

LETTERS TO THE EDITOR

Benign cutaneous reactions post-COVID-19 vaccination: A case series of 16 patients from a tertiary care center in India

To the Editor,

Cutaneous manifestations post-COVID-19 vaccination have been described in few studies and case series mostly with mRNA-based vaccines, Pfizer and Moderna.¹ We intend to report the first series of cutaneous side effects noted with two vaccines, Covishield (Oxford AstraZeneca chimpanzee adenovirus-based vectored vaccine) and Covaxin (inactivated COVID-19 vaccine), from a tertiary care Centre in Eastern India.

In our dermatology outpatient department, we came across 16 patients with cutaneous reactions post-vaccination during a period of 6 months (January to June 2021) [Table 1]. Our series includes 10 females and 6 males with age group ranging from 24–63 years. All patients were of similar race (Asian) and ethnicity. All patients developed mild-to-moderate adverse effects with no requirement of hospital admission. All patients were managed symptomatically.

Four patients developed cutaneous manifestations post-Covishield vaccine: Acute urticaria (2), Herpes zoster (1), and Injection site reaction (1) [Figure 1]. All reactions occurred within 1–2 days of vaccine administration.

Twelve patients developed cutaneous reactions post-Covaxin vaccine: pityriasis rosea (3), acute urticaria (4), Dermographism (1), and generalized itching without skin lesions(4).[Figure 2]. The onset of reactions was within 1–4 days of vaccination. Two patients with a known history of allergy and one patient with a history of fixed drug rash developed generalized pruritus post-vaccination which resolved with antihistaminic therapy.

All seven patients who developed a cutaneous reaction after first dose were advised to go ahead with second dose vaccination. Five patients developed no recurrence. One patient who developed pityriasis rosea after 1st dose of covaxin had aggravation of skin disease after taking the second dose. Another patient is due for his second dose of vaccination.

Six major patterns of cutaneous reactions post-vaccination have been described: Local injection site reactions, Urticaria, morbilliform, papulovesicular, Pityriasis rosea-like, and Purpuric rashes.² In a registry-based study regarding cutaneous adverse effects post-Moderna and Pfizer vaccination, 414 cases were reported comprising most commonly, local injection site reactions, urticarial eruptions, and morbilliform eruptions.¹ Another multicentric study

from Spain reported 405 reactions post-vaccination with 3 different vaccines. Herpes zoster reactivation (Pfizer vaccine), COVID-ARM (Moderna), and urticaria (AstraZeneca) were the commonest reactions noted.²

Cutaneous adverse reactions after COVID-19 vaccination could be due to multiple factors. Polyethylene glycol, polysorbate-80, and disodium edetate dehydrate are vaccine excipients known to cause both immediate and delayed hypersensitivity reactions. PEG and polysorbate-80 in mRNA-based vaccines have been linked to anaphylaxis in some vaccine recipients. Local injection site reactions are also fairly common to all vaccines, representing a non-specific immune response to the foreign body injection. In respect to COVID-19 vaccination, both immediate (median 1–3 days) and delayed reactions (median 7 days) dubbed as “COVID Arm,” have been described.³ Herpes zoster post-vaccination with both mRNA-based and inactivated COVID vaccines have been described. Live vaccine-related suppression of cellular immunity is understood to trigger herpes zoster virus(HZV) reactivation. Decreased alloreactivity after inactivated vaccines such as hepatitis B is also described to cause HZV eruption.^{1,4,5} Multiple reports of Pityriasis rosea like eruption (PR-LE) post-Pfizer vaccine have been published. Similar PR-LE have been described after influenza and hepatitis B vaccination also.¹ Immune dysregulation by vaccine-specific infectious particles leading to HHV-6/7 reactivation with typical PR eruption or delayed hypersensitivity response, similar to drug-induced PR-LE has been postulated as possible pathomechanisms.⁶

The cutaneous manifestations noted post-vaccination have been described with COVID-19 infection also. Since the vaccines are essentially derived from the SARS-CoV2 genomic sequence, it is possible that the host immune response to the virus is being mimicked by the vaccine upon administration. This also throws light to the fact that some of the cutaneous manifestations due to COVID-19 are possibly due to immune response against the virus and not due to direct viral effects.¹

Spreading fear and false rumors regarding adverse effects due to COVID-19 vaccination are rising due to ease of information transmission in this modern-day and age. In our experience, cutaneous reactions post-COVID vaccination are rare-, mild-, and short-lived. The adverse effects that do occur can be managed with symptomatic therapy.

TABLE 1 Characteristics of patients who developed cutaneous manifestations post-COVID-19 vaccination

S. No	Age	Sex	Race	Occupation	Socio economic status	Vaccine	Vaccine dose	Cutaneous feature	Days post-vaccination	Relevant history
1	35 years	Female	Asian	Homemaker	Middle	Covishield	1st	Acute Urticaria	1 day	Took 2nd dose at right time
2	52 years	Male	Asian	Farmer	Low	Covishield	1st	Herpes zoster	2 days	Took 2nd dose at right time
3	34 years	Female	Asian	Nurse	Middle	Covishield	1st	Acute urticaria	2 days	Took 2nd dose at right time
4	43 years	Female	Asian	Homemaker	High	Covishield	1st	Injection site reaction	1 days	Due for 2nd dose
5	28 years	Female	Asian	Nurse	Middle	Covaxin	2nd	Acute Urticaria	1 day	-
6	30 years	Female	Asian	Nurse	Middle	Covaxin	1st	Dermographism	2 days	Took 2nd dose at right time
7	44 years	Male	Asian	Restaurant business	High	Covaxin	1st	Acute Urticaria	2 days	Took 2nd dose at right time
8	30 years	Male	Asian	Plumber	Low	Covaxin	2nd	Pityriasis rosea	3 days	-
9	58 years	Female	Asian	Homemaker	Middle	Covaxin	2nd	Pityriasis rosea	3 days	-
10	31 years	Female	Asian	Hospital staff	Middle	Covaxin	2nd	Generalized pruritus, no lesions	1 day	History of fixed drug rash with paracetamol
11	24 years	Male	Asian	College	High	Covaxin	2nd	Generalized pruritus	1 day	History of allergy present.
12	63 years	Male	Asian	Retired government employee	High	Covaxin	2nd	Acute urticaria	1 day	Known patient of chronic myeloid leukemia
13	57 years	Female	Asian	Homemaker	Middle	Covaxin	2nd	Acute urticaria localized to bilateral palms	4 days	-
14	35 years	Male	Asian	Furniture business	High	Covaxin	2nd	Generalized pruritus	1 days	History of allergy present
15	30 years	Female	Asian	Paramedical staff	Middle	Covaxin	2nd	Generalized pruritus	1 days	-
16	50 years	Female	Asian	Homemaker	Middle	Covaxin	1st	Pityriasis Rosea	2 days	An aggravation after taking second dose of vaccine was also noticed.



FIGURE 1 Cutaneous manifestations following Covishield (OXFORD ASTRAZENECA) vaccine. (A) Multiple grouped vesicles of Herpes zoster along the left C5 dermatome 2 days after Covishield vaccine. (B) Multiple wheals on the back of patient 1 day after Covishield vaccine. (C) Injection site erythema with pruritus 1 day after Covishield vaccine



FIGURE 2 Cutaneous manifestations following Covaxin vaccine. (A) Localized urticarial wheals affecting bilateral palms 4 days after vaccination. (B) Multiple oval shaped erythematous scaly plaques with herald patch of pityriasis rosea 3 days after vaccination. (C) Dermographism on the back of patient 2 days post-vaccination

DISCLAIMER

"We confirm that the manuscript has been read and approved by all the authors, that the requirements for authorship as stated earlier in this document have been met and that each author believes that the manuscript represents honest work."

KEYWORDS

COVID-19, vaccine

CONFLICT OF INTEREST

None.

ETHICAL APPROVAL

The authors confirm that the ethical policies of the journal, as noted on the journal's author guidelines page, have been adhered to. Patient consent from all subjects were duly taken.


AUTHOR CONTRIBUTIONS

MP contributed to the initial conceptualization, critical revision of content, and final approval of the manuscript. AA contributed to the initial draft of the manuscript and literature review. BKB and AKJ contributed to critical revision and final approval of the manuscript.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in [repository name] at [DOI], reference number [reference number].

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