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## LETTER TO EDITOR

### An atypical Ramsey Hunt syndrome after covid 19 immunization<sup>☆</sup>

**Keywords** COVID 19 vaccine; Adverse drug reaction; Pharmacovigilance; Herpes zoster

#### Abbreviations

COVID-19 coronavirus disease 2019  
RHS Ramsay Hunt syndrome  
SARS-CoV2 severe acute respiratory syndrome coronavirus 2  
VZV varicella-zoster virus

#### Introduction

Ramsay Hunt syndrome (RHS) is a combination of facial paralysis with a viral vesicular rash of the ear pinna which usually occurs within a few days after the reactivation of varicella-zoster virus (VZV). This symptomatology can exceptionally be deferred over time and the location of the vesicular rash can extend around the ear. Otalgia or hearing loss is also described with these symptoms [1].

We present a particular case of Ramsay Hunt syndrome with vesicular eruption that occurred after the first shot of mRNA anti-coronavirus disease (COVID) vaccine tozinameran followed by a hemifacial paralysis after the second injection of the same vaccine.

This case was notified to the Tunisian Center of Pharmacovigilance on November 11<sup>th</sup> 2021 and registered under the number 6182/2021.

#### Case report

A 65 year-old man with a history of hypertension was treated by the association perindopril<sub>10</sub>/bisoprolol<sub>5</sub> 1 tab/day for 6 months and acetylsalicylic acid 75 mg/day for five years to prevent cardiovascular events. He didn't remember any history of chickenpox in his childhood. He didn't receive the varicella vaccine. On the other hand, he didn't report any psychological stress, trauma, or immunosuppressive drug intake in that period.

He began his anti-covid vaccination on the 3<sup>rd</sup> of May 2021 with tozinameran. Three days later he suffered from left ear pain, with feeling of warmth, numb and pruritus on his left

hemiface. A vesicular eruption appeared inside the ear, on the external auditory canal, and extended progressively to the mouth and on the left side of his tongue. Blood cell count made 4 days after the first shot was normal and VZV antibodies weren't done.

Shingles was diagnosed on the fourth day and the patient underwent an anti-viral treatment by Aciclovir<sub>200</sub>, 5 tablets/day during ten days.

On the 31<sup>st</sup> May 2021 (almost four weeks later), while the eruption had partially recovered, the patient received his second shot of the same mRNA anti-COVID vaccine tozinameran. One week after the second shot, he presented a left hemiface pain and paralysis with a heaviness feeling of the tongue and an exacerbation of the vesicular eruption.

A Ramsay Hunt syndrome was evocated by his physician, and he underwent a therapy by valciclovir<sub>500</sub> (2 tab × 3/day during 7 days), pregabalin<sub>75</sub> (3 tab/day during two months) and physiotherapy. The facial paralysis improved within one month with persistent pain and tingling 6 months later. The eruption resolved completely in 4 months.

#### Discussion

The responsibility of the vaccine in inducing A Ramsey Hunt syndrome was assessed as C2S2 according to the updated French method of imputability [2] because of:

- the compatible chronology (3 days after the first shot);
- the responsibility of the vaccine in inducing A Ramsey Hunt syndrome was assessed as C2S2 according to the updated French method of imputability [2] because of:
- mainly, the reactivation of the eruption one week after the second shot with a concomitant facial paralysis.

Usually, in RHS, the facial paralysis occurs within few days after the eruption but in some cases this delay can be longer and reach 30 days. For our patient, there were 4 weeks between the eruption and the paralysis.

Indeed, the eruption had partially recovered, and the patient presented an exacerbation of the vesicular eruption and left hemiface paralysis one week after the second shot. We think that the vaccine revived the initial reaction that started after the first shot. These symptoms completed the Ramsay Hunt clinical picture.

In literature, it's known that after the primary exposure to chicken pox, VZV becomes latent in the sensory ganglia of the spinal and cranial nerves. Its reactivation and replication is associated with suppressed cell-mediated immunity, and lead to herpetic inflammatory lesions from the ganglion to dermatomes associated with the involved ganglion and this may result in RHS [1]. This syndrome can also follow a varicella immunization [3].

<sup>☆</sup> This case was notified to the Tunisian Center of Pharmacovigilance on November 11<sup>th</sup> 2021 and registered under the number 6182/2021.

Following COVID-19 immunization, we found only two published cases of RHS. The first one was about a 78-years old woman with a history of hypertension, who experienced a RHS 5 days following COVID-19 mRNA vaccine [4]. She developed simultaneously a right facial paralysis with the vesicular eruption on the concha of the right ear. The second case was about a 37-year-old man, with no medical history, who experienced 2 days after the first shot of tozinameran vesicles and facial palsy [5].

This syndrome was also reported once after the inactive influenza vaccine. It concerned 66-years old women with history of hypertension, asthma and hyperlipidemia, and it occurred 13 days after immunization. Her symptomatology began with hearing loss and painful vesicles on the right ear followed two days later by a right hemifacial paralysis [6].

A case study of VZV induced neurological disease after COVID19 vaccination concluded that vaccines, including those against COVID19, may induce an immunomodulatory effect with a temporary failure of VZV-specific T-cell response leading to VZV reactivation [7]. The only condition modulating immunity in our patient during that period was COVID19 vaccination. It is not surprising this could occur as this syndrome of reactivation can happen in the context of immunomodulation such as vaccines or viral infection.

VZV reactivation in patients infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) has been also described. The suggested pathogenic mechanism was the induction of lymphopenia and the functional impairment of lymphocytes, particularly CD8+ T cells and natural killer cells. With regard to COVID-19 vaccines, it is postulated that, as a product of a massive shifting of naïve CD8+ cells, VZV specific CD81 cells are not temporarily capable of controlling VZV [8].

The reactivation of VZV as shingles was associated with tozinameran in literature and particularly with mRNA vaccines [9]. Otherwise, isolated Bell's palsy was reported since the phase 3 of clinical trials with mRNA vaccines [10].

Our case is atypical in front of the delay and the reactivation of lesions after the second shot and the appearance of facial palsy, which completed the clinical picture of Ramsay Hunt. The favorable outcome and the rarity of such events reported with vaccination make the benefits of the immunization prevail on the risk benefit balance.

#### Disclosure of interest

The authors declare that they have no competing interest.

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