

CLINICAL LETTER

Linear lichen planus after COVID-19 vaccination

Dear Editor,

Reports of cutaneous side effects due to a COVID-19 vaccine have increased with the expansion of vaccinations. Cutaneous side effects are more common in women, and the most frequent skin manifestations are delayed large local reactions, local injection site reactions, urticaria, and herpes zoster.¹ There are few reports of a lichenoid reaction. We report a case of linear lichen planus triggered by the Pfizer-BioNTech COVID-19 vaccine.

A 57-year-old Japanese woman suffered from linear erythematous-brown papules along Blaschko's lines on her left upper extremity (Figure 1a). She had no personal or family history of inflammatory skin conditions. Apart from COVID-19 vaccination, she had not been exposed to any other medications, herbal therapy, or other vaccinations in the weeks or months prior to eruption developing. She noted that (i) she had received the third dose of the Pfizer-BioNTech COVID-19 vaccination at her left upper extremity 2 weeks earlier, and (ii) she had no skin symptoms after the first and second Pfizer-BioNTech COVID-19 vaccinations. The routine blood test results were unremarkable, including negative serology for hepatitis C. A skin biopsy revealed hyperkeratosis, basal liquefaction, Civatte bodies, and interface dermatitis with a perivascular lymphocytic infiltration, confirming the histopathological diagnosis of lichenoid reaction (Figure 1b,c).

Although lichen striatus was considered as a differential diagnosis based on the clinical findings, the lack of lymphocytic infiltration around the eccrine glands, which is common in lichen striatus, led to the diagnosis of linear lichen planus (LLP).

Approximately 6 weeks after the start of treatment with topical corticosteroids, the skin lesions improved with leaving mild pigmentation.

To the best of our knowledge, LLP after COVID-19 vaccination has not been reported. Although there have been no reports of LLP, there are reports of nine patients with lichen planus (LP) after COVID-19 vaccination.²⁻⁹ Because LLP is a variant of LP, we reviewed 10 patients including our patient (Table 1). Nine of the 10 patients were female (90%). The median age was 56.0 years (range 29–64 years). The vaccine in five of the eight patients for whom vaccine-type details were available (62.5%) was Pfizer BioNTech's COVID-19 vaccine. Four of the seven patients (57.1%) for whom details of the vaccination administration were available developed the eruption after the first dose; two patients after the second dose (28.6%), and only our patient after the third dose.

Of the nine patients described in detail, LP lesions developed within 6 days from vaccination (4 patients; 44.4%), one-week (2 patients; 22.2%) or two-week post-vaccination (3 patients; 33.3%). These results suggest that the appearance of LP and LLP might develop later than other cutaneous reactions such as itching and urticaria. In addition, in some individuals, the LP and LLP skin reaction may occur after a second- or third-dose vaccination without appearing after earlier COVID-19 vaccinations.

Lichenoid reactions are not unique to the COVID-19 vaccinations because LP-like eruptions have been reported with other vaccinations such as hepatitis B and influenza.¹⁰ However, dermatologists need to be aware of the possibility of lichen reaction after COVID-19 vaccinations, and careful interviewing of the patient is important.

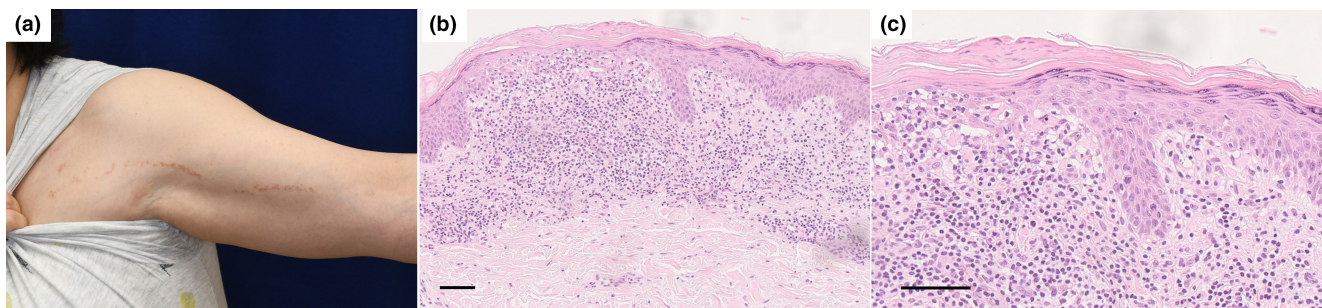


FIGURE 1 (a) Linear erythematous-brown papules along Blaschko's lines on the patient's left upper extremity. (b, c) Haematoxylin and eosin (H&E) staining show hyperkeratosis, basal liquefaction, and a band-like infiltrate of lymphocytes in the upper dermis and dermoepidermal junction with apoptotic keratinocytes. Scale bar: 100 µm.

TABLE 1 Lichen planus after COVID-19 vaccination

Authors [ref.]	Gender, age	Type of vaccine	Onset of LP reaction
Troeltzsch et al. [2]	M, 49	Johnson & Johnson	6 days after
Merhy et al. [3]	F, 56	Pfizer-BioNTech	1 wk after 1st dose
Hiltun et al. [4]	F, 56	Pfizer-BioNTech	2 days after 2nd dose
Kulkarni et al. [5]	F, 65	NR	NR
Sharda et al. [6]	F, 35	NR	2 wks after
Piccolo et al. [7]	F, 64	Pfizer-BioNTech	5 days after 1st dose
Bularca et al. [8]	F, 29	Pfizer-BioNTech	1 wk after 1st dose
Diab et al. [9]	F, 60	AstraZeneca	2 wks after 2nd dose
	F, 55	Sinopharm	5 days after 1st dose
Our patient	F, 57	Pfizer-BioNTech	2 wks after 3rd dose


Abbreviations: LP, lichen planus; NR, not reported.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

INFORMED CONSENT

Consent is obtained from our patients for the use of the images and for the reporting.

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