Case report

CLINICAL AND EXPERIMENTAL VACCINE RESEARCH

A rare case of shingles after COVID-19 vaccine: is it a possible adverse effect?

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Coronavirus disease 2019 (COVID-19) exhibit mild to moderate symptoms, whereas 15% of COVID-19 cases progress to pneumonia, some associated cutaneous findings are also reported as maculopapular eruptions, morbilliform rashes, urticaria, chickenpox-like lesions, and livedo reticularis. The inactivated COVID-19 vaccines are authorized for use in some countries including Turkey. Here, we report an unusual case of varicella-zoster virus (VZV) reactivation in a 68-year-old male patient who was vaccinated against COVID-19. The patient presented to family medicine clinic with a stinging sensation and pain radiating from the right side of his chest to his back. Physical examination revealed multiple pinheaded vesicular lesions upon an erythematous base occupying an area on his right mammary region and back corresponding to T3–T5 dermatomes. He reported that he got his second dose of COVID-19 vaccine 5 days ago. As COVID 19 decreases the cell-mediated immunity, it could also increase the risk of herpes zoster (HZ). Although the exact reason remains unsolved, vaccine-induced immunomodulation caused by live attenuated vaccines and attenuated alloreactivity caused by inactivated vaccines may be responsible mechanisms for the reactivation of HZ. Epidemiological studies are needed to clarify the possible connection between vaccination and reactivation of herpesvirus infections.

Keywords: Covid-19 virus disease, Herpes zoster virus, Vaccine

Introduction

As of April 26, 2021, there have been 146,841,882 confirmed cases of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) including 3,104,743 deaths worldwide as per World Health Organization coronavirus disease 2019 (COVID-19) report. Also, a total of 933,878,667 vaccine doses have been administered [1]. The inactivated COVID-19 vaccines are authorized for use in some countries including Turkey which started vaccination program in January 2021. Most commonly reported adverse effects of the inactivated vaccines are injection site pain, fever, headache, nausea, vomiting, etc. [2].

Emerging evidence suggests that majority of cases only exhibit mild to moderate symptoms, whereas 15% of COVID-19 cases progress to pneumonia, and approximately 5% of these cases develop acute respiratory distress syndrome, septic shock, and/or multiple organ failure [3,4].

Some associated cutaneous findings are also reported as maculopapular eruptions,

morbilliform rashes, urticaria, chickenpox-like lesions, livedo reticularis, COVID toes, erythema multiforme, and pityriasis rosea [5].

Here, we report an unusual case of varicella-zoster virus (VZV) reactivation in a 68-year-old male patient who was vaccinated against COVID-19.

Case Report

A 68-year-old male with a past medical history of hypertension, dysrhythmia and anxiety presented to family medicine clinic with a stinging sensation and pain radiating from the right side of his chest to his back. The patient was on atenolol, rivaroxaban, alprazolam, and tianeptine for his current diseases. He also reported that he got his second dose of COVID-19 vaccine 5 days ago. No other symptoms were accompanied. Vital signs revealed a temporal temperature of 36.0°C, heart rate 82 beats per minute (bpm), respiratory rate 18 bpm, blood pressure 130/83 mm Hg, and oxygen saturation (SpO_2) 99% on room air. Physical examination revealed multiple pinheaded vesicular lesions upon an erythematous base occupying an area on his right mammary region and back corresponding to T3–T5 dermatomes (Fig. 1).

The area surrounding the vesicular eruption was flared and tender to touch. There was no history of psychological stress, immunodeficiency, malignancy, and immunosuppressive drug use in this patient. No previous history of similar lesions were reported, and patient was unaware of the occurrence of chickenpox in his childhood. Based on the history and clinical presentation of the lesions, diagnosis of herpes zoster (HZ) was given. Treatment was started with valaciclovir 1 g thrice daily for 1 week, acyclovir cream, and paracetamol for pain. The patient was called on the 5th day from the beginning of the treatment to obtain information about the progress of the lesions and symptoms. He reported that the lesions started crusting, itching was added and the pain intensified. He was advised to continue with the current treatment and take codeine for pain management if necessary.

The patient provided written informed consent for publication of the research details and clinical images.

Discussion

Although SARS-CoV-2 primarily involves the respiratory, gastrointestinal, and neurological systems, it may also cause heterogeneous symptoms in different systems [6,7].

Fig. 1. (A, B) Pinheaded vesicular lesions upon an erythematous base occupying an area on patient's right mammary region and back. Written informed consent for publication of this image was obtained from the patient.

Skin involvement is also reported in several cases. In Italy, four COVID positive patients were diagnosed with HZ and the median time from COVID-19 and HZ diagnosis was 5.5 days [8]. Also in Turkey, a 42-year-old patient was diagnosed with COVID 19 and HZ simultaneously [9]. Similarly, cases diagnosed with HZ after COVID 19 recovery have been reported [10,11].

HZ is characterized by inflammation of dorsal root ganglia or extra-medullary cranial nerve ganglia, associated with vesicular eruptions of the skin or oral mucous membrane in the area supplied by the affected nerve [12].

The incidence of HZ increases with age and reactivation of the virus is predisposed by trauma, and immunosuppressive therapy, and immunosenescence [13]. As COVID 19 decreases the cell-mediated immunity by causing lymphopenia and decreasing CD3+, CD4+, and CD8+ T cells, it could also increase the risk of HZ [14]. Walter et al. [15] reported three HZ reactivations after hepatitis A, inactivated influenza and rabies with Japanese encephalitis vaccines. Also, Ruder et al. [16] showed reduced allogenic reactivity after hepatitis B vaccine.

Although the exact reason remains unsolved, vaccine-induced immunomodulation caused by live attenuated vaccines and attenuated alloreactivity caused by inactivated vaccines may be responsible mechanisms for the reactivation of HZ [15,16]. Furthermore, HZ can precipitate during increased psychological stress, Lasserre et al. [17] showed that recent negative life event is associated with HZ. Inter-Agency Standing Committee announced "Guidelines on mental health and psychosocial support in emergency settings" in 2007 in terms of protecting mental health in a group of diseases including epidemic infectious diseases [18]. With increasing illness, exposure and mortality rates, restrictions and rules applied to prevent disease to spread, COVID 19 has been an effective source of stress not only in those who have had the disease, but also in the whole society. Getting vaccinated against the disease may also have contributed to the stress factor, given all the discussions on social media and television. To our knowledge this is the second VZV reactivation case after COVID 19 vaccination. First one was also reported from Turkey, 5 days after the COVID vaccination [19].

Although there is limited data to say that there is a definite relationship between covid vaccine and herpes reactivation, in order to examine possible relationships in this period when covid vaccination is aimed to reach large masses, epidemiological studies are needed to clarify the possible connection between vaccination and reactivation of herpesvirus infections.

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References

1. World Health Organization. WHO coronavirus (COVID-19) dashboard [Internet]. Geneva: World Health Organization; 2021 [cited 2021 Apr 27]. Available from: https://covid19.who.int/.
2. Xia S, Duan K, Zhang Y, et al. Effect of an inactivated vaccine against SARS-CoV-2 on safety and immunogenicity outcomes: interim analysis of 2 randomized clinical trials. JAMA 2020;324:951-60.
3. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020;395:497-506.
4. Xu Z, Shi L, Wang Y, et al. Pathological findings of COVID-19 associated with acute respiratory distress syndrome. Lancet Respir Med 2020;8:420-2.
5. Sachdeva M, Gianotti R, Shah M, et al. Cutaneous manifestations of COVID-19: report of three cases and a review of literature. J Dermatol Sci 2020;98:75-81.
6. Weiss SR, Leibowitz JL. Coronavirus pathogenesis. Adv Virus Res 2011;81:85-164.
7. Drosten C, Gunther S, Preiser W, et al. Identification of a novel coronavirus in patients with severe acute respiratory syndrome. N Engl J Med 2003;348:1967-76.
8. Tartari F, Spadotto A, Zengarini C, et al. Herpes zoster in COVID-19-positive patients. Int J Dermatol 2020;59:1028-9.
9. Oguzturk H, Kayipmaz AE, Kurtoglu Celik G, Korkut S. Varicella zoster co-infection in a patient with COVID-19. Ankara Med J 2020;20:1094-98.
10. Pona A, Jiwani RA, Afriyie F, Labbe J, Cook PP, Mao Y. Herpes zoster as a potential complication of coronavirus disease 2019. Dermatol Ther 2020;33:e13930.
11. Desai HD, Sharma K, Patoliya JV, Ahadov E, Patel NN. A rare case of varicella-zoster virus reactivation following recovery from COVID-19. Cureus 2021;13:e12423.
12. Mehta DN, Thakkar B, Asrani M. Herpes zoster of orofacial region: a review. Nat J Integr Res Med 2013;4:112-6.

13. Thomas SL, Hall AJ. What does epidemiology tell us about risk factors for herpes zoster? Lancet Infect Dis 2004;4:26-33.
14. Xu B, Fan CY, Wang AL, et al. Suppressed T cell-mediated immunity in patients with COVID-19: a clinical retrospective study in Wuhan, China. J Infect 2020;81:e51-60.
15. Walter R, Hartmann K, Fleisch F, Reinhart WH, Kuhn M. Reactivation of herpesvirus infections after vaccinations? Lancet 1999;353:810.
16. Ruder H, Kerling F, Daniel V, Korn K, Wassmuth R. Decreased alloreactivity after vaccination against hepatitis B. Transplantation 1995;59:1339-42.
17. Lasserre A, Blaizeau F, Gorwood P, et al. Herpes zoster: family history and psychological stress-case-control study. J Clin Virol 2012;55:153-7.
18. Inter-Agency Standing Committee. IASC guidelines on mental health and psychosocial support in emergency settings. Geneva: Inter-Agency Standing Committee; 2007.
19. Bostan E, Yalici-Armagan B. Herpes zoster following inactivated COVID-19 vaccine: a coexistence or coincidence? J Cosmet Dermatol 2021;20:1566-7.