



# Reactivation of Varicella Zoster Virus after COVID-19 vaccine: A Case Report

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## Citation

Muhammad Umer Farooq, Yasir Iqbal (2025) Reactivation of Varicella Zoster Virus after COVID-19 vaccine: A Case Report. Eur J Case Rep 1: 101

## Publication Dates

**Received date:** January 07, 2025

**Accepted date:** January 24, 2025

**Published date:** January 31, 2025

## Abstract

Herpes zoster infection also known as Shingles is caused by the reactivation of varicella zoster virus. Reactivations is most commonly triggered by increased age and immunosuppression. Association of Shingles with different vaccination is always a mystery. The mechanism is currently unknown about how the COVID-19 vaccination reactivates the virus. However, It is possible that the vaccine causes certain immunomodulation that allows varicella zoster virus to reactivate. We hereby report a rare case of Shingles appeared 5 days after COVID-19 vaccination. With the increase in COVID-19 vaccination all over the world, we believe that such cases should be reported for further studies.

**Keywords:** Varicella Zoster; COVID Vaccine; Reinfection

## Introduction

The varicella zoster virus (VZV) primarily causes chickenpox, which is transmitted from person to person via the airborne route. VZV establishes latency in the dorsal root ganglia during chickenpox and remained dormant there. However, it can be reactivated, where it travels along the sensory nerve axons and causes Shingles. [1] Causes for reactivation of VZV include immunosuppression, increased age, physical trauma and psychological stress. [2] Reactivation of VZV has also been reported after certain vaccinations like influenza vaccination, hepatitis A vaccination and Japanese encephalitis vaccine [3].

The emergence of COVID-19 vaccines have played enormous role in preventing the disease and decreasing the burden on healthcare systems. So far, the most commonly reported adverse effects of the available vaccines are injection site pain, fever, headache, nausea and vomiting. [4] Here we report an unusual case of Herpes Zoster infection acquired after 5 days of 2nd dose of vaccination in a 28 years old male patient who has no other significant risk factor for reactivation of the virus.

## Case Report

A 28 years old male presented with rashes on the right lower lumbar region associated with burning sensations. According to the patient, he has had chicken pox in his childhood. He also reported that he got his second dose of COVID-19 Moderna vaccine (spikevax-moderna® covid 19) 5 days ago. He has no previous significant medical or surgical history of note. There was no history of any drug use, immunosuppression, malignancy or psychological stress. On physical examination he was vitally stable with temperature of 37.0°C, blood pressure of 120/80 mmHg, heart rate of 78/min, respiratory rate 18 breaths/min and oxygen saturation of 98% on room air. On local examination, there are multiple vesicular lesions on right sided L1-L2 dermatome (figure 1: a, b). These lesions were upon an erythematous base. Diagnosis of Shingles was made on classical history and typical physical examination.<sup>5</sup>





**Figure 1a, b:** vesicular lesions on right sided L1-L2 dermatome

Treatment was started with Oral Acyclovir (800mg five times a day) along with analgesics. Patient was followed 7 days after initial symptoms. His lesions had crusted and started to heal. Pain has also subsided to significant level.

## Discussion

We present A rare case of herpes zoster infection in an immunocompetent individual that occurred in a mean range of 5 days after COVID-19 vaccination. Main risk factor for reactivation of Varicella Zoster Virus (VZV) is increasing age, (which may be because of age-related decline in specific cell-mediated immune responses to VZV) while other risk factors include immunocompromise because of certain diseases such as Human Immune deficiency Virus infection, use of Immunosuppressive drugs like steroids, physical trauma, or comorbid conditions such as malignancy or organ damage like chronic kidney disease or liver disease [2].

To keep VZV dormant, cell-mediated immunity plays critical role in the maintenance of its latency and also limit its potential for reactivation. Patients with immunosuppression are more prone to reactivation and recurrence of Shingles because of decreased cell mediated immunity [6].

According to WHO, the most common adverse effects linked to mRNA Covid vaccines are injection site pain or swelling, fatigue, headache, muscle aches, joint pains, chills, nausea/vomiting, and fever. Reactivation of VZV has been reported after influenza vaccination, hepatitis A vaccination and Japanese encephalitis vaccine. [3] Association of Bell's palsy within 36 hours of 2nd dose of COVID vaccine is reported somewhere. [7] Cases of 20 shingles from Las Vegas, five from Spain and one from Turkey is being documented as side of COVID 19 vaccine. [8,9,10] The possible reason behind the reactivation of VZV after COVID 10 vaccination is yet to be determined.

## Conclusion

Due to recent surge in vaccination programs, COVID-19 cases are decreasing day by day. However, continuing safety assessment of vaccine through post marketing surveillance systems must be in place. Only then any event can be detected and dealt with timely. Furthermore, more studies are needed to investigate the relation of VZV reactivation after COVID-19 vaccines.

## Conflicts of interest

None disclosed

Written consent for publication of case report was taken from the patient.

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