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Lichen planus related to COVID-19 vaccine: report of two cases

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To the Editor:

The COVID-19 pandemic has resulted in the deaths of more than 6 million people worldwide, with more than 500 million cases diagnosed [1]. More than 65% of the population has received at least one dose of a vaccine and more than 11 billion doses have been administered, at a current rate of approximately 10 million vaccines per day [2]. These vaccines have sometimes been accompanied by skin side effects, mostly mild [3], including the development of lichen planus. Herein, we report two cases of lichen planus (LP) associated with vaccines developed against COVID-19.

A 54-year-old woman, under follow-up in our department for psoriasis and being treated with ixekizumab presented for consultation owing to the eruption of flat, pruritic erythematous-violaceous papules located on the anterior aspect of the wrists and palms (**Figure 1**). No mucosal involvement was observed. The rash occurred 7 days after the third dose of the Pfizer-BioNTech COVID-19 vaccine. A blood test ruled out HBV and HCV infection with no other notable findings. Due to the clinical compatibility of the lesions with lichen planus, the temporal relationship with the vaccine, and the exclusion of other causes, she was diagnosed with lichen planus induced by the COVID-19 vaccine. She is currently using topical corticosteroids as treatment because the lesions persist.

A 61-year-old man was assessed for the eruption of pruritic purpuric papules on the upper and lower

limbs (**Figure 2**), trunk, and abdomen. There was no mucosal involvement. The lesions appeared 10 days after the first dose of the Oxford-AstraZeneca COVID-19 vaccine, with less intense recurrence after administration of the second dose. Laboratory tests were performed with no notable findings, including negative serology for hepatitis B and C viruses. A biopsy of one of the lesions showed lichenoid dermatitis. The findings were consistent with lichen planus triggered by the COVID-19 vaccine. He was treated with topical corticosteroids with complete improvement after 6 months.



Figure 1. Erythematous-violaceous papules on the anterior aspect of the forearm



Figure 2. Violet papules can be seen on the back of the hand, similar to the forearm.

Lichen planus is a chronic inflammatory disease, with an unknown origin but mediated by T helper lymphocytes [4,5]. Clinically, classical lichen planus is often described as the 4P disease: pruritic polygonal purpuric papules. It has been associated with the intake of drugs, infections such as hepatitis C or hepatitis B, as well as other vaccines, mainly for influenza and herpes zoster [7]. The pathophysiology of the appearance of lichen planus is based on the stimulation of the immune system by the vaccine.

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The immune response is mediated by T helper lymphocytes type 1 (Th1) that produces an increase in TNF, interferon-gamma, and interleukin 2 [6-9].

Multiple inflammatory skin reactions to the COVID-19 vaccines have been described in the literature and includes bullous pemphigoid-like, leukocytoclastic vasculitis, granuloma annulare, tattoo sarcoidal reaction, new onset psoriasis [10].

These two cases are added to the few described in the literature with the aim of expanding the knowledge of this reaction to vaccines. In the first case the vaccine is based on mRNA technology whereas in the second case the vaccine is based on a viral vector.

It is noteworthy that in both cases there is a respect for mucous membranes, a finding described as common in lichenoid drug eruptions [4]. The second case had a good response to corticosteroids leading to a complete resolution of the picture, as has been described in other cases.

Potential conflicts of interest

The authors declare no conflicts of interest