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Conflict of interest

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Herpes zoster after inactivated SARS-CoV-2 vaccine in two healthy young adults

Dear editor,

Coronavirus disease 2019 (COVID-19) can cause various cutaneous manifestations that were identified since the outbreak.¹ With the era of vaccination, cutaneous side effects of vaccines will likely be frequently encountered. Mild reactions like localized redness and swelling have been detected in vaccines reaching phase 3 trials; besides, rarer adverse effects such as injection site urticaria, maculopapular rash, reaction to dermal fillers due to COVID-19 vaccines have been reported.² COVID-19 vaccine-associated herpes zoster (HZ) has been described for the two

most used vaccine types recently: Bostan and Yalici-Armagan reported a 78-year-old man with thoracic HZ after administration of an inactivated vaccine, and Tessa and Kluger reported a 44-year-old man with cervical HZ after administration of a mRNA COVID-19 vaccine.^{3,4} In this case report, we present two immunocompetent young adults developing herpes zoster after inactivated severe acute respiratory syndrome coronavirus (SARS-CoV-2) vaccination.

First case was a 23-year-old otherwise healthy woman who attended to our dermatology outpatient clinic with itchy and painful rash on her lower back. Her symptoms first appeared a day after she was vaccinated with inactivated SARS-CoV-2 vaccine. On examination, grouped vesicles on an erythematous base were noted. Lesions were confined in a single unilateral dermatome. She reported pain and itch which had started on the same day with rash. She was diagnosed with HZ and commenced on brivudine 125 mg tablet once daily for 7 days. Second case was a 21-year-old otherwise healthy man who presented with painful blisters at his abdomen (Figure 1). He was vaccinated with inactivated SARS-CoV-2 vaccine two days before his symptoms first appeared. On examination, painful eruption of grouped vesicles on an erythematous base in a single unilateral dermatome was observed. He was diagnosed with HZ, and valacyclovir 1 gr three times daily for seven days and analgesics were prescribed. Both patients stated that they had never experienced COVID-19-related symptoms since the beginning of pandemic, and they were well at the time of admission. After 14 days, both patients' lesions disappeared completely; moreover, they did not experience neither COVID-19-related symptoms nor postherpetic neuralgia during that period.

HZ is caused by reactivation of latent varicella zoster virus (VZV) in the sensory dorsal root ganglion. Age, stress, immunocompromised status and immunosuppressive drugs are risk factors for virus reactivation, mostly because these conditions lead to a reduction in VZV-specific T cells.⁵ COVID-19-associated HZ has been reported previously, and the median time from hospitalization to HZ beginning was found as 5,5 days in series mainly involving older adults.⁶ The mechanism of SARS-CoV-2 induced HZ is yet to be discovered, but virus's ability to deplete CD8⁺ T cells may reduce VZV-specific T cells throughout infection.⁶

This case report describes highly possible inactivated SARS-CoV-2 vaccine-related HZ in two healthy young adults. As HZ is rare in young and otherwise healthy adults, vaccine itself could be the trigger, but it is impossible to rule out reactivation of VZV by chance. Vaccines may cause immunomodulation and lead to herpes virus reactivation.⁷ Recently a case report of disseminated HZ after recombinant zoster vaccine was published, in which authors hypothesized that the immunostimulatory adjuvant in the vaccine could act as a physiologic stressor on the patient's immune system, as a consequence patient's cell-mediated immunity towards VZV fell below the threshold of containment and permitted zoster reactivation.⁸ Short delay after



Figure 1 Painful vesicles on an erythematous base in a dermatomal configuration on abdomen.

vaccination, young age and previous reports^{3,4} are arguments that support our cases' link between HZ and vaccination. COVID-19 vaccine-associated HZ was not reported in published vaccine studies,^{9,10} and case reports may help to define this possible side effect.

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Rare cutaneous adverse effects of COVID-19 vaccines: a case series and review of the literature

Dear Editor,

Among the vaccines against coronavirus disease 2019 (COVID-19), BNT162b2 from BioNtech-Pfizer and mRNA-1273 from Moderna are mRNA vaccines targeting the spike protein of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The ChAdOx1 nCoV-19 (AZD1222) from Oxford-AstraZeneca is based on adenovirus expressing the full-length spike protein. Clinical trials reported different cutaneous adverse events, mainly local injection site reactions, either immediate or delayed on/after 8 days.^{1–3}