41 days after the third dose of COVID-19 vaccination (H&E staining, original magnification 200 \times). COVID-19: coronavirus disease 2019.