

Facial Nerve Palsy Associated With Covid-19; a Case Report

Keywords: COVID 19; Facial palsy, Bell's palsy, SARS-CoV-2

Abstract

COVID-19 is highly infectious disease and mainly causes respiratory symptoms, but revealed several neurological symptoms related to this infection. Some recent articles stated that cranial nerve dysfunction and facial nerve palsy in SARS-CoV-2-positive patients. We report the clinical manifestation of a 42 years old patient with COVID-19 who developed peripheral left side facial palsy during infection.

Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS- CoV-2), is a novel coronavirus with high potent of person-to-person transmission and thus contributing to a large outbreak of coronavirus disease 2019 (COVID-19) [1,2]. COVID-19 mainly causes fever and respiratory symptoms. Recent studies indicated that COVID-19 could also lead to nervous system symptoms, such as headache, dizziness, encephalitis, and so on [3,4].

Bell's palsy, also known as acute peripheral facial palsy of unknown cause, can occur at any age that results in a temporary inability to control the facial muscles on the affected side of the face. The cause of Bell's palsy is unknown but many believed that this is due to a viral infection [5].

In recent studies, some researchers stated that SARS-CoV-2-related infection may present with cranial neuropathies and facial nerve palsy in SARS-CoV-2-positive patients has been described both as isolated and unilateral or bilateral [4,6]. Because of corona virus is a neurotropic virus, there is the basis to consider a link between COVID-19 and facial palsy. In spite of the fact that correlation between facial nerve palsy and COVID 19 is still under study, this study is an attempt to highlight this issue. Therefore, we report the case of COVID-19 who developed peripheral facial palsy during the clinical course of Infection in this article. The study protocol was approved by the Ethics Committee of Kerman University of Medical Sciences by Code: IR.KMU.AH.REC.1399.223.

Case report

A 42 years old woman referred to our otolaryngology clinic due to left side facial drooping before one day. She had fever, cough and history of mild respiratory signs from 20 days before reference that COVID 19 was diagnosed for her based on positive SARS-CoV-2 Ribonucleic acid (RNA) Quantitative reverse transcription PCR (RT-qPCR) in nasal and oropharyngeal swabs. In addition, the chest computerized topography (CT) examination showed patchy areas of ground-glass shadows in the both lower lungs. For that diagnosed, Azithromycin and Vitamin C started for her and her symptoms were decreased but after 20 days facial palsy presented. Physical examination showed left peripheral facial paralysis without herpes zoster. According to the House-Brackmann grading system, nerve damage resulted in grade 6 dysfunction [7]. The neurological



Amizadeh M¹ and Motamed S^{1,2}

¹Department of Otorhinolaryngology, Afzalipour Faculty of Medicine, Kerman University of Medical Sciences, Kerman, Iran

²Student Research Committee, Kerman University of Medical Sciences, Kerman, Iran

*Address for Correspondence

Motamed S, Department of Otorhinolaryngology, Afzalipour faculty of medicine, Kerman University of Medical Sciences, Kerman, Iran; E-mail: smotamed2009@gmail.com

Submission: 01 March, 2022

Accepted: 15 April, 2022

Published: 18 April, 2022

Copyright: © 2022 Amizadeh M, et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

examination disclosed no abnormalities in other cranial nerves. Bitemporal High resolution computerized topography (HRCT) scan and brain magnetic resonance imaging (MRI) showed no abnormality. The C-reactive protein (CRP) level was increased. Finally, she was diagnosed with confirmed COVID-19 pneumonia complicated with Bell's palsy. Oral Corticosteroid therapy (prednisolone 60 mg/ day for 10 days and tapered four next days) started for her and the symptoms of left facial paralysis relieved after treatment.

Conclusion

COVID-19 is highly infectious disease and caused an outbreak of pneumonia spreading in the whole world. COVID-19 mainly causes respiratory symptoms but in some patients, it may present with other symptoms like gastrointestinal, cardiovascular and neurological [3,8].

Bell's palsy is the most common cranial nerve paralysis, accounts for 60 to 70% of all causes of unilateral facial paralysis. Most studies suggest that Bell's palsy related to an immune response after virus infection [5].

In some recent studies showed that peripheral facial palsy could occur during the clinical course of COVID-19 or anticipate other typical manifestations such as fever and respiratory symptoms. Wan et al. report a case of COVID-19 infection complicated with Bell's palsy with no history of fever, cough and other symptoms. Lima et al. stated in case series of eight patients of COVID-19 that facial palsy was the first symptom in three patients. Moreover, in the study that conducted in Italy with Codeluppi and et al. between February to May 2020, they reported a higher occurrence of facial palsy in the pandemic period compared to the same period of the previous year [3,9,10].

In this case, the patient diagnosed as Bell's palsy without herpes zoster. Furthermore, we found that the patient was infected by SARS-CoV-2 about 20 days before facial palsy. Therefore, it is supposed that SARS-CoV-2 infection may be associated with Bell's palsy in this patient.

Definitely, our report is too small to assume any conclusion but it

ISSN: 2380-0569

seems that the facial nerve damage might be attributed to an immune response caused by SARS-CoV-2, however needs to be further confirmed by future research.

Supportive care and oral corticosteroids are the main method of treatment. Our patients had complete recovery few weeks after treatment that suggests a good outcome when peripheral facial palsy occurs in association with COVID-19.

In conclusion, COVID-19 patients may present with Bell's palsy at initial or in the course of disease. Although there was not clear causative relationship between these two conditions, peripheral facial palsy should be added to the spectrum of neurological manifestations associated with COVID-19.

Acknowledgements

We express our appreciation to Shafa hospital staff of Kerman University of Medical Sciences, Kerman, Iran for their cooperation.

References

1. Chen N, Zhou M, Dong X, Qu J, Gong F, et al. (2020) Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet* 395: 507-513.
2. Zou L, Ruan F, Huang M, Liang L, Huang H, Hong Z, et al. (2020) SARS-CoV-2 viral load in upper respiratory specimens of infected patients. *N Engl J Med* 382: 1177-1179.
3. Wan Y, Cao S, Fang Q, Wang M, Huang Y (2020) Coronavirus disease 2019 complicated with Bell's palsy: a case report.
4. Dinkin M, Gao V, Kahan J, Bobker S, Simonetto M, et al. (2020) COVID-19 presenting with ophthalmoparesis from cranial nerve palsy. *Neurology*. 95: 221-223.
5. Zhang W, Xu L, Luo T, Wu F, Zhao B, et al. (2019) The etiology of Bell's palsy: a review. *J Neurol* 267: 1-10.
6. Goh Y, Beh DL, Makmur A, Somani J, Chan AC (2020) Pearls and Oysters: Facial nerve palsy as a neurological manifestation of Covid-19 infection. *Neurol* 95: 364-367.
7. Jw H, Brackmann D (1985) Facial nerve grading system. *Otolaryngol Head Neck Surg* 93: 146-147.
8. Deng S-Q, Peng H-J (2020) Characteristics of and public health responses to the coronavirus disease 2019 outbreak in China. *J Clin Med* 9: 575.
9. Lima MA, Silva MTT, Soares CN, Coutinho R, Oliveira HS, et al. (2020) Peripheral facial nerve palsy associated with COVID-19. *J Neurovirol* 26: 941-944.
10. Codeluppi L, Venturelli F, Rossi J, Fasano A, Toschi G, et al. (2021) Facial palsy during the COVID-19 pandemic. *Brain Behav* 11: e01939.