

COVID-19 AŞISI SONRASI GELİŞEN SUÇİÇEĞİ ENFEKSİYONU OLGUSU

A CASE OF CHICKENPOX INFECTION FOLLOWING COVID-19 VACCINATION

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ÖZET

Coronavirus hastalığı 2019 (COVID-19) pandemisinin ortasında-yız ve hastalık yükünü kontrol altına almak için birçok COVID-19 aşısı dünya çapında dağıtım için yetkilendirildi ve onaylandı. Nükleozid modifiyeli bir RNA aşısı (BNT162b2 Comirnaty) olan Pfizer-BioNTech aşısı, en önemli ve etkili COVID-19 aşılardan biridir. Aşılanan kişi sayısı arttıkça aşıya bağlı çeşitli deri yan etkileri görülmektedir. Gecikmiş lokal reaksiyonlar, morbilliform döküntüler, ürtiker en sık görülen yan etkilerdir. Bu olguda, ikinci doz Pfizer-BioNTech aşısının hemen ardından gelişen, ikinci kez suçüçeğı enfeksiyonu geçiren, immünitesi sağlam 38 yaşında bir hasta sunulmaktadır. Bu olgu ile suçüçeğı hastalığının tüm insanlarda yaşam boyu bağışıklık sağlamadığını, aşıya bağlı bazı bağışıklık mekanizmaları tarafından yeniden tetiklenebileceğini gözden geçirdik.

ANAHTAR KELİMELER: Suçüçeğı, SARS-CoV-2, COVID-19 Aşılıarı.

ABSTRACT

We are in the middle of Coronavirus disease 2019 (COVID-19) pandemic and to take control the disease burden several COVID-19 vaccines have been authorized and approved for distribution worldwide. Pfizer-BioNTech vaccine which is a nucleoside-modified RNA vaccine (BNT162b2 Comirnaty) is one of the most important and effective COVID-19 vaccines. As the number of vaccinated people increases, we see various cutaneous side effects related to vaccination. Delayed local reactions, morbilliform rashes, urticaria are among the most common side effects. Herein, a 38-year-old immunocompetent patient with second time experienced chickenpox infection developed immediately after the second dose of Pfizer-BioNTech vaccine is presented. With this case, we reviewed the fact that chickenpox disease is not supply a life-long immunity in all people, it can be re-triggered by some immune mechanisms related with vaccination.

KEYWORDS: Chickenpox, SARS-CoV-2, COVID-19 Vaccines.

Geliş Tarihi / Received: 19.06.2022

Kabul Tarihi / Accepted: 11.11.2022

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INTRODUCTION

Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has been a global pandemic since March 2020. After this time, vaccine development studies have been carried out with great efforts (1). It is known that vaccination is vital to stop the progression of pandemic. Several COVID-19 vaccines have been authorized and approved for distribution worldwide (2). Pfizer-BioNTech vaccine is a nucleoside-modified RNA vaccine (BNT162b2 Comirnaty), and it was the first vaccine approved by the US Food and Drug Administration (FDA), after an emergency use authorization, on December 11th, 2020 (3).

In Turkey a great mass of people have been vaccinated with COVID-19 vaccines and many reactions following vaccination have been reported. Delayed local reactions, morbilliform rashes, urticaria, delayed inflammatory reactions to dermal fillers, pernio and chillblains, erythema multiforme, lichen planus, pityriasis rosea are mainly reported cutaneous manifestations of COVID-19 vaccines as well as reactivation of Herpes Simplex Virus (HSV) and Varicella-Zoster Virus (VZV) (2, 4). Herein, a 38-year-old immunocompetent patient with diffuse chickenpox infection developed immediately after the second dose of BNT162b2 Comirnaty vaccine is presented.

CASE REPORT

A 38-year-old immigrant man presented to us with pruritic erythematous papules and vesicles on her body and extremities with a duration of four days. Dermatologic examination revealed intact vesicles as well as hemorrhagic crusted papules all around the trunk and extremities (**Figure 1 and 2**). He has no chronic disease nor use any medications. 24 hours before the appearance of skin lesions he had vaccinated with second dose of BNT162b2 Comirnaty vaccine. He stated that the skin lesions started after vaccination. The differential diagnosis of chickenpox and PLEVA (pityriasis lichenoides et varioliformis acuta) was established. Full blood count, liver and kidney function tests, HSV and VZV anti-

bodies were studied. His blood tests were within normal limits, HSV antibodies were negative and as we expected VZV IgM and VZV IgG were positive. A punch biopsy was performed from an intact vesicle on the trunk. The histopathologic examination revealed intracorneal vesicle-pustule formation on the surface keratinocytes, some of which show nuclear enlargement and nucleolar prominence in the epidermis at the base of the pustule. Interstitial and perivascular lymphocytic inflammation in the epidermis and superficial dermis, and perivascular lymphocytic inflammation in the middle dermis were observed. Findings were consistent with viral cytopathic changes.

The diagnosis of chickenpox reactivation was established with current clinical, laboratory and histopathological findings. While he did not remember whether he has had chickenpox disease in his childhood considering the prevalence of varicella in the Middle East community and the migrant status of the patient, we considered it as a reactivation of chickenpox rather than a primary infection. The patient was treated with symptomatic treatment and the lesions resolved without any sequelae. Informed consent form was obtained from the patient.



Figure 1: Intact vesicles and hemorrhagic crusted papules on the trunk



Figure 2: Vesicles and hemorrhagic crusted papules on the lower extremity

DISCUSSION

VZV (also known as human herpesvirus 3) is a alpha-herpesvirus with a double-stranded DNA genome. VZV naturally infects only humans and targets T lymphocytes, epithelial cells and ganglia. Primary infection causes varicella (chickenpox), during which VZV becomes latent in ganglionic neurons and as with aging or depletion of the immune status it reactivates to cause zoster (5).

Nastro et. al. (6) reported an interesting case of atypical VZV skin infection inducing a small vessel vasculitis after first dose of Pfizer-BioNTech COVID-19 vaccine in an old woman with chronic kidney disease and depressive disorder. This situation highlights the importance of keeping VZV infection in mind when patients present with vasculitis after COVID-19 vaccination so that we can start early treatment to diminish the occurrence possibility of post herpetic complications.

In the literature 52 cases of VZV reactivation as shingles after COVID-19 vaccine have been reported which only 1 of them was secondary to inactivated vaccine while 51 of them were developed after mRNA vaccines (i.e. Pfizer's BNT162b2 and Moderna's mRNA-1273) (7).

The VZV reactivation after COVID-19 vaccine as shingles is a relatively common condition, unlike a second time experienced chickenpox.

Nanova et. al. reported a healthy young woman presented with a second time experienced chickenpox infection shortly after BNT162b2 mRNA vaccine (8). Our case was a healthy young male developed second time experienced chickenpox after BNT162b2 mRNA vaccine.

Cases of VZV reactivation have already been described following vaccinations against Hepatitis A, influenza virus, rabies and Japanese encephalitis (3). Nowadays VZV reactivation whether as chickenpox or shingles following COVID vaccines is an intriguing current issue. The certain mechanism underlying that situation is not known yet but it is postulated that stimulation of the immunity following vaccination induces a robust T-cell response. Mainly, a cellular response with upregulated CD8+ T cell and T helper type 1 CD4+ T cells has been documented immediately after mRNA vaccines. That leads to make a hypothesis of a paradoxical reaction happening that VZV-specific CD8+ cells are not, temporarily, capable of controlling VZV after the extensive shift of naive CD8+ cells in the setting of SARS-COV-2 vaccination (1).

VZV reactivation could be precipitated during increased psychological stress. Aksu et. al. (9) indicated that COVID 19 has been an effective source of stress for people. Getting vaccinated against the disease may also have contributed to the stress factor, given all the discussions on social media and television. And it may play a role in the occurrence of VZV immediately after COVID-19 vaccinations.

It is highly likely that we will encounter long-term and rare side effects of vaccines in the future. And also it is a fact that we have to use vaccines in order to control the pandemic and for this reason, we should be informed about the side effects we may encounter and be able to manage it immediately in an experienced way.

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