Lower Motor Neuron Facial Palsy Following COVID-19 Infection and COVID-19 AstraZeneca Vaccine Administration: Case Reports

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Abstract

COVID-19 is a multi-system disorder. Bell's palsy is a lower motor neuron lesion that is uncommon after COVID-19 or related vaccinations. We documented two incidences of Bell's palsy in this study, one after she was exposed to COVID-19 and the other after he was exposed to AstraZeneca Vaccine.

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Abstract :

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she was exposed to COVID-19 and the other after he was exposed to AstraZeneca Vaccine.

Keywords:

COVID-19; Coronavirus, SARS-CoV-2, Bell's palsy, Facial palsy; AstraZeneca vaccine

Key clinical message:

COVID-19 and its vaccinations, according to the literature, can cause a wide range of symptoms and side effects. Patients and professionals should be aware of them so that they can seek medical help as soon as feasible.

Introduction:

Coronavirus illness is caused by the SARS-CoV-2 virus (COVID-19). The majority of people who are infected with the virus will experience mild to moderate respiratory symptoms and will recover without needing any treatment [1].

Fever, sore throat, cough, shortness of breath, diarrhea, and widespread weariness are the most prevalent symptoms. Acute distress respiratory syndrome, myocarditis, heart failure, renal failure, and recurrent pulmonary embolism are all complications of COVID-19 [2].

The neurological symptoms of COVID-19 infection include convulsions, paraplegia, hemiplegia, Guillain-Barre syndrome, transverse myelitis, and multiple cranial nerve involvement [3]. Lower motor neuron lesion facial palsy is referred to as Bell's palsy in clinical terms. It is usually idiopathic; however tumors, trauma, infection, autoimmune illnesses, vacuities, pregnancy, and medicines can all cause it. Sarcoidosis, Guillain-Barre syndrome, and leprosy all have clinical symptoms that include bilateral facial palsy [4]. During the COVID-19 pandemic, there was a documented link between COVID-19 and Bell's palsy. There is no clear explanation at this time; however it could be caused by a direct action of the virus, an autoimmune response, or recurrence of a coexisting herpes zoster infection [5].

In numerous nations, including the United States, a relationship between COVID-19 vaccines and lower motor neuron lesion facial palsy has been observed, albeit the causative link has yet to be proved [6].

Cases' Presentation:

Case 1:

A 65-year-old Sudanese woman was admitted to Omdurman teaching hospital (a tertiary hospital located within Omdurman one of three cities which form the capital of Sudan) with a high-grade fever and a dry irritating cough. Clinical examination indicated a feverish patient with a pulse rate of 100 beats per minute, a blood pressure of 100/70 mmhg, and a normal systemic examination. Her SARS COVID-19 viral test came out positive. Three days after being admitted. She began to complain of an incomplete left eye closure and a right-sided mouth deviation. A lower motor neuron injury was discovered during a clinical evaluation (facial palsy). (Figure 1)

Over the course of the year, she had no skin eruptions, parotid enlargement, or tongue fissure. The upper and lower limbs were examined and found to be normal (she has no truncal or neck weakness and no area of hypoesthesia). CBC, blood urea, serum creatinine, chest X-ray, and CT-brain were among the tests performed. All of the tests came out normal or within normal limits. Following COVID-19, a diagnosis of Bell's palsy was made. She took prednisolone for three weeks and showed significant improvement.

Case 2:

A 45-year-old Sudanese man with no history of diabetes or hypertension presented to our private neurology clinic with facial paralysis on the left side and the inability to close his left eye. He also detected a rightward displacement of the mouth. (Figure 2)

The illness appeared three days after receiving the AstraZeneca COVID-19 vaccination. Facial damage, ear pain, or ear skin eruption did not precede the paralysis. He hasn't lost his sense of taste, and the event he described was not preceded by any transitory neurological symptoms. During one assessment, he appeared to be sick, with a pulse rate of 87 beats per minute and a blood pressure of 130/75 mmhg. There were no abnormalities found on a systemic evaluation. He has a full-blown picture of left sided lower motor neuron lesion of the seventh cranial nerve, and the abnormalities were confined to the central nervous system. The following tests were performed: general urine, blood urea, serum creatinine, and a brain MRI, all of which came out normal. In the absence of any clear symptoms or signs that could lead to a diagnosis of left sided motor neuron lesion facial palsy caused by the COVID-19 AstraZeneca vaccine, a diagnosis of left sided motor neuron lesion facial palsy caused by the COVID-19 AstraZeneca vaccine was made. After three weeks of corticosteroids, he exhibited significant improvement.

Discussion:

COVID-19 can cause neurological symptoms such as stroke, Guillain-Barre syndrome, transverse myelitis, epilepsy, and cranial nerve palsies in nearly 36% of individuals. Peripheral nerve lesions affect 8% of the population. COVID-19 infection can cause Bell's palsy, which is one of the neurological symptoms [4]. Bell's palsy is preferred by 15-20 people per 100,000 in the general population [7].

Bell's palsy is a face motor neuron injury that affects the lower motor neurons. It's usually idiopathic; however hypertension, diabetes, obesity, pregnancy, preeclampsia, trauma, tumors, infections, autoimmune illnesses, and vacuities have all been linked to it. The etiology of Bell's palsy in COVID-19 is unknown, but it could be due to direct inflammation of the facial nerve, which causes edema and nerve compression in the canal. It could also be caused by an immune reaction. COVID-19 infection is linked to a low lymphocyte count, which can lead to herpes zoster virus reactivation in the facial nerve ganglia, resulting in facial palsy. The majority of Bell's palsy cases improved on their own over time, however 5-10% of cases left with residual facial weakness [4].

Despite this, we report the first incidence of Bell's palsy following AstraZeneca vaccine, but no conclusive proof of a link between Bell's palsy and COVID-19 vaccination exists at this time.

According to a study conducted by Wan and colleagues in Hong Kong on the relationship between Bell's palsy and the mRNA-based BNT162 b2 vaccine, patients who received COVID-19 vaccine have a higher risk of getting Bell's palsy than those who were not vaccinated [8].

The observed prevalence of Bell's palsy among vaccinated persons was no greater than the expected background rate, according to the US Food and Drug Administration and the UK Medicine and Healthcare Product Regulatory Agency [9].

Conclusion:

COVID-19 is an illness that manifests itself in a variety of ways. COVID-19 infection can cause Bell's palsy, which is a relatively rare symptom. This case report is also important for physicians and neurologists looking for vaccine-related adverse effects. The benefits of immunization outweigh any potential hazards, despite the vaccine's side effects (fever, pain at the injection site, thromboembolic events, and facial palsy).

Declarations:

Consent for publication:

Written consent for publication has been obtained from the patient and the authors. Patients agreed to publish their photos as figures in the manuscript.

Availability of data and material:

The data used in this report is available with the corresponding author upon reasonable request.

Conflicts of interest:

The authors declare that there is no conflict of interest.

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Authors' contribution:

AS, KAH, OAM and HAA: Wrote first draft and final draft.

AA, MA, AAA: Wrote and revised final draft

AH: Did examinations, investigations, revision and supervised the study.

All authors contributed significantly to the manuscript.

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