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LETTER

Exacerbation of plaque psoriasis after inactivated and BNT162b2 mRNA COVID-19 vaccines: A report of two cases

Dear Editor,

Wide range of cutaneous side effects are being reported with different types of SARS-CoV-2 vaccines including early-onset or delayed-type local injection reactions, maculopapular rash, erythema multiforme, pernio, and urticaria.[1] Exacerbation of chronic inflammatory skin disorders such as psoriasis has also been described recently.[2] Herein, we present two cases of plaque psoriasis that exacerbated after inactivated and mRNA COVID-19 vaccination.

CASE 1: A 51-year-old man with a history of diabetes mellitus, was consulted to outpatient clinic due to the emergence of widespread erythematous, pruritic plaques within last 2 weeks. He was diagnosed with psoriasis 1 year ago, which was limited to the elbows and knees and used only topical corticosteroid oinments with partial response. He reported that the lesions had begun to enlarge 2 months ago after the first dose of the BNT162b2 mRNA (Pfizer/Biontech, German) SARS-CoV-2 vaccine and widespread extension of the plaques had accelerated 2 weeks after the second dose of vaccine. He had also malaise, myalgia, fever, and arthralgia of the both knees after the second vaccination. No recent history of infection, drug use, or stress was reported. Dermatological examination revealed confluent, erythematous, scaly, thick plaques covering the entire knees, upper extremities, buttocks, and extending to the trunk, both thighs and legs (Figure 1). Histopathological examination was compatible with psoriasis. Psoriasis Area Severity Index (PASI) score was 27.1. Full blood count and biochemistry were within normal range. C-reactive protein level was slightly elevated (0.99 mg/dl; normal range: 0–0.8 mg/dl).

CASE 2: A 52-year-old male presented with the complaint of skin rash that started on buttocks 1 month after the second dose of inactivated SARS-CoV-2 vaccine (CoronaVac, Chine) and spred gradually. He reported a history of occasional, scattered rash with a remitting–relapsing course over the past 5 years. Dermatological examination revealed erythematous, scaly plaques, some of which had a targetoid appearance, located on the upper and lower extremities, nape of the neck and trunk (Figure 1). He denied any recent history of infection, medication, or stress. Histopathologic examination was compatible with psoriasis; PASI score was 20.3. His routine blood tests were within normal ranges.

Psoriasis is a chronic, inflammatory skin disorder which is influenced by genetic and environmental factors, such as infections, medications, stress, and lifestyle changes.[3] There have been some reports of new-onset or flare of psoriasis following Bacille Calmette-Guérin and influenza vaccines.[4,5] Recently, Krajewski et al,[6] reported a case of plaque psoriasis flare-up 5 days after the application of the second dose of BNT162b2 mRNA SARS-CoV-2 vaccine. In this case,[6] systemic symptoms such as fever and malaise were also present, similar to our first case. Lehhman et al.[7] reported a new-onset guttate psoriasis after the BNT162b2 mRNA vaccine in a 79-year-old female, whose rash started 10 days after the first dose and flared up after the second dose.[7] Onsun et al,[2] reported a case of generalized pustular psoriasis developed 4 days after the first dose of the inactivated SARS-CoV-2 vaccine in a 72-year-old man who had plaque psoriasis. It is thought that vaccines may trigger autoimmune or inflammatory diseases through the cellular and humoral immune mechanisms they use to generate vaccine-induced immune protection.[8,9] Although we cannot identify a direct pathological link between SARS-CoV-2 vaccines and psoriasis exacerbation, the lack of any other triggering factors and exacerbation of the lesions after the second dose of vaccines may suggest an immunological relationship in the current cases.

Since patients with psoriasis are more likely to have multiple comorbidities or using immunosuppresive drugs for treatment of psoriasis which may lead to severe COVID-19 infection; vaccination against SARS-CoV-2 is strongly recommended for them. However, it should be kept in mind that vaccines against SARS-CoV-2 may exacerbate psoriasis and patients need to be followed-up closely. Further controlled studies based on larger cohort are needed to identify the exact relationship between SARS-CoV-2 vaccines and psoriasis exacerbation.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

Ecem Bostan: conceptualization; visualization; writing original draft. **Leyla Elmas:** conceptualization; visualization; writing original draft. **Beril Yel:** conceptualization; writing original draft; data curation. **Basak Yalici-Armagan:** conceptualization; data curation; supervision; writing review and editing.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

The study was conducted at Department of Dermatology and Venereology, Hacettepe University, Faculty of Medicine, Ankara, Turkey. Written informed consent for publication of medical images was taken from the patients.

FIGURE 1 Case 1: Erythematous/violaceous, scaly plaques are apparent on the buttocks (A), on the thighs (B), knees (C), and calves (D). The entire upper arm and arm are covered with fissured, scaly, erythematous plaques (E). Case 2: Erythematous, scaly papules and plaques on the nape of the neck (A), arms and the back (B), legs (C), similar papules and plaques with hemorrhagic crusts on trunk laterals (D) and targetoid papules and plaques on the anterior surface of the left arm (E)

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