

Parálisis de Bell y enfermedad por Coronavirus 2019: dos casos y revisión de la literatura

Bell's palsy and Coronavirus disease 2019: two cases and literature review

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ABSTRACT

Since the first description of the new Coronavirus disease 19 (COVID 19), the number of associated manifestations described in literature have increase exponentially. The spread of virus to extrapulmonary tissues, especially to central and peripheral nervous system, concerns the physicians and suspicious of disease even in the absence of respiratory symptoms had a major impact preventing it's spread. The authors report two cases of Bell's palsy in patients infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), describing the clinical manifestations, evolution and treatments. Both patients had a mild course of COVID 19, without respiratory symptoms reported and complete resolution of facial palsy. The authors postulate an association between isolated facial palsy and SARS-CoV-2 infection reviewing the reported cases in literature and the mechanism of neuroinvasion. The authors highlights the importance of suspecting SARS-CoV-2 infection when a patient presents with isolated facial palsy.

Keywords: Coronavirus disease 2019 (COVID-19), SARS-CoV-2, Bell's palsy, steroids

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Although this virus mainly affects the lungs, other symptoms have been described. Neurological manifestations are almost resumed to olfactory and gustatory dysfunction, but other cranial nerves might be affected.

We report two cases of mild COVID-19 infections complicated with Bell's palsy.

CASES REPORT

CASE 1

A 57 year-old healthy man, presented to the emergency department (ED) with an 1 hour of right palpebral ptosis onset. He was otherwise asymptomatic, no history of facial trauma, preceding infection or other triggers were reported. On physical examination there were no other neurological deficits besides a complete right facial palsy (House-Brackman score of IV). Non oral or cutaneous lesions were seen neither ear discharge. The cerebral computer tomography (CT) was normal and the diagnose of Bell's palsy as made. He was on prophylactic isolation for a week due to direct contact with a son infected with COVID-19. A throat swab was performed and the result of real-time reverse transcription-polymerase chain reaction (PCR) was positive for SARS-CoV-2. The patient was discharged with a 5 days course of 60mg prednisolone, 7 days of valaciclovir 1g tid and initiated a rehabilitation program. He recovered completely after 1 month.

CASE 2

A 40 year-old woman, without known diseases, presented to ED with a 24 hours history of incomplete closure of right eye and flattening of nasolabial fold within 16 days after COVID-19 diagnosis. She reported anosmia since the diagnosis but there were no other symptoms like fever, rhinorrhea, headache or shortness of breath. On physical examination she presented right-side facial weakness, with flattening of forehead's skin and nasolabial fold droop, suggesting right peripheral facial paralysis (House-Brackman score of IV). The remaining clinical and neurological examination was unremarkable, and the patient was discharged with 60mg prednisolone for 5 days, 1g of valaciclovir tid for 7 days and a rehabilitation program. She recovered completely after 2 weeks.

DISCUSSION

The two cases described by the authors represent a mild course of COVID-19 with peripheral neurological impairment.

Since SARS-CoV-2 outbreak in 2019, the spectrum of reported symptoms has been increasing exponentially and COVID-19 is no longer considered merely a respiratory disease. Regarding to neurological manifestations there has been describing nonspecific symptoms such as headache and dizziness, to more specific related with central or peripheral involvement such as encephalitis, stroke and polyneuropathy¹. Considering the involvement of cranial nerves, olfactory and gustatory dysfunctions were the most frequent described, with a recent study reporting a prevalence as high as 85.6% to smell and 88% to taste disorders². Only a few case reports showed an association between facial palsy and COVID-19 infection^{3,4,5,6,7,8,9,10}.

The authors found some similarities with the reported cases. All patients had COVID-19 diagnosis based on positive SARS-CoV-2 RNA PCR on nasal swabs. Only one of the cases had been associated with severe COVID-19 course, related to myocarditis requiring intensive care admission, with the remaining associated with mild course⁴.

While the current studies report SARS-CoV-2 as a neurotropic virus, the exact mechanism of neuroinvasion is a matter of debate. Some authors propose an invasion via olfactory epithelium¹.

This epithelium expresses the angiotensin-converting enzyme 2 receptor (ACE2), where the spikes of the virus binds, reaching the brain tissue through a retrograde transfer via axon. Here the virus could have access to facial nerve causing direct lesion. Another theory suggests a hematogenous spread, with the virus attaching to ACE2 receptor on capillary endothelium, damaging the blood-brain barrier and entering the brain. In fact, this neurotropism was confirmed after the isolation of the virus in cerebrospinal fluid. Other theory is based on indirect damage related to a postinfectious immune-mediated response. Although this immune response has been described as a “cytokine storm” with systemic effects, the authors postulated a more local effect with predilection to facial nerve^{1,2}. This uncertainty about the exact underlying mechanism may explain the different time gap between symptoms onsets and the diagnosis of COVID-19. In some cases, these are simultaneous^{3,5,6,7}, but in others the symptoms appear after the laboratorial diagnose, varying between 2 to 28 days^{6,9}. In presented cases, the time between the onset of palsy and the diagnosis of COVID-19 could only be established in the second case, where a swab was positive 16 days before the presentation. On first case the COVID-19 diagnosis was concomitant with appearance of symptoms, but the infection might have occurred one week before due to high risk contact with his son. For treatment, the use of steroids in Bell’s palsy, before COVID-19, have consistent support in literature, but in association with COVID-19 only case reports describe its use^{5,6,8,10}. The use of antiviral is controversial on isolated Bell’s palsy and there is no evidence of its use when associated with COVID-19. Our cases had complete resolution of palsy. On literature, three reported cases had completed resolution without treatment^{4,5,9}.

Facial palsy can have a negative impact on personal and social well-being so further research is needed to identify its pathogenesis and establish the best treatment for patients with Bell’s palsy associated with COVID-19 disease.

The cases reported and the consistent evidence of neurotropism of SARS-CoV-2 in literature highlights the importance of its suspicion in patients with an acute neurological condition, even in absence of respiratory symptoms. Appropriated measures of personal protection and social distancing should not be dismissed in these situations.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest in this work.

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ETHICAL ASPECTS

All participants submitted a consent form to be included in this study.

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