Generalized Pustular Psoriasis Triggered by ChAdOx1nCoV-19 Vaccine: a case report

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Conflict of interest

Livia Maria Oliveira Salviano has no conflict of interest.

Bruno Jose Breda has no conflict of interest.

Ricardo Romiti , MD, PhD, is/has served as a scientific consultant, speaker, or clinical study investigator for AbbVie, Boehringer Ingelheim, Galderma, Janssen-Cilag, Eli-Lilly, Leo-Pharma, Novartis, Pfizer, TEVA, and UCB

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Short running title:

Pustular Psoriasis after ChAdOx1nCoV-19

Introduction

Psoriasis is an immune-mediated inflammatory disorder whose pathophysiology shares genetic and environmental factors promoting dysregulation of cytokines and T cell-mediated response. Some factors are well-established triggers, such as medications, infections and emotional stress. Vaccination is an unusual trigger, but the association between vaccination and onset/flare of psoriasis has been described. In the specific context of generalized pustular psoriasis (GPP), few case reports describing pustular outbreaks following vaccination have been reported and only two, including this case, described flares after COVID19-vaccination¹⁻⁴, specifically Sinovac and ChAdOx1nCoV-19 vaccines. In addition, there is description of plaque psoriasis flare after COVID-19-Pfizer-BioNTechBNT16B2b2mRNA and ChAdOx1nCoV-19 vaccines⁵⁻⁷. To date, no case reports have been published describing the exacerbation of pustular psoriasis after vaccination with ChAdOx1nCoV-19.

Case Report

A 58-year-old Brazilian woman was admitted two weeks after an outbreak of generalized pustular lesions and systemic symptoms initiating three days after the first dose of ChAdOx1nCoV-19 vaccine. Clinical examination revealed generalized pustules on ill-defined areas of erythema and edema affecting the trunk, upper and lower limbs and systemic symptoms including malaise, nausea and asthenia.

The history of the patient included a diagnosis of plaque psoriasis at the age of 36 and two previous episodes of GPP: the first occurred during the third trimester of pregnancy (2001), which was treated with topical and systemic steroids; the second (2004) occurred after a respiratory infection while she was under treatment with 20mg/week of oral methotrexate. Acitretin 30mg/day was started with rapid control of pustular lesions but only partial control of her plaque psoriasis after two years of treatment. In October 2019, Ustequinumab 45mg was started with almost complete control. In April 2020, she presented COVID19 infection confirmed by RT-PCR, without exacerbation. In May 2021, three days after the first dose of the ChAdOx1nCoV-19 vaccine, a new episode of GPP initiated. Recent infection or drug use were ruled out. She was managed with the regular dose of Ustequinumab 45mg at the same day of admission and evolved with complete regression of pustular lesions and systemic symptoms 7 days later. No recurrences were observed during the next two months of follow-up, even after the second dose at July 2021.

Discussion

Until now, psoriasis flares have been reported after Bacillus Calmette-Guerin (BCG), tetanus diphtheria, pneumococcal polysaccharide, hepatitis B, influenza and more recently after the COVID19 vaccines. The main clinical manifestations are guttate and guttate-plaque variants^{2,3}. GPP outbreaks following influenza, hepatitis B vaccination and intravesical BCG immunotherapy have been reported⁸⁻¹³ (Table 1). Flares after COVID19 vaccination have included one case after COVID-19-Pfizer-BioNTechBNT16B2b2mRNA and two cases after ChAdOx1nCoV-19 vaccine (plaque lesions) and one case after Sinovac vaccines (GPP)⁵⁻⁷. Our patient is the first report of a pustular outbreak following the ChAdOx1nCoV-19 vaccine (Table 2).

Considering the COVID19 pandemic, the expansion of immunization and different vaccines, it is important to monitor these as potential triggers for flares or new-onset of psoriasis.

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Table 1: GPP flares after vaccination (excluding COVID19 vaccines)

Vaccine	Influenza ¹²	Hepatitis B ¹¹	Intravesical
Age	59	26	80
Sex	male	female	male
Days after vaccination	2	10	42
Regression	Almost complete (after systemic steroids)	Complete (after topical corticosteroids)	Complete

Table 2: Psoriasis flares after COVID19 vaccination

Vaccine	Sinovac ⁵	COVID19 Pfizer- BioNTech BNT16B2b2 mRNA ⁶	ChAdOx1nCoV- 19 ⁷ (Including the presented case)	ChAdOx1nCoV- 19 ⁷ (Including the presented case)	ChAdOx1nCoV- 19 ⁷ (Including the presented case)
Clinical form	Pustular	Plaque	Pustular	Plaque	Plaque
Age	72	46	58	56	65

Vaccine	Sinovac ⁵	COVID19 Pfizer- BioNTechBNT16B2b2mRNA ⁶	ChAdOx1nCoV- 19 ⁷ (Including the presented case)	ChAdOx1nCoV- 19 ⁷ (Including the presented case)	ChAdOx1nCoV- 19 ⁷ (Including the presented case)
Sex	male	male	female	female	female
Days after vaccination	4	1	3	7 (1 ^a dose) 2 (2 ^a dose)	10
Regression	Complete (after infiximab)	-	Complete (after Ustequinumabe)	Partial (after Apremilast/emollients)	Partial (after Apremilast/emollients)
Previous Covid19 infection	No	-	Yes	-	-