Psoriasiform dermatoses and mRNA COVID-19 vaccines: two sides of the same coin

Dear Editor,

With COVID-19 mass vaccination, an increasing knowledge on potential dermatological reactions to mRNA COVID-19 vaccines is observed . Previous evidence shows that most cutaneous reactions correspond to local reactions in the area of the vaccine injection and delayed large local reactions.[1] However, the clinical spectrum of skin manifestations secondary to these vaccines has increased significantly, and a wide range of clinical pictures has been described. While some reactions are believed to have an allergic background, some others may be triggered by the inflammatory pathways. We present two cases of psoriasiform dermatoses associated to COVID-19 vaccination.

The first clinical picture consisted of a 72-year-old man who was referred to our Department for evaluation of a generalized erythematous desquamating plaques that had appeared 6 days after receiving the first dose of mRNA-1273 vaccine (Moderna®). Past medical history included IgG K multiple myeloma treated with autologous hematopoietic progenitor cell transplantation. The lesions had developed initially on the trunk and later extended to neck, legs and arms. The patient did not refer lesions were itchy nor systemic symptoms. Anamnesis revealed no evident triggers. Physical exam showed multiple erythematous, non- confluent papules, 3 to 15 cm in diameter with silvery-white desquamation invoving the trunk and extremities . Dermoscopy showed a reddish background with scales and red dots. No nail involvement was noted .A 4-mm punch biopsy was performed, which showed a somehow regular acanthosis,parakeratosis and mild hypogranulosis, dilated capillaries in the dermal papillae and superficial dermal perivascular lymphocytic infiltrate. Negative throat culture, and normal titers of antistreptolysin-O (ASO) ruled our streptococcal infection. Serologies for HIV, hepatitis and *Treponema pallidum* were negative. All these tests resulted negative, and the patient was diagnosed of a COVID-19 vaccine induced psoriasiform eruption.

The second clinical picture consisted of a 30-year-old woman that was being followed in our Department, due to mild plaque psoriasis (ears' evolution) in treatment with topical treatments. Past medical history included….. Previous treatments. The lesions cleared completely after treatment with,,,, and for the past two years the patient had not presented any lesion. Ten days after receiving the first dose of mRNA-1273 vaccine (Moderna®), the patient experienced a new flare of her previous condition with plaques on the trunk and arms. PASI, BSA ?, As in the previous case, no triggers could be identified, due to which the flare was attributed to the vaccine.

Psoriasis is an inflammatory condition with strong genetic predisposition and autoimmune pathogenic traits. Psoriasis and psoriasiform reactions share pathogenic mechanisms related with the dysregulation of cytokines.[2]It is widely accepted that the T- helper lymphocyte (Th1) response plays an important role in the pathogenesis of psoriasis.[3,4]The description of psoriasiform eruptions to COVID-19 vaccines has not been reported to date. However, it has been described for other vaccines, like influenza.[5] In the case of previous vaccines, it was hypothesized that the development of psoriasis was caused by the induction of a Th1 predominant response. For COVID-19 vaccines, clinical trials have elicited that levels of interleukin (IL)-2, IL-12, tumor necrosis factor (TNF)-alpha and interferon (IFN)-gamma may increase after vaccination.[6]These cytokines are part of the Th1 pathway, which is an essential pathway for psoriasis.

Since it has been previously described that psoriasiform reactions may appear secondary to vaccines, it is plausible that the reported conditions are an uncommon adverse effect of a COVID-19 vaccine. We hypothesize that mRNA COVID-19 vaccines may lead to the development of immune responses that can trigger the development of skin conditions due to the immune activation of pathways that are shared with skin conditions. Dermatologists need to be aware of the possibility of psoriasis flares and psoriasiform eruptionssecondary to mRNA COVID-19 vaccines in order to recognize them.

References:

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