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COVID-19 Vaccine-Induced Lichenoid Drug Eruption

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ABSTRACT

The global rollout of COVID-19 vaccines has been a significant step in controlling the SARS-CoV-2 pandemic. While the vaccines have proven to be generally safe, adverse reactions, including both local and systemic effects, have been observed. Cutaneous manifestations, though rare, have been reported in some instances.

We report the case of a 67-year-old male who developed pruritic erythematous-to-violaceous papules and plaques three days after receiving the second dose of a COVID-19 vaccine. The lesions were found on the right inner thigh, forearms, trunk, and neck. Histopathological examination revealed findings consistent with a lichenoid drug eruption (LDE), a condition typically linked to medications or, in rarer cases, vaccines.

Lichenoid drug eruptions are often seen in association with certain medications, and less commonly with Hepatitis B vaccination. However, this case presents an uncommon presentation of LDE following COVID-19 vaccination, with an atypical distribution of lesions, involvement of uncommon sites, and no history of prior drug or vaccine hypersensitivity.

This case underscores the importance of recognizing rare or atypical skin manifestations, such as lichenoid drug eruptions, as potential vaccine-related adverse effects. Identifying these conditions allows clinicians to ensure accurate diagnosis and appropriate management.

KEYWORDS: Lichenoid drug eruption; COVID-19; Vaccine; Cutaneous adverse reactions

ARTICLE DETAILS

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I. INTRODUCTION

Despite Rapid global efforts to develop and test vaccines against SARS-CoV-2 have led to an unprecedented number of candidate vaccines starting clinical trials during 2020 [1]. Several of these vaccines have shown good safety and have gained emergency approvals.

Among those vaccines, the ChAdOx1 nCoV-19 vaccine (AZD1222), which consists of a replication-deficient chimpanzee adenoviral vector ChAdOx1, containing the SARS-CoV-2 structural surface glycoprotein antigen (spike protein; nCoV-19) gene. This vaccine passed all its trials as a safe and well tolerated vaccine [2]. However, local and systemic adverse reactions were more common and it mainly includes: Pain, redness and swelling at the injection site, fever, chills, with skin eruptions as rare side effects [3], with lichenoid drug eruption (LDE) being an exceptionally rare reaction.

This case reports an atypical case of LDE following COVID-19 vaccination.

II. CASE REPORT

A 67-year-old male with past medical history significant for penicillin allergy, presented with pruritic eruptions that initially appeared on his right inner thigh, 3 days after the second dose of the COVID-19 vaccine ChAdOx1 nCoV-19 vaccine (AZD1222), injected in the right arm. These lesions gradually increased in size and number, and spread to involve the forearms, the trunk and the neck. The patient denied any drug ingestion or chemical exposure.

Physical examination revealed the presence of erythematous to violaceous papules and plaques on the right inner thigh ***(Figure 1A)***, forearms, neck and upper chest ***(Figure 1B)*** with lacy scales and some hyperpigmented areas. No oral or genital lesions were found.

Figure 1: (A): Erythematous to violaceous scaly plaques on the right inner thigh. (B): Violaceous plaques on the upper chest with hyperpigmented areas.

A skin biopsy was realized and the pathology report revealed a lichenoid pattern; the epidermis was papillomatous, parakeratotic and acanthosis, comprising an eosinophilic polynuclear exocytosis.

The superficial dermis was oedematous, containing an inflammatory lichenoid and a perivascular infiltrate made up of lymphocytes, some eosinophils and neutrophils cells ***(Figure 2).*** These histopathological findings were consistent with a diagnosis of a lichenoid drug eruption (LDE).

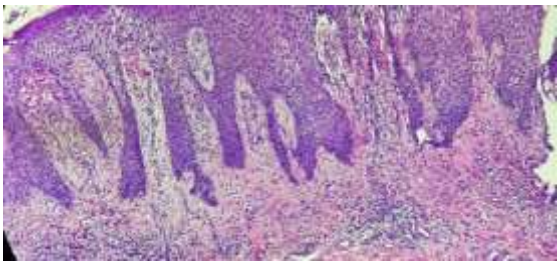

Figure 2: Histopathological examination: Oedematous superficial dermis, containing an inflammatory lichenoid and a perivascular infiltrate made up of lymphocytes.

The patient was prescribed a topical corticosteroid (Clobetasol propionate) ointment and an oral antihistamine.
At his 15 days follow-up appointment, the papules and plaques were significantly smaller and less erythematous with the itching gradually resolving.

III.DISCUSSION

Multiple studies have associated COVID-19 vaccines with many cutaneous reactions such as injection site erythema, urticaria, and morbilliform eruptions, erythromelalgia, and bullous dermatosis, with Lichenoid Drug Eruption (LDE) being an exceptional adverse reaction [4]. Although LDE has been linked to a long list of medications, it uncommonly occurs after vaccination, with the vast majority of the reported post-vaccine reactions being triggered by Hepatitis B vaccination (HBV) [5].
Regarding the ChAdOx1 nCoV-19 vaccine, several case reports have associated it to many cutaneous reactions such as injection site erythema, Dress syndrome, erythema nodosum, exfoliative rash and bullous dermatosis, with extremely rare cases linking this vaccine with LDE [6].
The main challenge lies in the establishment of the diagnosis since Lichenoid Drug Eruption (LDE) and idiopathic lichen planus (ILP) have many similarities in clinical and histological features. Both appear to result from an immunologic phenomenon yet poorly understood. Their clinical aspects consist of pruritic polygonal purple flat-topped papules and plaques, making differentiation difficult even with histology results, given the lymphocytic infiltrate and vacuolar changes in the dermis and epidermis seen in ILP and LDE. But lesions of LDE are often larger in size, less monomorphic, and more prone to be eczematous and associated with desquamation in contrast to those of ILP, and they often spare the oral and genital mucous membranes [7]. Moreover, focal parakeratosis, eosinophils, and deeper perivascular infiltrates are signs more typical of LDE [8].
In this case, the patient's lesions exhibited an atypical presentation as they appeared far from the injection site (on the inner thigh, forearms, trunk, and neck) despite the vaccine being administered in the arm. This unusual distribution pattern is notable because vaccine-related cutaneous reactions more commonly occur at or near the injection site. The absence of a history of hypersensitivity to medications or vaccines, combined with the temporal association with vaccination, further supports the likelihood that this eruption represents an atypical case of COVID-19 vaccine-induced LDE [9].

IV. CONCLUSION

While cutaneous reactions are uncommon, recognizing rare manifestations like LDE is essential for timely diagnosis and management. We hope that our case report can help raising clinicians' attention to uncommon COVID-19 vaccines skin eruptions. Further research and case reporting are needed to better understand these rare reactions and refine post-vaccine care.

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