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LETTERS TO THE EDITOR

COVID-19 vaccine induced dermatological manifestations in pediatric population

To the Editor,

The aftermath of coronavirus disease 2019 (COVID-19) pandemic has caused more than 6 million deaths worldwide till date. There has been upsurge in COVID-19 cases during the past 3 years and still raging. The pediatric population has also come under the clutches of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection albeit, with less morbidity and mortality than adult or elderly population. COVID-19 vaccination drive in the world signaled a ray of hope in this unprecedented scenario. After, the successful commencement of vaccination drive in the elderly and adult population, US FDA (United States Food and Drug Administration) has given EUA (Emergency use authorization) in the pediatric population. Pfizer-BioNTech and Moderna, both m-RNA vaccines have been given authorization to be used in children and adolescent population.[1]

The existing literature on COVID-19 vaccination-related cutaneous adverse reactions has been derived from mRNA vaccines which mainly includes type 1 hypersensitivity reactions, such as urticaria and angioedema. Other cutaneous manifestations are still poorly characterized and have been classified as delayed hypersensitivity rash. COVID-19 vaccines related cutaneous adverse reactions seen in pediatric cohort can be broadly categorized as (Table 1): Firstly, local site reactions—there are reports of local injection-site reactions, known as "COVID-19 vaccine arm" and consist of erythema, edema, and pain at the site of injection. These were seen in healthy children of aged between 12 and 15 years. Severe injection-site pain after any BNT162b2 dose was reported in 1.5% of 12- to 15-year-old participants.[2]

Secondly, "V-REPP" (vaccine-related eruptions of papules and plaques)—this has been defined as pruritic erythematous-violaceous grouped papulovesicular eruption with fine scales over upper and lower extremities developed after 2 days of receiving the first dose of Pfizer vaccine in an 18-year-old young male patient.[3] This is a self-limiting exanthem with severity ranging from mild scaly papulo-squamous to vesicular lesions. Thirdly, urticarial wheals and angioedema are commonly observed after mRNA COVID-19 Pfizer / BioNTech vaccine in adult population, which was considered to be because of PEG / Poly Ethelene Glycol. Similar diffuse urticarial wheals were observed in pediatric and adolescent populations after COVID-19 m RNA vaccine after 60 hours (first dose).[4]

Lastly, there have been reports of maculopapular rash in association with systemic illness. It has been associated with multisystem inflammatory syndrome in children (MIS-C) after the Pfizer-BioNTech vaccination in a 17-year-old adolescent.[5] Patient developed fever, vomiting, myalgia, chest pain, and maculopapular rash 5 days after the second dose of the Pfizer-BioNTech vaccine.

Recently, there have been other covid vaccines which are being administered in pediatric population as per the country-specific emergency approval in different parts of the world, but there is hardly any literature regarding dermatology-specific adverse events. Local site reactions are almost common to all COVID-19 vaccines. Further documentation and studies are needed to recognize various dermatological side effects of COVID-19 vaccines in pediatric population to allay the anxiety of parents and maintain the compliance of further doses.

TABLE 1 COVID-19 vaccines induced dermatological adverse effects in pediatric patients

Sr. no	Cutaneous Reactions	Vaccines	Age group	Remarks
1.	Local injection-site reaction ("Covid Arm")	BNT162b2/Pfizer BioNtech/mRNA Moderna	12–15 years	More with 1st dosage (1)
2.	Diffuse Urticaria	Pfizer BioNtech	17 year	60 hour after 1st dose (2)
3.	V-REPP*	mRNA Moderna	18 year	Also observed in adults
4.	Maculopapular rash	Pfizer BioNtech	17 year 12 year	Associated with life threatening MIS-C

Abbreviations: MIS-C, Multisystem inflammatory syndrome in children; V–REPP, vaccine-related eruptions of papules and plaques.

AUTHOR CONTRIBUTION

J.D Modha (Author 1) prepared the original manuscript. Y.S Pathania (Author 2) finalized the manuscript.

CONFLICT OF INTEREST

None (The Author(s) declare(s) that there is no conflict of interest).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICAL APPROVAL

Not applicable.

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