



Letter to the Editor

Development of Vitiligo After COVID-19 Vaccination

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Dear editor,

Vitiligo is defined as an autoimmune, chronic, and inflammatory disease characterized by white patches on the skin. In recent years, vitiligo cases have been described following the use of cytokine-targeted therapies called biological agents and the discovery of vaccines for certain tumor antigens.

In the literature, there have been some reports about patients who develop vitiligo due to drugs such as TNF- α inhibitors, interferon, and ipilimumab. Leukoderma has been observed to develop in patients using adenovirus vaccines for the treatment of melanoma. Dermatological diseases, such as urticaria, erythema multiforme, herpes zoster, leukocytoclastic vasculitis, and lichen planus, have also reported after vaccines that have been rapidly put into use to achieve immunization against the COVID-19 pandemic. This letter aims to present the possible mechanisms of this rare side effect by describing a patient who developed vitiligo after COVID-19 vaccination and discuss these mechanisms in light of the current literature.

A 75-year-old female patient presented to our outpatient clinic with the complaints of whitening of the face and hands, which had started 1 week after receiving the first dose of the CoronaVac vaccine. Her dermatological examination revealed sharply circumscribed hypopigmented

patches ranging from 1 cm to 5 cm on the dorsum of both hands, forehead, cheeks, dorsum of the nose, perioral region, and legs (Fig. 1). There was an increase in white highlights in Wood's lamp examination. She had no known disease other than hypertension and denied stressor factors. The laboratory values of the patient were found to be within normal limits. She was diagnosed with vitiligo based on the histopathological results (Fig. 2) started on topical steroid and tacrolimus cream.

In a recent study evaluating 414 patients, dermatological side effects related to the Moderna and Pfizer vaccines were examined. The authors observed diseases such as urticaria, contact dermatitis, and erythema multiforme, which are considered to develop due to immunological mechanisms. They also reported hypopigmentation in two patients.^[1] In another paper, Aktas et al. reported the case of a 58-year-old male patient with ulcerative colitis that started on the face 1 week after receiving the Pfizer vaccine. The patient was also under immunosuppressant therapy. The authors diagnosed him with vitiligo.^[2]

In some studies, peripheral CD4⁺ T lymphocytes and CD4⁺/CD8⁺ ratios have been found to be increased in patients with vitiligo. Melanocyte-specific T lymphocytes have been identified in the peripheral blood of patients with vitiligo, and it has been suggested that these lympho-

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Figure 1. Sharply circumscribed depigmented patches ranging from 1 cm to 5 cm on the dorsum of both hands, forehead, cheeks, dorsum of the nose, and perioral region.

cytes are CD8+ and show cytotoxic effects against MELAN-A/MART-1, tyrosinase, and Gp100. In a study by Mitra et al., an increase in cytokines, such as IL-6, IFN- γ , TNF- α , and IL-10, was found in patients with active vitiligo.^[3] In another study by Yang et al.,^[4] a large number of CD8 (+) T cells and IFN-gamma secretion were detected in the skin in active vitiligo cases.

The cellular immunity plays an important role in viral infections and vaccine response. IFN- γ released by CD4+ T cells is considered to play an important role in vaccine response.^[5] Teijaro et al. observed increased type 1 interferon response after m-RNA vaccines and vector vaccines.^[6] It is also known that there is an increased type 1 interferon response in patients with vitiligo. In addition, there are publications reporting that vitiligo can develop in patients with hepatitis C receiving recombinant IFN- α therapy.^[7]

Although vitiligo can start at any age, as in our patient, age 75 is a less common age for the onset of vitiligo. Cases and mechanisms reported in the literature include vector, live, and mRNA vaccines.

Our patient had no previous infection, trauma, stress, new drug history, and other factors that could trigger vitiligo, except for the inactivated vaccine administered 1 week ago. The fact that vitiligo developed 1 week after the inactivated vaccine led us to consider this vaccine in the etiology. The vitiligo reaction cannot be directly linked to the inactivated vaccine, it can be coincidental. However, clinicians should keep in mind the possibility of such a reaction.

Disclosures

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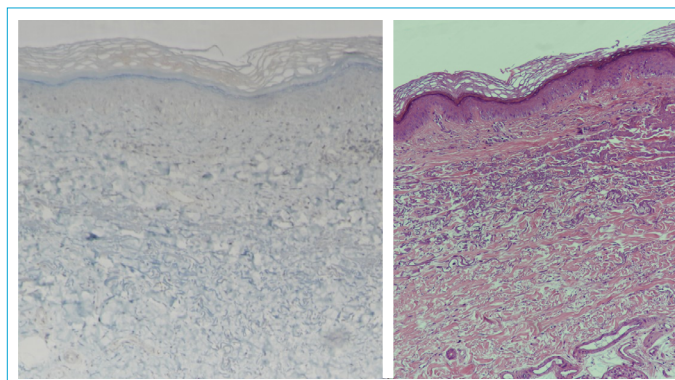


Figure 2. Surface orthokeratosis, flatness of epidermis, and loss of melanin in the basal layer. MELAN-A worked as immunohistochemical.

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