

## Images in Vascular Medicine: Leukocytoclastic vasculitis after COVID-19 vaccine booster

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A 65-year-old man developed purpuric palpable lesions of the legs 2 days after receiving his third dose (booster) of Pfizer BioNTech vaccination against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Panels A and B). He received his initial vaccinations 4 months prior to receiving his booster injection. He denied any prior SARS-CoV-2 infection. He denied any systemic symptoms. The patient has a history of diabetes and hypertension for which he is on metformin and lisinopril, respectively; he otherwise has no other medical problems. Punch biopsy of the leg showed neutrophilic inflammation with fibrinoid necrosis and fragmented neutrophilic nuclei (leukocytoclasia), consistent with leukocytoclastic vasculitis (LCV). He was treated with one dose of triamcinolone 60 mg (IM), oral prednisone (tapered from 60 mg/d to 10 mg/d), along with topical clobetasol propionate and mupirocin.

LCV is a cutaneous, small-vessel vasculitis characterized by deposition of immune complexes in the dermal capillaries and venules.<sup>1</sup> Half of all cases of LCV are idiopathic; among secondary LCV, infections and medications are the most common triggers. Numerous medications have been implicated, including several antibiotics, furosemide, allopurinol, nonsteroidal antiinflammatory drugs (NSAIDs), amiodarone, metformin, warfarin, and several vaccines, including the influenza, hepatitis B (HBV), Bacille Calmette-Guérin (BCG), and human papillomavirus (HPV) vaccines.<sup>2</sup> Most cases of cutaneous LCV are mild and resolve with supportive measures; if LCV is more chronic or resistant, oral corticosteroids can be used. For medication-induced LCV, withdrawal of the drug is crucial for resolution.

With the mass vaccination effort to address the coronavirus disease 2019 (COVID-19) pandemic caused by the SARS-CoV-2, there have been numerous reports of cutaneous manifestations after receiving the SARS-CoV-2 vaccine, including those manufactured by Moderna, Pfizer BioNTech, and Johnson & Johnson. The most commonly reported cutaneous manifestations are vaccine-related eruption of papules and plaques (V-REPP), bullous pemphigoid-like, dermal hypersensitivity reactions, herpes zoster, lichen planus-like, and pemphigoid.<sup>3</sup> There have been case reports of the development of LCV after the Moderna and Pfizer BioNTech SARS-CoV-2 vaccines; however, there have been no other reported cases of LCV development after the SARS-CoV-2 booster vaccine.<sup>3–5</sup> The mechanism of SARS-CoV-2 vaccine-induced



Panel A.



Panel B.

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LCV is unclear but could potentially be driven by off-target immune activation after vaccination. There were no systemic manifestations in any of the reported cases and management in these cases varied from topical to oral steroids with resultant partial to complete resolution of the LCV.

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