

LETTER

## Atrophic lichen planus post-COVID vaccination in a hepatitis C positive individual

Dear Editor,

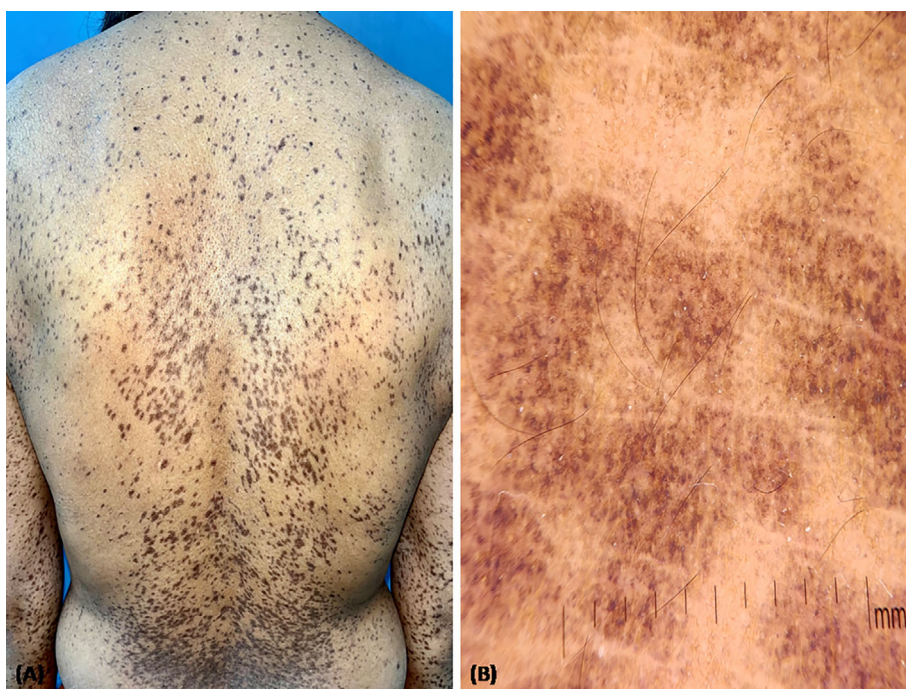
Amidst the current SARS-CoV-19 pandemic, vaccination against COVID-19 has covered a major proportion of the population worldwide. A large number of adverse reactions including cutaneous manifestations following different COVID-19 vaccines have been reported. A recent registry-based study of 414 patients with cutaneous manifestation who had received mRNA COVID-19 vaccination showed that these include delayed local reactions at the injection site, urticarial lesions, and morbilliform eruptions.<sup>1</sup>

The potential triggers of lichen planus (LP) include infections like hepatitis C and vaccinations such as hepatitis B and influenza vaccines. There are currently very few reports of new-onset LP following COVID vaccination. We hereby present a case of atrophic LP following COVID-19 vaccination in a hepatitis C positive patient.

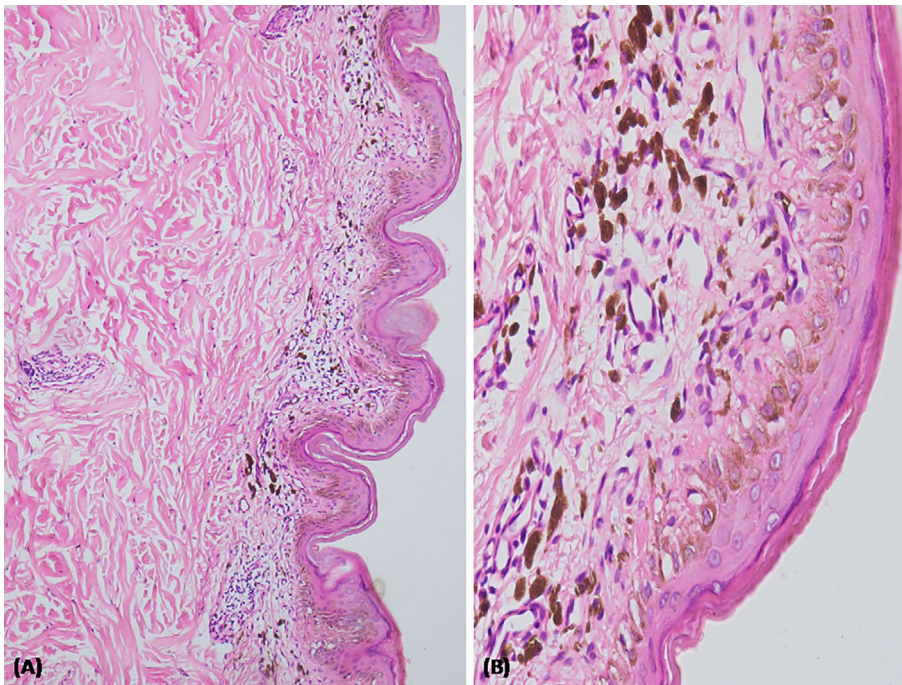
A 31-year-old female, known case of hepatitis C for the past 3 years presented with multiple, violaceous to hyperpigmented lesions over the trunk and limbs for 6 months duration. She received the first dose of COVISHIELD vaccine (a recombinant, replication-deficient adenovirus vector encoding SARS-CoV-2 Spike glycoprotein vaccine) following which she noticed itchy violaceous papules over her chest on the eighth day which gradually progressed to involve her entire

body within next 15 days. Examination revealed multiple, discrete, violaceous, and hyperpigmented, atrophic papules and plaques on her trunk and all limbs (Figure 1A). Dermoscopy revealed multiple, discrete, violaceous, and brown pigmented dots and clods on a background of diffuse faint erythema and reddish-brown hyperpigmentation (Figure 1B). All mucosae were spared. She was a known case of hepatitis C not on treatment with HCV RNA titers of 730,000 in view of which she was referred to the hepatology department and sofosbuvir 400 mg and daclatasvir 60 mg per day were started. There was no history of prior drug intake (including any drugs that can trigger lichenoid eruption) before the onset of her skin lesions. In view of the temporal correlation following the first dose of COVID-19 vaccination and the clinical appearance of lesions, a skin biopsy was performed with a possibility of atrophic LP following COVID-19 vaccine. Histopathological examination features were consistent with atrophic LP (Figure 2A,B). The patient was treated with topical tacrolimus lotion and while on follow-up, she refused to receive the second dose of vaccine owing to her fear of severe disease flare.

Lichen planus has been linked to hepatitis virus infections and vaccinations. A meta-analysis of primarily case-control studies found a statistically significant association between hepatitis C virus (HCV)



**FIGURE 1** (A) Multiple, discrete, violaceous and hyperpigmented, atrophic papules, and plaques over the back; (B) Dermoscopic examination revealed multiple, discrete, violaceous and brown pigmented dots and clods on a background of diffuse faint erythema and reddish-brown hyperpigmentation (DermLite IV, x10, polarized)



**FIGURE 2** (A) Biopsy shows hyperkeratosis, epidermal atrophy and mild band-like lymphoid infiltrate in the upper dermis (HE, x100); (B) There is prominent vacuolar degeneration of basal keratinocytes and pigment incontinence (HE, x400)

infection and lichen planus,<sup>2</sup> although there is no known explanation for this association. In the present case, a diagnosis of hepatitis C in our patient predisposed her to an increased risk of LP which got triggered by the COVID vaccination.

In a recent study by Merhy et al.,<sup>3</sup> a 56-year-old woman, with no significant past medical history, developed lichen planus after the first dose of the Pfizer-BioNTech COVID-19 vaccine. Diab et al.<sup>4</sup> reported two cases where one patient had lichen planopilaris (LPP) relapse and the other patient experienced an increased severity of cutaneous lichen planus after the first and second dose of Sinopharm. The exact mechanism is still unidentified however various hypotheses have been put forward. A T-cell dysregulation is the most widely accepted pathogenesis with rise in the levels of cytokines including IFN-gamma, IL-5, and autotoxic-CD8+ T cells. There occurs a preponderance of Th1 type of pro-inflammatory response a direct result of which is the development of flare or trigger of new-onset LP.<sup>5</sup> The propensity of such a trigger gets further enhanced in the setting of a background predisposing factor as was hepatitis C infection in our patient.

There is still insufficient evidence to completely withhold COVID vaccination in patients with severe dermatological diseases. The ongoing debate during the pandemic of whether or not to administer second dose of the vaccine to such patients who have a higher severity of disease remains disputed. The present case re-emphasizes the need to identify new potential triggers of old diseases and carefully monitor the possible side effects of new vaccines as we encourage the population to continue their vaccination process.

#### AUTHOR CONTRIBUTIONS

**Apoorva Sharma:** Conceptualization, writing- original draft(lead), writing- review and editing; **Adhyatm Bhandari:** writing- review and editing; **Debajyoti Chatterjee:** provision of histopathological

diagnosis and images, writing- review and editing; **Tarun Narang:** Conceptualization, writing- original draft(supporting), writing- review and editing.

#### CONFLICT OF INTEREST




The author declares that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

#### INFORMED CONSENT

Patient in this manuscript has given written informed consent to publication of their case details.

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