

CASE REPORT

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Unilateral Isolated Peripheral Facial Paralysis as a Presenting Finding of COVID-19 in Two Previously Vaccinated Patients

Case Reports

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ABSTRACT To report on two patients with COVID-19 after presenting with unilateral isolated peripheral facial palsy; both had previously double doses of vaccination against coronavirus-2 (SARS-CoV-2) infection. Two female patients presented with symptoms of progressive unilateral labial deviation, lagophthalmos, and drooling. Both patients had double doses of prophylactic COVID-19 vaccine, Pfizer-BioNTech 6 months, and Sinovac/CoronaVac 12 months previously. The diagnosis of isolated unilateral peripheral facial paralysis was made, and short-term daily oral methylprednisolone (1mg/kg) was started for two weeks. A week later, both patients complained of various symptoms and signs of COVID-19. Acute facial nerve involvement is frequently associated with viral infections, and isolated peripheral facial paralysis may be the first and only presenting finding of COVID-19 infection even if the patients are vaccinated against the COVID-19 pandemic.

Keywords: COVID-19; peripheral facial paralysis

Coronavirus disease-2019 (COVID-19), caused by severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2), results in respiratory symptoms and signs as the primary clinical features and may demonstrate neuro-invasive potential with neurologic symptoms in the central and peripheral nervous system.¹⁻³

Acute facial nerve involvement leading to peripheral facial paralysis (PFP) may be caused by vascular ischemia, autoimmune diseases, or viral infections of the nerve sheath.⁴ The exact pathogenesis remains unclear, but it is presumed to be associated with neurotropic viruses, axonal conduction, and viral reproduction, causing inflammation and demyelination. The most frequently reported vectors are the herpes simplex virus, varicella-zoster, and human immunodeficiency viruses.⁵⁻⁷

Here, we report 2 consecutive cases of neurologic involvement with isolated unilateral PFP as the

first presenting finding of COVID-19, both of whom had been double-vaccinated against SARS-CoV-2 infection.

CASE REPORT

In our case report, informed consent forms were obtained from both cases.

CASE 1

A 26-year-old housewife presented to our outpatient clinic with symptoms of progressive labial deviation, lagophthalmos, and drooling on the left side. The patient had 2 doses of prophylactic Pfizer-BioNTech (Germany) COVID-19 vaccine 6 months ago, repeated at a 6-week interval. Systemic involvement was not present, and no history of comorbidities such as hypertension, diabetes, overweight, tick bite, trauma, medication, varicella-zoster and herpes virus,

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or SARS-CoV-2 infections was reported. She did not complain of dyspnea, face swelling, skin rash, cough, myalgias, or diplopia. Ear nose throat (ENT) findings were normal, and laboratory results revealed normal sedimentation, C-reactive protein, hemogram, kidney, and liver function tests. There were signs of loss of movement in mimic muscles on the left side, lagophthalmos with ocular irritation, Bell phenomenon and hemifacial spasm. It was evaluated as Grade-3 in the House-Brackmann classification system. The diagnosis of isolated PRP on the left facial half was made with these symptoms and signs. Daily oral methylprednisolone (1 mg/kg) therapy was started for 2 weeks of courses in a tapering approach, and ocular lubricants were initiated. The cumulative glucocorticoid dose was 608 mg.

Case 1: The Patient With Left Pfp

A week later, the patient applied to the otolaryngology outpatient clinic with complaints of earache, mild hearing loss, and loss of taste. A routine nasal swab was obtained for the COVID-19 polymerase chain reaction test that revealed positive results, and acyclovir 5 times daily was started. Electromyography of the left facial nerve showed moderately diffuse partial subacute axonal degeneration, and temporal magnetic resonance imaging demonstrated asymmetric en-

hancements in the left geniculate ganglion and at the level of the internal acoustic canal in the seventh nerve compared to the right, indicating left facial neuritis (Figure 1, Figure 2). Infrared facial tapping, electrical stimulation to the mimic muscles, and mimic muscle strengthening exercises were planned for physical therapy.

CASE 2

A 35-year-old security guard was admitted to our outpatient clinic again with symptoms of progressive right labial deviation, lagophthalmos, and ipsilateral drooling. The patient had double doses of prophylactic Sinovac/CoronaVac (China) for COVID-19 a year previously, repeated at a 4-week interval. Like Case 1, she had no history of comorbidities, including hypertension, diabetes, overweight, tick bite, trauma, medication, or SARS-CoV-2 infection. She did not complain of dyspnea, face swelling, skin rash, cough, myalgias, or diplopia. ENT findings were normal with typical laboratory and biochemistry results. Loss of right mimic muscle movement with lagophthalmos, bell phenomenon and hemifacial spasm was encountered, and the patient was evaluated as Grade-2 in the House-Brackmann classification system. The diagnosis of isolated right PRP was made, and daily oral methylprednisolone (1 mg/kg) management was

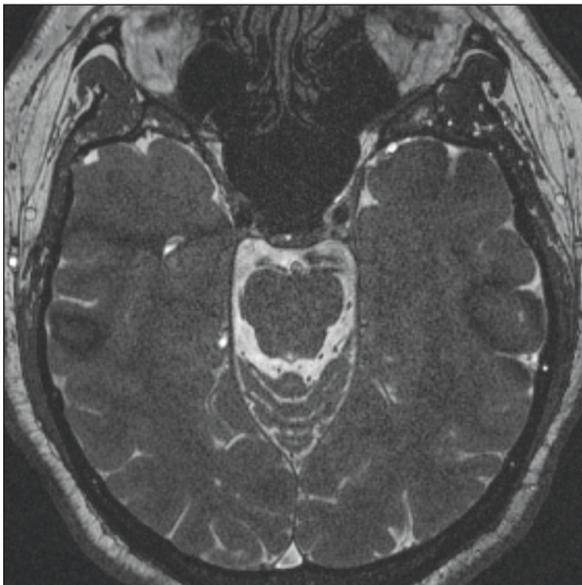


FIGURE 1: Case 1 cranial MRI.

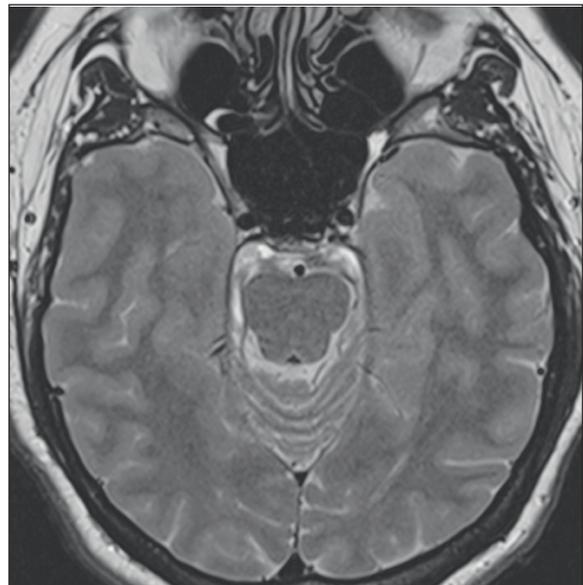


FIGURE 2: Case 1 cranial MRI.
MRI: Magnetic resonance imaging.

initiated for 14 days in a tapering approach and ophthalmic lubricant drops. The cumulative glucocorticoid dose was 320 mg.

Case 2: The Patient With Right Pfp

A week later, she applied to the pandemic outpatient clinic with complaints of weakness, cough, shortness of breath, loss of taste, hyperacusis, and ear pain. Radiologic lung imaging revealed a typical frosted glasses appearance due to COVID-19. The patient started facial physiotherapy exercises similar to Case 1.

DISCUSSION

Although COVID-19 mainly causes respiratory symptoms and manifestations, neurological involvement has previously been described in one-third of such patients. The peripheral nervous system is affected in about one-tenth of COVID-19 cases.^{8,9} SARS-CoV-2 has neuroinvasive properties with its potential for neurotropism and causes neurological damage. It has a high affinity for angiotensin converting enzyme-2 receptors, primarily expressed in the nervous system like the nasal mucosa.¹⁰ Indeed, SARS-CoV-2 reaches the central nervous system via the olfactory nerve.¹¹ Cranial, peripheral, and optic neuropathy have recently been reported as well in COVID-19 patients.¹²⁻¹⁴

Figueiredo et al. reported a case of pregnant women who developed PFP due to COVID-19 infection with no history of previous prophylactic vaccination, and Kerstens et al. presented a case of PFP developed after asymptomatic COVID-19 infection.^{12,13} However, there are no cases in the literature

regarding the development of COVID-19 following isolated PFP. We reported 2 patients with isolated PFP in which SARS-CoV-2 infection was unexpectedly found within a week even though they had been previously vaccinated twice. We thought that glucocorticoids started to treat PFP may have contributed to catching COVID-19 infection. In both of our cases, symptoms of signs of COVID-19 developed within a week after the onset of PFP and the initiation of corticosteroid management. Györfi et al. reported a case with sarcoidosis and relapse of COVID-19 on the fifth day after starting glucocorticoid therapy.¹⁴ In addition, Gianfrancesco et al. reported that using glucocorticoids of 10 mg or more could worsen SARS-Cov-2 infection in 600 patients from 40 countries.¹⁵ Our cases also support that immunosuppression with glucocorticoids may increase susceptibility to COVID-19 development.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

All authors contributed equally while this study preparing.

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