

# Psoriasis worsening related to COVID-19 vaccination: A single-center report

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## ABSTRACT

**Background:** Recently, reports have described cases of the onset or exacerbation of psoriasis related to COVID-19 vaccination. In this study, we sought to describe the clinical features and evolutionary aspects of psoriasis exacerbation after COVID-19 vaccination. **Materials and Methods:** This was a prospective and descriptive study conducted over a period of eighteen months at the Department of Dermatology and Venereology of the Mohammed VI University Hospital in Marrakech. We included all patients followed for psoriasis who received at least one dose of Sinopharm, AstraZeneca, or Pfizer COVID-19 vaccine. **Results:** A total of 148 patients were included in the study, among which 69 received a Sinopharm vaccine, 48 received an AstraZeneca vaccine, and 31 received a Pfizer vaccine. The mean age was 49 years. There were 82 males and 66 females, giving a sex ratio of 1.6. The comorbidities included hypertension in 27.7% of the cases, diabetes in 14.8%, dyslipidemia in 10.8%, and thyroiditis in 2%. Eight exacerbations of psoriasis after COVID-19 vaccination were noted. The mean duration of lesion development was 11.5 days. The vaccines involved were Sinopharm in 5 patients and AstraZeneca in 3 patients. The median PASI before vaccination was 7.8 and the median PASI after vaccination was 20.5. Three patients presented with severe erythematous lesions requiring hospitalization and the introduction of systemic therapy. Extension of the lesions to localized psoriasis was noted in five patients. **Conclusion:** COVID-19 vaccination may be a trigger for psoriasis, as suggested by multiple studies. However, these events should in no way contraindicate vaccination in patients with psoriasis.

**Key words:** vaccination; COVID-19; psoriasis; exacerbation

## INTRODUCTION

The COVID-19 pandemic has had a significant impact on general health worldwide. Therefore, vaccination programs were created to protect and control viral transmission. There are certainly possible cutaneous adverse reactions of COVID vaccination, including urticaria, morbilliform rash, pityriasis rosea, and the exacerbation of pre-existing dermatoses [1,2]. Psoriasis is a chronic cutaneous inflammatory condition that may be triggered by stress, certain drugs, infection, including COVID-19, and less commonly, vaccines [3-10].

Recently, there have been reports describing cases of the onset or exacerbation of psoriasis related to COVID-19 vaccination [11-13]. The aim of our study was to describe the clinical features and evolutionary aspects of the aggravation of psoriasis after COVID-19 vaccination.

## MATERIALS AND METHODS

We conducted a prospective and descriptive study over a period of eighteen months at the Department of Dermatology and Venereology of the Mohammed VI University Hospital in Marrakech. We included all patients followed for psoriasis who received at

**How to cite this article:** Boubnane I, Faras S, Aboudourib M, Hocar O, Amal S. Psoriasis worsening related to COVID-19 vaccination: A single-center report. Our Dermatol Online. 2023;14(2):230-233.

**Submission:** 27.02.2023; **Acceptance:** 20.03.2022

**DOI:** 10.7241/ourd.20232.30

least one dose of Sinopharm, AstraZeneca, or Pfizer COVID-19 vaccination. We collected all anamnestic elements concerning age, sex, comorbidities, type of psoriasis, PASI score, current treatments, and evolution of psoriasis after the first, second, and third doses of the vaccine. Data entry and analysis were performed with SPSS.

## RESULTS

A total of 148 patients were included in the study, among which 69 received a Sinopharm vaccine (46.6%), 48 received an AstraZeneca vaccine (32.4%), and 31 received a Pfizer vaccine (20.9%). Among all patients, 21 received only one dose of the vaccine (14.1%), 73 received two doses (49.3%), and 54 received three doses (36.4%). The mean age was 49 years, with extremes of 20 to 74 years. There were 82 males and 66 females, giving a sex ratio of 1.6. The comorbidities included hypertension in 27.7%, diabetes in 14.8%, dyslipidemia in 10.8%, and thyroiditis in 2%. All patients suffered from long-lasting psoriasis. Sixty-nine patients were on topical treatment, 51 were on methotrexate, 17 were on acitretin, and 11 were on biotherapy.

Among all patients, eight deteriorations of psoriasis after COVID-19 administration (5.4%) were noted (Figs. 1 and 2). No significant aggravating factors, such as stress, infection, and medications, were reported. The median duration of lesion development was 11.5 days (7–20 days). The vaccines involved were Sinopharm in 5 patients and AstraZeneca in 3 patients (Table 1).

## DISCUSSION

Psoriasis is a chronic inflammatory skin condition that may be triggered by stress, certain medications, and infections, including COVID-19 [3-5]. However, the association between vaccination and the worsening of psoriasis has been reported mainly after vaccines

against influenza (H1N1), pneumococcal pneumonia, and yellow fever [6]. Recently, this association has been suggested with COVID-19 vaccines [11-14].

To date, there have only been several studies reporting an exacerbation of psoriasis after a COVID-19 vaccine. In a study on 414 individuals with skin reactions after Pfizer/BioNTech and Moderna vaccines, McMahon et al. reported only two psoriasis flares [15]. In addition, Safoura et al. reported three cases of the worsening of psoriasis after a Sinopharm vaccine [16]. Besides, Wei et al. studied 83 patients at their center and found fifteen cases of psoriasis exacerbation after Moderna and AstraZeneca vaccines [17]. Finally, Sotiriou et al. reported fourteen cases of a psoriasis flare; they observed six cases after the Pfizer vaccine, seven after the AstraZeneca vaccine, and one after the Moderna vaccine [11].

To the best of our knowledge, our series is the first study of psoriasis flares after COVID-19 vaccination reported in Africa. Herein, we report eight cases of the worsening of psoriasis after vaccination, including five cases with the Sinopharm vaccine and three with the AstraZeneca vaccine. In contrast, there were no cases with the Pfizer/BioNTech vaccine.

The median interval between vaccine injection and psoriasis deterioration was 11.5 days. This result was comparable to that reported by Sotiriou et al. (10.4 days) [11].

The median PASI in our study was significantly increased. Other authors made the same observation, notably, Wei et al., who found an increase from 3.1 to 8.0 [17].

Regarding treatment, three patients were hospitalized at our department and received biotherapy for two cases and methotrexate for one. Five patients were on topical therapy. While a majority of the patients

**Table 1:** Psoriasis exacerbation after COVID-19 vaccination (MTX: methotrexate; PASI: Psoriasis Area Severity Index).

|   | Age (yrs.) | Sex | Psoriasis Type         | PASI before Vaccination | Treatment   | Vaccine Type | Deadline (days) | PASI after Vaccination | Treatment after Vaccination |
|---|------------|-----|------------------------|-------------------------|-------------|--------------|-----------------|------------------------|-----------------------------|
| 1 | 22         | M   | Psoriasis inversed     | 2.4                     | Topical     | Sinopharm    | 15              | 12.2                   | Topical/UVB                 |
| 2 | 26         | F   | Psoriasis vulgaris     | 12                      | Topical/MTX | Sinopharm    | 10              | 24.6                   | Biotherapy                  |
| 3 | 47         | M   | Guttate psoriasis      | 8.4                     | Topical     | Sinopharm    | 10              | 48.2                   | MTX                         |
| 4 | 48         | F   | Palmoplantar psoriasis | 4.4                     | Topical     | AstraZeneca  | 12              | 11.1                   | Topical/UVB                 |
| 5 | 54         | F   | Psoriasis vulgaris     | 15.8                    | Topical/UVB | AstraZeneca  | 17              | 22.3                   | MTX                         |
| 6 | 55         | M   | Palmoplantar psoriasis | 3.4                     | Topical     | Sinopharm    | 11              | 16.4                   | Topical/UVB                 |
| 7 | 67         | M   | Psoriasis vulgaris     | 15                      | Topical/UVB | Sinopharm    | 20              | 57.4                   | Biotherapy                  |
| 8 | 68         | M   | Psoriasis vulgaris     | 7.2                     | Topical     | AstraZeneca  | 7               | 15.7                   | MTX                         |



**Figure 1:** Psoriatic erythroderma following a Sinopharm vaccine.



**Figure 2:** Psoriasis exacerbation following an AstraZeneca vaccine.

reported by Wei et al. were receiving biotherapy, one was taking a topical steroid and one was receiving methotrexate [17].

The mechanism of psoriasis exacerbation after COVID-19 vaccination is still poorly elucidated. Nevertheless, it has been suggested that a Th17-mediated immunological response may play a role, especially as there is increasing evidence that Th17 cells play a role in the pathogenesis of psoriasis as well as in the immunopathology of COVID-19 and vaccine-induced immune enhancement [18,19].

## CONCLUSION

Vaccination against COVID-19 may be a trigger for psoriasis, as suggested by multiple studies. However, these events should in no way contraindicate vaccination in patients with psoriasis. This recommendation is

based on the documented efficacy of vaccines in preventing COVID-19 and reducing mortality in this high-risk population [20,21].

The association between psoriasis exacerbation and COVID-19 vaccines is still poorly elucidated. Therefore, further research and large controlled studies are needed to elaborate the relationship between psoriasis and COVID-19 vaccines.

## Statement of Human and Animal Rights

All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the 2008 revision of the Declaration of Helsinki of 1975.

## Statement of Informed Consent

Informed consent for participation in this study was obtained from all patients.

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**Source of Support:** This article has no funding source.

**Conflict of Interest:** The authors have no conflict of interest to declare.