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DERMATOLOGIC THERAPY WILEY

LETTER

Pustular rash triggered by Pfizer-BioNTech COVID-19 vaccination: A case report

Dear Editor,

Since the start of the coronavirus disease-19 (COVID-19) pandemic, several new vaccines have emerged. Pfizer-BioNTech (BNT162b2) is a messenger RNA vaccine. Although phase three trials have shown its safety, not all of its side effects are known. Herein, we report the case of a 66-year-old male patient with 20-year history of psoriasis, who developed a pustular rash, 4 days after COVID-19 vaccination (Pfizer-BioNTech). On examination, the patient presented multiple erythematous and scaly plaques with an active border composed of nonfollicular pinhead-sized pustules and desquamation, affecting the trunk and the limbs (Figure 1). He also had a fever with a temperature of 38°C. Laboratory findings revealed neutrophilic leukocytosis. The COVID polymerase chain reaction test was negative. In addition, the history did not show any drug intake. The investigations ruled out an evolutive infection, the bacteriological sampling at the level of the pustules being particularly negative. Histopathology showed epidermal hyperplasia, spongiosis, parakeratosis, and an inflammatory infiltrate of the dermis made of lymphocytes, neutrophils which are in places in exocytosis at the level of the epidermis. The diagnosis of a flare-up of psoriasis with acute onset of a neutrophilic inflammation with macroscopic pustules, potentially triggered by the COVID-19 vaccine was made. The patient was treated by Betamethasone Dipropionate topical cream which led to the resolution of the cutaneous lesions within 2 weeks.

We herein reported an uncommon case of a flare-up of psoriasis with acute onset of a neutrophilic inflammation with macroscopic pustules triggered by the Pfizer-BioNTech COVID-19 vaccine. So far, only two cases of pustular rash triggered by COVID-19 vaccine have been reported: a GPP secondary to CoronaVac vaccine injection in a 72-year-old Turkish male and an AGEP secondary toChAdOx1 nCoV-19 vaccine (AZD1222) in a 32-year-old Korean woman.[1,2] No such side effects have been reported with Pfizer-BioNTech in the literature. Vaccination-related psoriasis flare-ups have been reported with H1N1 influenza and pneumococcal polysaccharide vaccination.[3–5] Although the etiological relationship between psoriasis and vaccination remains uncertain, some theories have been put forward. Vaccine associated immune enhancement may play a role in unmasking psoriasis in a genetically predisposed patient. In fact, the inflammatory reaction due to the vaccine could generate from the activation of the dermal dendritic cells which, trigger an inflammatory cascade by expressing Toll-like type 7, 8, and 9 receptors and release cytokines such as TNF-α, IL-6, and IL-12. These mediators induce differentiation of T lymphocytes into Th1 and Th17 cells, and these in turn secrete the cytokines IFN- γ, TNF-α, IL-12, IL-22, and IL23, responsible for psoriatic inflammation.[3,6,7] The main differential diagnosis in our case were a generalized pustular psoriasis flare or an acute generalized exanthematous pustulosis, the differentiation between these two entities being difficult both clinically and histologically. The fact that GPP and AGEP have in common certain gene mutations like the IL-36 receptor antagonist gene mutation supports the theory that the two diseases might share a common pathomechanism.[8,9] Further studies with a large number of samples are needed to determine if these two diseases reflect the continuous spectrum of the same disorder. To

FIGURE 1 A plaque whose active borders are studded with nonfollicular pinhead-sized pustules and desquamation, affecting the trunk

conclude, COVID-19 vaccine could be a triggering factor of a flare-up of psoriasis with acute onset of a neutrophilic inflammation with macroscopic pustules, which is a transient and mild skin reaction. Nevertheless, vaccination remains mandatory and the patient must be carefully monitored.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHORS CONTRIBUTION

Meriem Rouai is the guarantor of the content of the manuscript, including the data and analysis. Malek Ben Slimane contributed to acquisition of data, analysis and interpretation of data, revised it critically for important intellectual content. Wiem Sassi contributed to interpretation of data and revision of the manuscript. Fatima Alaoui revised data critically for important intellectual content. Ines Chelly: analysis and interpretation of histological images. Mourad Mokni: final approval of the version to be submitted. Published with written consent of the patient.

DATA AVAILABILITY STATEMENT

All data generated during this study are included in this published article.

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