Exacerbation of chronic inflammatory skin disease after COVID-19 vaccine: a report of 2 cases and review of the literature

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MANY STRENGTHS. ONE MISSION.

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Background

Since the recent mass vaccination with COVID-19 vaccines there have been many reports of adverse reactions. There have been reports of worsening skin disease in hypersensitive patients with psoriasis or atopic dermatitis in response to various other vaccine. However, due to its novelty, there have not yet been many documented exacerbations after the COVID-19 vaccines.

Objective

We report two cases and a review of the literature regarding exacerbation of chronic inflammatory dermatologic diseases after receiving the COVID-19 vaccine.

Case 1: 41 year old male with psoriasis flare

HPI: Patient with history of psoriasis controlled on apremilast received Johnson and Johnson (J&J) Covid-19 one-shot vaccine on 4/19/21. Seven days later he developed an erythematous rash at the injection site on his right upper arm. The next morning, the rash had spread across his chest to his left arm and then to his abdomen. He was referred to dermatology on 5/6/21 at which time a punch biopsy was performed on the right arm and left upper chest. Due to extensive rash and severe pain and swelling patient was referred to the emergency department and admitted for observation.

PE: Diffuse erythematous plaques with desquamative scale involving the neck, posterior scalp, chest, bilateral arms and hands, back, abdomen, and bilateral legs and feet. Generalized swelling associated with severe pain was noted on bilateral lower legs and forearms/hands. Face, eyelids, lips, and gums were unaffected.

Work-up: Patient had two punch biopsies; one right upper arm and one left upper chest returned with psoriasiform/spongiotic dermatitis with numerous eosinophils. CBC, CMP, UA, Uric acid level, Quantiferon gold, and Duplex US were unremarkable.

Treatment and Response: Patient was started on cyclosporine 100 mg PO TID, calcipotriene 0.005%, fluocinolone 0.01% oil, Ketoconazole 2% shampoo and triamcinolone 0.1% ointment with wet wraps. Swelling dramatically decreased in 1 day and generalized rash slowly remitted over the following days.

Figure 1

Diffuse erythematous plaques with desquamative scale in a patient 7 days after receiving the J&J COVID-19 vaccine

Case 2: 19 year old female with atopic dermatitis

HPI: Patient with childhood history of atopic dermatitis received first dose of Pfizer Covid-19 vaccine and later that day noticed bumps on bilateral arms. On the following morning, rash had spread to her face and had become fluid filled. She was evaluated at urgent care on day three and discharged with hydrocortisone cream, cephalexin, and prednisone 50mg for suspected flare of atopic dermatitis. Despite this treatment, the patient continued to worsen with lesions progressing to her neck with facial edema. She denies new exposure to pets or medications, known insect bites, or new detergents/soaps/lotions.

PE: Markedly erythematous plaque with fine scale on frontal neck, bilateral arms and hands, and scattered perifollicular papules on bilateral legs and feet.

Work-up: CBC, CMP, ESR, CRP, RBC, UA were unremarkable. Punch biopsy findings reported psoriasiform/ spongiotic dermatitis with intraepidermal pustules and intraepidermal rare eosinophils suggesting superimposed drug reaction.

Treatment and response: Patient was started on Solumedrol 50 mg IV QID with Prednisone taper upon discharge, hydrocortisone 2.5% ointment for face and a ceramide containing moisturizer. Facial rash and swelling decreased significantly and patient clinically improved after a few days on treatment.

Figure 2


COTTON TIPPED APPLICATORS
APPLICATEUR À POINTE DE COTON
APPLICADOR CON PUNTA DE ALGODÓN

Results

Vaccine	Associated Diagnosis	Type of Study	Reaction Documented	Limitations
Measles, mumps, rubella [1]	Atopic dermatitis	Survey Study (n=7693 respondents)	Increased incidence of atopic dermatitis with MMR exposure with a confounder adjusted incidence ratio 1.89 (95% CI 1.25 – 2.79)	Retrospective Subject to recall bias
Influenza [2]	Psoriasis	Case report	Diffuse plaque psoriasis flare in a patient with previously mild disease (BSA < 2%)	Limited to one case
Influenza [3]	Psoriasis	Case series (n = 4)	Plaque psoriasis flare	Limted to 4 cases
Smallpox [5]	Atopic dermatitis	Review / Feature article	Eczema vaccinatum	Expert opinion
Influenza [6]	Psoriasis	Observational study (n=43)	Induction or exacerbation of plaque psoriasis (mixed guttate/plaque lesions, palmoplantar or scalp psoriasis	Lack of control group and follow up
Influenza [7]	Psoriasis	Case series (n = 10)	Exacerbation of psoriasis (n=3) and new onset psoriasis (n=7) with mixed guttate/plaque phenotype (n=9), generalized pustular psoriasis flare (n=1)	Limited to 10 cases

Table 1. Brief literature review of reported psoriasis and atopic dermatitis flare or induction after vaccination.

Discussion

In patients with chronic skin diseases like psoriasis and atopic dermatitis, there have been reports of adverse reactions with the measles, mumps, rubella, varicella, smallpox and influenza vaccines (Table 1). According to the European Task Force Atopic Dermatitis (ETFAD), patients with atopic dermatitis do not have an increased risk of anaphylaxis from the COVID-19 vaccine [8]. If necessary, ETFAD recommends oral antihistamines and glucocorticoids prior to vaccination. In light of limited safety data available, clinicians are faced with challenging decisions when counseling patients regarding their risk with vaccination. These cases highlight the possible adverse reaction that occurs with Covid-19 vaccination in patients with atopic dermatitis and psoriasis.

Conclusion

Though benefits of Covid-19 protection likely outweigh the risk of serious vaccine reaction, close monitoring for susceptible patients in the immediate period following vaccination along with epinephrine auto-injectors and balanced electrolyte solutions for volume replacement are advised.

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