

Unique Case of Urticarial Skin Eruptions After COVID-19 Vaccination

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INTRODUCTION

Cutaneous adverse effects of COVID-19 vaccines are a current topic of interest in the field of dermatology. With the large-scale vaccination against the SARS-CoV-2, it is important to document well the possible adverse effects. Few histopathological case reports are present in the literature on the subject, and those which are present focus mostly on the localized reactions.¹ Although the vaccine databases cited among the documented cutaneous adverse effects urticaria, vasculitis, and urticarial vasculitis, no case reports in the literature were found regarding urticarial vasculitis after vaccination with the Oxford–AstraZeneca (Vaxzevria) vaccine.² We, therefore, present a unique case of urticarial skin eruptions after vaccination with the Oxford–AstraZeneca COVID-19 vaccine.

CASE REPORT

A 78-year-old Italian woman presented with a sore throat and a mild urticarial rash a day after receiving the first dose of the Oxford–AstraZeneca COVID-19 vaccine that spontaneously regressed shortly thereafter. One week later, the patient returned to the clinic with the presence of wheals and a diffuse livedoid skin rash limited to the arms and legs (Figs. 1 and 2). The patient did not have a history of other known diseases and did not take any prescription drugs. A 4-mm punch biopsy was obtained showing a pattern of superficial perivascular and interstitial dermatitis. In addition, at high power, the presence of neutrophils and leukocytoclasia with the formation of nuclear dust in association with extravasated erythrocytes among the collagen bundles could be seen (Fig. 3 and 4). Extremely dilated blood vessels in the papillary and mid dermis and signs of early leukocytoclastic vasculitis could also be seen with an absence of epitheliotropism (Fig. 4). This early leukocytoclastic vasculitis is in accordance with the fact that the biopsy was

performed immediately after the onset of the livedoid lesions. To perform a differential diagnosis, blood tests were performed showing normal platelet, C3, and C4 levels. Renal function was also normal, and ANA, anti-DNA, and FR were dosed and found to be negative. Therefore, considering the clinical manifestations, a diagnosis of urticarial vasculitis was made. Subsequently, the patient was treated with oral methylprednisolone following a taper dosage for 16 days total (days 1–4: 16 mg twice a day, days 5–8: 8 mg twice a day for 4 days, days 9–12: 4 mg twice a day for 4 days, and days 13–16: 4 mg once a day for 4 days) with an initial improvement of the lesions after 10 days of treatment and a complete resolution of the clinical manifestations two weeks after end of the corticosteroid taper.

DISCUSSION

Adverse effects of the new COVID-19 vaccines are a current topic of interest, particularly regarding the Oxford–AstraZeneca vaccine due to its thromboembolic implications. In the literature, the main source of information on the cutaneous adverse reactions to the various COVID-19 vaccines is the adverse event reports in their respective registries or articles published analyzing these databases (Drug Analysis Prints).² Cases of urticaria and vasculitic rashes are present among the various adverse effects reported in the registries of both the mRNA vaccines and the Oxford–AstraZeneca vaccine.^{2,3} In addition, vasculitic rashes with the



FIGURE 1. Clinical manifestation of a livedoid urticarial rash after vaccination with the Oxford–AstraZeneca COVID-19 vaccine.

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FIGURE 2. Up close representation of the wheals and livedoid eruptions present at the clinical examination.

histological features of leukocytoclastic vasculitis were reported in patients affected by COVID-19 infections.^{4–6}

Regarding the histopathology of the cutaneous adverse reactions to COVID-19 vaccines, the most well-reported cases are those of delayed localized hypersensitivity reactions.¹ To the best of our knowledge, no histopathological reports of similar cutaneous manifestations after vaccination with the Oxford–AstraZeneca COVID-19 vaccine are present in the literature to date. In the database of the adverse events related to the Oxford–AstraZeneca vaccine, 5 cases of urticarial vasculitis were reported, but no case reports were found in the literature.² Therefore, we present the first reported

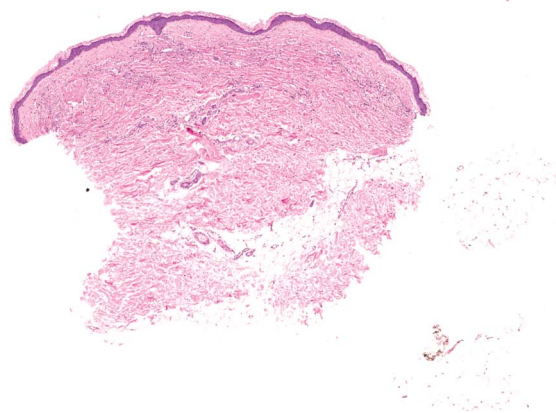


FIGURE 3. Punch biopsy showing superficial perivascular and interstitial dermatitis (hematoxylin and eosin, 40×).

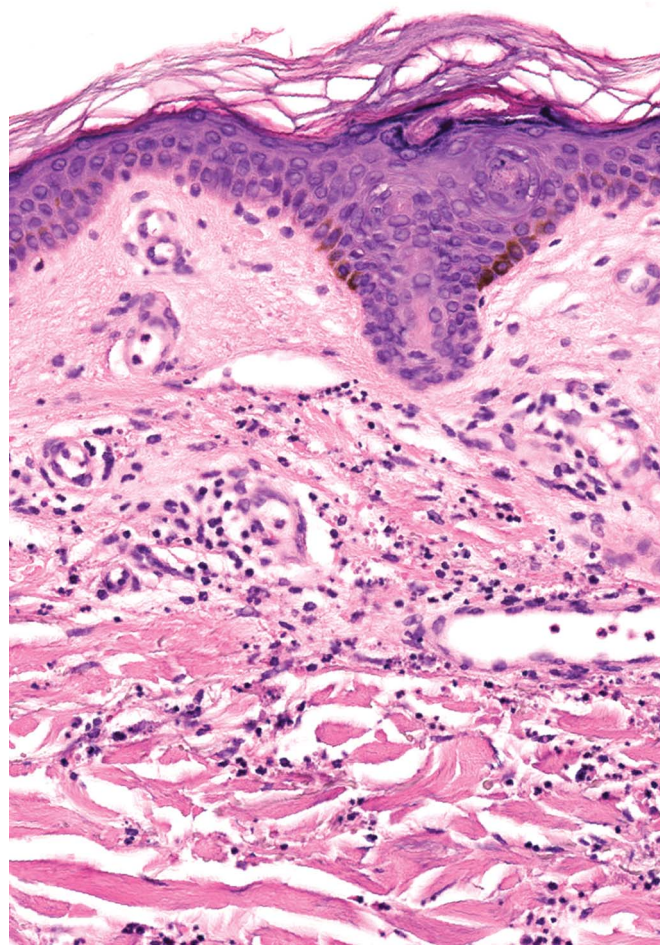


FIGURE 4. Extremely dilated blood vessels in the papillary and mid dermis and early leukocytoclastic vasculitis with the presence of neutrophils and leukocytoclasia with the formation of nuclear dust in association with extravasated erythrocytes among the collagen bundles can be seen (hematoxylin and eosin, 250×).

histopathological description of urticarial vasculitis in a patient recently vaccinated with the Oxford–AstraZeneca COVID-19 vaccine.

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