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DERMATOLOGIC THERAPY WILEY

SHORT REPORT

Subacute cutaneous lupus erythematosus flare triggered by COVID-19 vaccine

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The most frequently reported adverse cutaneous reactions to messenger RNA (mRNA) derived COVID-19 vaccines include injection site reactions and findings related to anaphylaxis.[1–3] Little is known about COVID-19 vaccination in patients with autoimmune skin disease. Here, we report a case of a subacute cutaneous lupus (SCLE) flare after COVID-19 immunization.

A 54-year-old woman presented with 9 months of a rash on her face, neck, trunk and extremities consistent with SCLE, based on clinicopathological correlation. Prior labs were significant for positive antinuclear antibodies (1:1280 titer), anti-Smith, and anti-double-stranded DNA antibodies. Anti-SS-A antibodies were negative. The patient was on hydroxychloroquine 200 mg twice a day for one and half months and trialed on three rounds of prednisone and multiple topical medications without improvement.

Skin examination revealed annular erythematous plaques coalescing into polycyclic plaques with raised borders and scaling on the neck, chest, abdomen, back, arms, legs, lateral cheeks and forehead (Figure 1A). The patient was continued on hydroxychloroquine 200 mg twice a day and started on mycophenolate mofetil 500 mg twice daily, which was increased to 1000 mg twice a day 3 weeks later. The patient reported improvement of SCLE.

One month later, the patient received the first of two doses of the Moderna mRNA-derived COVID-19 vaccine. Four days after vaccination, she noticed worsening of SCLE lesions, characterized by increased pruritis, burning and erythema. She endorsed pain at the injection site but denied systemic symptoms. Skin examination 1 week after immunization revealed worsening lesions on her face, neck, chest, back and arms (Figure 1B). Mycophenolate mofetil was increased to 1500 mg twice a day, and triamcinolone 0.1% ointment with wet wrap therapy twice a day was started. This resulted in improvement of her flare, which lasted for about 2 weeks. The patient received the second dose of the vaccine 1 month after the initial dose.

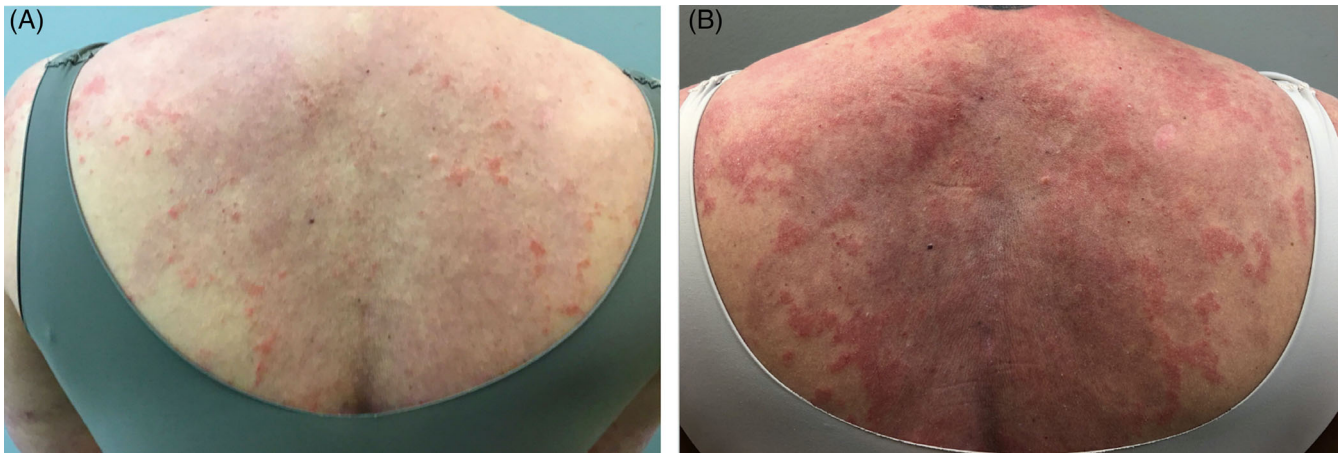

FIGURE 1 Subacute cutaneous lupus (SCLE) flare on the back before and after COVID-19 vaccination. Photos of SCLE rash on the back before (A) and after (B) receiving mRNA COVID-19 vaccine

She reported a mild flare on her face with worsening redness and scale, which improved days later. She denied flaring on other areas of her body. Months after immunization the patient reported having a positive T cell test for COVID-19, indicating immunity against COVID-19.

Our case of SCLE flaring after COVID-19 immunization suggests that patients with autoimmune skin diseases may worsen after COVID-19 vaccination, in which immunosuppressive treatments may need to be initiated or escalated to treat flares. Our patient flared after receiving both doses of the vaccine, with the first dose inciting a stronger reaction than the second. Increased immunosuppression may have contributed to a less severe flare after the second immunization.

The immune response generated by COVID-19 vaccination results in activation of inflammatory cells and production of cytokines. COVID-19 mRNA vaccines elicit CD4 type 1 helper T cell (Th1) responses. Increased levels of interferon gamma (IFN-γ), interleukin-2 and tumor necrosis factor-alpha (TNF-α) have been observed after vaccination.[4] In cutaneous lupus erythematosus (CLE), increased levels of Th1 cells, and Th1-associated cytokines and chemokines, have been reported in lesional skin.[5] TNF-α and IFN-γ play a role in CLE pathogenesis by contributing to the release of cytokines and recruitment of immune cells.[6] Enhanced interferon responses with COVID-19 vaccination and interactions of the SARS-COV2 S protein with cytoplasmic RNA-binding proteins could contribute to disease flares in lupus.[7]

The American College of Rheumatology recently released guidance on COVID-19 vaccination for patients with autoimmune disease.[8,9] Although theoretical risk of disease flare or worsening with immunization is acknowledged, it is currently recommended that eligible patients with autoimmune conditions be vaccinated against COVID-19, regardless of disease activity or severity.[7–9] More data is needed to determine how mRNA COVID-19 vaccinations will affect future recommendations for patients with CLE and other autoimmune skin diseases.

ACKNOWLEDGMENT

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CONFLICT OF INTEREST

Dr. Chong is an investigator for Daavlin Corporation and Biogen Incorporated and Pfizer Incorporated. He is a consultant for Viela Bio, Beacon Bioscience, Bristol Meyers Squibb, EMD Serono, and Principia Biopharma. Ms. Joseph has no conflicts of interest.

INFORMED CONSENT

Photographic consent was obtained from the patient.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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