

LETTERS TO THE EDITOR

Plantar herpes zoster following heterologous recombinant adenovirus-based COVID-19 vaccine

Dear Editor,

COVID-19 is a newly arisen disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) with multisystem involvement. It may also have a wide spectrum of skin manifestations. Recently, different types of vaccines including DNA-based/mRNA-based vaccines, non-replicating viral vector vaccines, and inactivated vaccines have been developed to prevent the COVID-19 pandemic. During the few months that passed the start of vaccination, the most common side effects of the inactivated and mRNA-based vaccines include injection site pain, fever, headache, nausea, and vomiting.¹ There are some reports of cutaneous reactions after SARS-CoV-2 vaccines with different clinical patterns including pityriasis rosea and chilblain-like lesions. Some cases of herpes zoster have also been reported following the injection of different types of COVID-19 vaccines.^{2,3} Most of them occurred following mRNA-based vaccine,⁴ but there are also limited reports of herpes zoster associated with adenovirus vector-based vaccines.^{4,5} Herein, we report an unusual case of herpes zoster of the right sole in a patient who was vaccinated against COVID-19 with Sputnik V vaccine.

A 50-year-old woman presented with grouped fluid-filled painful lesions on her right sole and leg of 5-day duration. She had received the second dose of the heterologous recombinant adenovirus (rAd)-based vaccine, Sputnik V (Gam-COVID-Vac, Russia) 7 days before the onset of the lesions. Two days after vaccination, she experienced some tingling and soreness on her right sole and after that, the skin lesions appeared. No other symptoms such as fever, dyspnea, or cough were accompanied. Skin physical examination showed some crusted, hemorrhagic vesicles over an erythematous base on her right leg and sole (Figure 1), which was clinically compatible with the diagnosis of herpes zoster. She did not report any side effects or any other comorbidities after the first dose of this vaccine. She was treated with oral valacyclovir 1000 mg three times a day and analgesics for one week, which resulted in complete improvement of the skin lesions.

After primary infection of varicella zoster virus (VZV), it remains latent in dorsal-root or cranial-nerve ganglia. The natural history of herpes zoster is depending on an individual's immune status. Reactivation of VZV may happen spontaneously or be triggered by immunosuppression, fever, trauma, or stress. Vaccines are not recognized as common triggers of VZV reactivation. There are some reports of herpes zoster following injection of different types of



FIGURE 1 Hemorrhagic vesicles over an erythematous base on the right sole

COVID-19 vaccines.^{3,4} The Sputnik V vaccine (Gam-COVID-Vac, Russia) is based on a human adenovirus vector platform using two different adenoviral vectors—Adenovirus 26 (Ad26) and Adenovirus 5 (Ad5) as an expression of the SARS-CoV-2 spike protein gene. However, there are some controversies about this vaccine, and more structured real world studies with accessible data are needed to verify its efficacy.⁶

Reactivation of VZV is a failure of the T-cell compartment to maintain control of the infection. Vaccine-induced reactivation of HZ shows some similarities with immune reconstitution inflammatory syndrome (IRIS) in AIDS. IRIS is a paradoxical worsening of pre-existing infection unmasked by the host's recovered capability to induce an inflammatory response following the beginning of antiviral treatment. It was postulated that VZV-specific CD8+ cells are not, temporarily, capable of controlling VZV after a massive shift of naïve CD8+ cells to produce CD8+ cells specific to control HIV or VZV.⁵

To the best of our knowledge, our case could be a distinctive report of herpes zoster after recombinant adenovirus (rAd)-based COVID-19 vaccine and the plantar location of the HZ lesions has also been reported less frequently. In our opinion, the immune dysregulation caused by vaccination may play a role in the reactivation of latent VZV.

KEYWORDS

COVID-19, herpes zoster, SARS-CoV-2, vaccine

CONFLICT OF INTEREST

None to declare.

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 and the patient in this manuscript has given written informed consent to publication of her case details.

DATA AVAILABILITY STATEMENT

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

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