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# Herpes zoster following COVID-19 vaccination: about 2 cases

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The COVID-19 vaccine often well tolerated in healthy adults at the same time, different cutaneous reactions have been reported. Two cases presented of developed a first episode of Herpes zoster (HZ) following the first dose of vaccination against COVID-19. The pathogenetic mechanism suggested that SARS-CoV-2 infection can induce a decrease of blood absolute lymphocyte number, especially CD3+ CD8+ lymphocyte. The COVID-19 vaccine, by stimulation of inflammatory cytokines, may negatively affect the antigen expression and contribute to HZ reactivation. It is also possible that the vaccine induces some kind of immunomodulation that allows VZV to revert an infectious state.

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**Introduction:**

Effective vaccines against COVID-19 are needed to reduce the burden of mortality and morbidity caused by SARS-CoV-2 infection. The COVID-19 vaccine was often well tolerated in healthy adults. Recently, different cutaneous reactions have been reported. Here, we presented two patients who developed a first episode of Herpes zoster (HZ) following the first dose of vaccination against COVID-19.

**Case Report:***Case 1:*

A 38-year-old woman, with no past medical history, presented with the first episode of HZ after COVID-19 vaccination. She had a history of varicella in childhood and was not vaccinated against HZ. She received the first dose of the Gam-COVID-Vaccine (Sputnik V). Two days later, a typical HZ rash appeared at the distribution of T6 dermatome, without systemic symptoms (Figure 1). Laboratory investigations including blood count test, liver enzymes, and inflammatory markers were without abnormalities. She received valacyclovir for seven days with a resolution of symptoms within 2 weeks.

*Case 2:*

An 85-year-old woman, without pathological history, presented with the first episode of HZ following COVID-19 vaccination. She had a history of varicella in childhood. Seven days after the first dose of the BNT162b1 mRNA vaccine (Pfizer–BioNTech), she presented with pain and typical HZ vesicular skin rash at the low abdomen (Figure 2). Blood count tests were without abnormalities. Inflammatory markers, liver enzymes, blood urea and creatinine were normal. She was prescribed valacyclovir for seven days with a consequent resolution of symptoms in 4 weeks.

**Discussion:**

The Pfizer–BioNTech is an mRNA-based COVID-19 vaccine while the Gam-COVID-Vaccine is a viral two-vector vaccine based on the recombinant adenovirus types 26 and 5. Their most common cutaneous adverse reactions are delayed large local reactions followed by local injection site reactions, urticarial and morbilliform eruptions [1]. The association between COVID-19 vaccination and



Fig. 1. Typical Herpes Zoster rash appeared at the distribution of T6 dermatome

the first reactivation of the latent zoster infection is a rare cutaneous finding, reported following mRNA and inactivated COVID-19 vaccines. To our knowledge, we report the first case of HZ reactivation following the reception of adenovirus-vectored COVID-19 vaccine. T-cell immunity is important for maintaining latency of Varicella-zoster virus (VZV). The incidence of HZ increases with age in association with an age-related decline in cell-mediated immunity to VZV. Immunocompromised people or those receiving immunosuppressive drugs are at increased risk for zoster. Psychologic stress and trauma are also considered triggering factors in HZ reactivation. It is unclear what induces reactivation of VZV, but it is believed to occur when cell-mediated immunity declines below a crucial level [2]. The role of vaccines as a risk factor for zoster reactivation was reported especially after varicella vaccination, influenza, hepatitis A, rabies and Japanese encephalitis suggesting vaccine-induced immunomodulation [3]. Recently, VZV reactivation was also reported after SARS-CoV-2 infection. The pathogenetic mechanism suggested that SARS-CoV-2 infection can induce a decrease in absolute lymphocyte



Fig. 2. (A, B): Grouped vesicles on an erythematous base on the lower abdomen

number, especially CD3+ CD8+ lymphocyte [4]. The COVID-19 vaccine, by stimulation of inflammatory cytokines, may negatively affect the antigen expression and contribute to HZ reactivation [5]. It is also possible that the vaccine induces some kind of immunomodulation that allows VZV to revert to an infectious state [3].

**Conclusion:**

In summary, our cases highlight a potential reaction following two different types of COVID-19 vaccines. Patients should be aware of COVID-19 vaccination adverse reactions but also about vaccination benefits. ■

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