

CASE REPORT

Reactivation of herpes zoster after vaccination with an inactivated vaccine: A case report from Nepal

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Abstract

COVID-19 has been linked to a number of cutaneous symptoms in COVID-19 patients. Although herpes zoster (HZ) was the first sign of COVID-19 infection in several patients, cases of HZ after COVID-19 vaccination are rare. Here, we report a case of 51-year-old male patient with herpes zoster after Sinopharm (Vero cell) vaccination.

KEYWORDS

COVID-19, herpes zoster, Sinopharm, vaccine, vero cell

1 | INTRODUCTION

A severe acute respiratory syndrome coronavirus 2 (SARS CoV2), also known as coronavirus disease 2019 (COVID-19), is an ongoing pandemic. Although COVID-19 is primarily a lung disease, it has been linked to several cutaneous symptoms in COVID-19 patients.¹ The reactivation of the varicella-zoster virus (VZV), which causes herpes zoster, is a noteworthy discovery (HZ).¹ HZ was the first sign of COVID-19 infection in several patients. Vaccination initiatives against COVID-19 have been carried over since December 2020. Pain at the injection site, fever, nausea, myalgia, and exhaustion are among the most commonly reported side effects.² HZ was noted in patients after vaccination with tozinameran, *Pfizer-BNT162b2* mRNA, *Moderna* mRNA-1273, and *ChAdOx1* nCoV-19.^{3–5} However, reactivation of HZ has not been reported so far. Here, we describe a rare side effect, that is, HZ eruptions in 51-year-old male patient after vaccination with Sinopharm (Vero cell).

2 | CASE PRESENTATION

A 51-year-old male patient presented to our center with the chief complaints of rashes over the abdomen (T₈–T₁₀ dermatome distribution) for five days (Figure 1). The rashes were itchy, and the tender lesions spread along the periumbilical region. He complained of a burning sensation over the lesions. He had no history of fever, limb weakness, or paresthesia. He does not smoke or consume alcohol. He had herpes zoster infection at 3 years of age on trunk, which he recalls as vesicular eruptions which subsided without treatment. He had no history of hypertension, diabetes mellitus, previous COVID-19 infection, and pulmonary tuberculosis. He was administered Sinopharm BBIBP-CorV (Vero cell) COVID-19 vaccine five days prior to the cutaneous reaction.

On examination of the lesion, the distribution was over dermatome T₈–T₁₀ in the right side of back and abdomen. Rashes were maculopapular, vesicular, pustular with crusts, and tender to touch, and spread over an area

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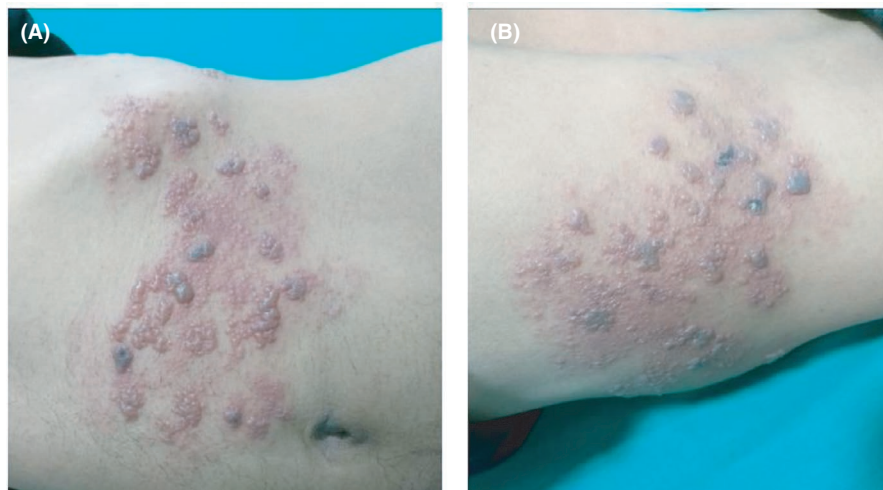


FIGURE 1 (A & B) Herpes zoster infection in patient after Sinopharm (Vero cell) vaccine

of right hypochondrium, epigastrium, and back. Lesions were absent on other sites of the body. On laboratory investigations, his total and differential leukocyte count was normal. The serology for HbsAg, HIV 1 and 2 antibody, anti-HCV antibody, antinuclear antibody (ANA), leptosira, salmonella, dengue, and scrub typhus was non-reactive. Following the presentation, the provisional diagnosis of herpes zoster (HZ) was made on the clinically and the diagnosis was confirmed by polymerase chain reaction (PCR) of vesicular fluid. He was prescribed with valacyclovir (1 g oral tablet three times a day for seven days) and mupirocin ointment for the local application. On follow-up, after three and seven days from the first visit, he had gradual improvement of symptoms and lesions.

3 | DISCUSSION

Multiple, painful, and itchy unilateral vesicles and ulcerations, often occurring in a single dermatome, characterize herpes zoster.^{6,7} The rash lasts about 7–10 days on average, and it is a self-limiting illness.⁸ Although it is usually a mild infection, it can lead to disseminated cutaneous eruptions, encephalomyelitis, and pneumonia in immunocompromised people.⁷

Our patient had no history of hypertension, diabetes, or any chronic illness. He also was non-reactive for serological markers HbsAg, HIV 1 and 2 antibody, anti-HCV antibody, antinuclear antibody (ANA), leptosira, salmonella, dengue, and scrub typhus. Hence, acute or chronic illness and immunosuppressive states causing reactivation of HZ were ruled out. Similarly, alcohol, a possible factor for reactivation, was ruled out as he did not consumed alcohol.

VZV is a neurotropic virus that dwells and remains latent in the dorsal root or cranial nerve ganglia after

primary infection. Following activation by a trigger, such as trauma, fever, or immunosuppression, VZV reactivation leading to the clinical symptoms seen in herpes zoster may occur spontaneously.⁹ As recently revealed, COVID-19 infection could be a trigger for herpes zoster reactivation.^{2,10–13} The increased susceptibility to herpes zoster reactivation in COVID-19 patients is most likely due to COVID-19's proclivity for causing an immunosuppressive state due to the functional impairment and a concomitant quantitative decrease in T lymphocytes, particularly CD4+ T cells, CD8+ T cells, and natural killer cells.¹⁴ COVID-19 infection has been proven to reactivate various viruses, including human herpesvirus,^{6,7} and Epstein-Barr virus, as seen in a recent case of pityriasis rosea during COVID-19 infection.¹⁵

Herpes zoster can also be reactivated by vaccines, as seen in patients who received inactivated immunizations for hepatitis A, influenza, rabies, and Japanese encephalitis. The inactivated COVID-19 vaccination has recently been linked to the re-emergence of herpes zoster.⁴ Furthermore, like our patient, the latency between the onset of herpes zoster and the inactivated COVID-19 vaccine was five days. To our knowledge, this is one of the few cases of herpes zoster after receiving inactivated COVID-19 vaccination. Given the recent development of inactivated vaccine, the underlying cause of VZV reactivation in our situation remains elusive. However, after a huge shift of naive CD8+ cells to make CD8+ cells specific to control VZV, VZV-specific CD8+ cells are not temporarily capable of regulating VZV, and this could be a possible mechanism of HZ reactivation. However, global inactivated COVID-19 vaccination programs may result in an increase in the number of cases of herpes zoster reactivation, allowing for more investigation into the underlying molecular processes at play.

4 | CONCLUSION

As global vaccination continues, some substantial VZV reactivation has been observed in both immunocompetent and immunocompromised patients. Disseminated zoster can be lethal, even though it is usually an innocuous illness. Our finding requires additional investigation of the probable link between COVID-19 and herpes zoster in the context of vaccinating elderly and immunocompromised persons. Herpes zoster can manifest as a complication after Sinopharm (Vero Cell) immunization, and clinicians should be aware of this.

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CONFLICTS OF INTEREST

None.

AUTHOR CONTRIBUTION

SS wrote the original manuscript, reviewed, and edited the original manuscript. RC, BB, and HM reviewed and edited the manuscript. SS, BB, RC, HM, YRA, and BSP reviewed the manuscript and were in charge of case.

CONSENT

Published with the written informed consent of the patient.

DATA AVAILABILITY STATEMENT

All the required information is available in the manuscript itself.

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REFERENCES

- Marzano AV, Genovese G, Fabbrocini G, et al. Varicella-like exanthem as a specific COVID-19-associated skin manifestation: multicenter case series of 22 patients. *J Am Acad Dermatol*. 2020;83(1):280-285. doi:10.1016/j.jaad.2020.04.044
- The Vaccine Adverse Event Reporting System (VAERS) Request. Accessed September 4, 2021. <https://wonder.cdc.gov/vaers.html>
- van Dam CS, Lede I, Schaar J, Al-Dulaimy M, Rösken R, Smits M. Herpes zoster after COVID vaccination. *Int J Infect Dis*. 2021;111:169-171. doi:10.1016/j.ijid.2021.08.048
- Bostan E, Yalici-Armagan B. Herpes zoster following inactivated COVID-19 vaccine: a coexistence or coincidence? *J Cosmet Dermatol*. 2021;20(6):1566-1567. doi:10.1111/jocd.14035
- Rodríguez-Jiménez P, Chicharro P, Cabrera L-M, et al. Varicella-zoster virus reactivation after SARS-CoV-2 BNT162b2 mRNA vaccination: report of 5 cases. *JAAD Case Rep*. 2021;12:58-59. doi:10.1016/j.jidcr.2021.04.014
- Dayan RR, Peleg R. Herpes zoster - typical and atypical presentations. *Postgrad Med*. 2017;129(6):567-571. doi:10.1080/00325481.2017.1335574
- Gershon AA, Breuer J, Cohen JI, et al. Varicella zoster virus infection. *Nat Rev Dis Prim*. 2015;1:15016. doi:10.1038/NRDP.2015.16
- van Oorschot D, Vroiling H, Bunge E, Diaz-Decaro J, Curran D, Yawn B. A systematic literature review of herpes zoster incidence worldwide. *Hum Vaccin Immunother*. 2021;17(6):1714. doi:10.1080/21645515.2020.1847582
- Saeed BQ, Al-Shahrabi R, Alhaj SS, Alkokhardi ZM, Adrees AO. Side effects and perceptions following Sinopharm COVID-19 vaccination. *Int J Infect Dis*. 2021;0(0):219-226. doi:10.1016/j.ijid.2021.08.013
- van Dam CS, Lede I, Schaar J, Al-Dulaimy M, Rösken R, Smits M. Herpes zoster after COVID-vaccination. *Int J Infect Dis*. 2021;0(0):169-171. doi:10.1016/j.ijid.2021.08.048
- European database of suspected adverse drug reaction reports. Accessed September 4, 2021. <https://www.adrreports.eu/>
- World Health Organization. COVID-19 Weekly Epidemiological Update 22. *World Heal Organ*. 2021;(December):1-3. https://www.who.int/docs/default-source/coronaviruse/situation-reports/weekly_epidemiological_update_22.pdf
- Corona Meldingen. Accessed September 4, 2021. <https://www.lareb.nl/coronameldingen>
- Zheng M, Gao Y, Wang G, Song G, Liu S, Sun D, Xu Y, Tian Z. SL-C& molecular, 2020 undefined. Functional exhaustion of antiviral lymphocytes in COVID-19 patients. *nature.com*. Accessed September 4, 2021. https://www.nature.com/articles/s41423-020-0402-2?fbclid=IwAR0WJfADyZWePj0VndzrFT_kXR1hFFHE1r5A5yFm-XnT52vUc-BoyQ3-C4
- Drago F, Ciccarese G, Reborra A, Parodi A. Human herpesvirus-6, -7, and Epstein-Barr virus reactivation in pityriasis rosea during COVID-19. *J Med Virol*. 2021;93(4):1850-1851. doi:10.1002/JMV.26549

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