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## Bell's palsy as a complication of covid 19 following single dose of vaccination: A Case Report

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### Abstract

**Background:** Coronavirus is highly infectious disease, mainly causing respiratory symptoms. Here, a few patients may also have neurological symptoms. Here in we report a case of covid 19 infection after single dose of vaccine complicated with Bell's palsy.

**Case Presentation:** Bell's palsy is acute peripheral facial nerve palsy: Often triggered by acute viral infection. Covid 19 infection commonly presents with respiratory symptoms but neurologic complication have been reported. A 58 year old female with History of 1 month back covaxin 1<sup>st</sup> dose vaccine. After 15 days reported covid 19 infection with HR CT Score is 12/25 and After 10 days of Covid infection she revealed RT sided Bell's palsy. This case is report discusses effect of Kabat exercises along with EMS to improve facial nerve dysfunction with outcome measure taken is House-brackmann's scale.

**Conclusion:** This case suggests that covid 19 after Vaccine may be presented with Bell's palsy it's potential cause of facial nerve dysfunction. Kabat exercises along with EMS it will improve facial nerve dysfunction.

**Keywords:** bell's palsy, facial nerve, kabat exercise, Covid 19

### Introduction

Bell's palsy is an acute LMN facial nerve palsy, sudden unilateral peripheral paralysis of facial nerve that account 75% all facial palsies. It leading to weakness on one side of face without any other neurologic abnormalities. Severe acute respiratory syndrome of Coronavirus 2 (SARS-COV-2) is novel that causes coronavirus disease 2019 (Covid 19) was first identified in Wuhan, a city of Hubei province of China, in December 2019. Bell's palsy is an acute LMN facial nerve palsy leading to weakness on one side of face without any other neurologic abnormalities. Severe acute respiratory syndrome of Coronavirus 2 (SARS-COV-2) is novel that causes coronavirus disease 2019 (Covid 19) was first identified in Wuhan, a city of Hubei province of China, in December 2019.

There are few theories on the neuropathogenesis of Covid 19, which includes the binding of coronavirus angiotensin – converting enzyme 2(ACE 2) receptors, which are widely distributed on glial cells and neuron. The mechanism lead to nerve damage through direct injury, autoimmunity and ischemia of vasa nervorum of inflammatory demyelination.

A patient with unilateral LMN facial palsy for four weeks after a diagnosis of covid-19 infection. Symptoms may differ from mild to severe, causes loss of facial movement unilaterally or bilaterally which causes resting asymmetry due to muscle weakness, eyelid drooping, hyperacusis, taste & expression changes.

Medical treatment is based on administration of Corticosteroids and several studies have shows it may be able to reduce time of recovery & occurrence of sequelae. Several process like surgical decompression of facial nerve used to release edematous nerve in bony canal, but recent Cochrane review was unable to identify any significant benefit & harm by any type of rehabilitation. In Physiotherapy treatment application of manual therapy includes Electrical muscle stimulation, LASER, Acupuncture, facial exercises which compared with clinical outcomes & rehabilitation with Kabat method showing better & faster recovery. The purpose of the study was play favorable role by Kabat physical rehabilitation.

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### Case Presentation

Shubhangi Penare 58 year old female residing in Loni. It was coming to OPD of Dr. APJAK COPT, PIMS (DU), Loni. History of 1 month back covaxin 1<sup>st</sup> dose vaccine. After 15 days reported covid 19 infection with HR CT Score is 12/25 and she was admitted in Pravara Rural Hospital in Covid center. After 3 weeks of Covid infection she revealed RT sided LMN facial palsy (House – Brachmann ‘s scale – Grade IV). Seologic screen for Lyme disease, HIV, Herpes Simplex 1 & 2 were negative for acute infection. This case is considered as a complication when managing patient’s Covid- 19 infection.

A 58 year old female with past h/o of hypertension from 6 years and since 4 days feeling weakness and difficulty in closing RT eye with bell’s phenomenon positive. She had loss of taste with breathlessness. Physical examination revealed LMN facial palsy, but no vesicles or scabs were seen around external ear and had no ulcers. MRI of Brain (Plain) MR angiography and MR venography shows no obvious interparenchymal abnormality in present scan. Facial features assessed such as:

1. Symmetry of face at rest as RT & LT sides of face appeared similar at rest.
2. Facial motion through different facial movement like snarling, smiling & lip puckering.

In our department standard facial movement like brow lift, gentle eye closure, forced eye closure, snarling, smiling & lip puckering were documented by video recording with

mobile phone as well as House-brackmann grading system shows Grade IV that is moderate severe dysfunction with obvious weakness or disfiguring symmetry of forehead, incomplete eye closure and mouth asymmetry at rest.

Kabat physical rehabilitation consist the facilitation of voluntary response of an impaired through global pattern of an entire muscular section that undergoes resistance, it started within 7 days and subject were evaluated at the end of each week defined maximal facial improvement that remain stable for 1 month follow-up. This method is extremely rationale for facial muscle since most of the fibers runs diagonally with easy irradiation to the facial region due to cross facial nerve innervations. The manipulation of three fulcra i.e. upper, immediate & lower( forehead, nose & lower chewing articulation fulcrum) which can be carried out by utilizing both contra lateral contraction & basic proprioceptive stimulation includes stretching, maximal resistance, manual contact & verbal input. Time of recovery expressed in days. Education of muscular action in following way:

1. Increased muscle activation in muscle that must move, but do not move.
2. Decreased muscle activation in muscle that do not move, but move.

The study focused on evaluating resting & voluntary muscle symmetry & improving physical & social function before & after treatment.



**Grade IV** moderately severe dysfunction of House- brackmann scale

### Discussion

Evaluation of actual efficacy of different treatment biased by several factor. Viral Infection are capable of causing facial paralysis by infecting motor neurons of brainstem, seventh nerve ganglia or through the infection of supporting cells of nerve along with secondary inflammation & edema blocking the nerve function. The exercises based on gross movement determined by contraction of muscular component of face likelihood synkinesis develop by present of facial stiffness of movement.

In 2019, new virus identified in China named Novel coronavirus was declared pandemic & closely related to SARS COV. With the dissemination of Covid 19 vaccine to general population, it will be important to monitor individual response to determine side effects and any contraindication may not been elucidated. Lina *et al.* published a case report with covid 19 developed facial nerve palsy in that mild nerve damage in three patient and modrate

nerve damage observe in five patients. Several studies agreed covid 19 is associated mostly with reduction in lymphocytes, monocytes & eosinophils & lead to immunosuppression & increased susceptibility to infection as well as reactivation. Hence, we hypothesize the probable role of Coronavirus in Bell’s palsy.

### Result

The result shows significant effect in Kabat exercises along with conventional physiotherapy management in the treatment of Bell’s palsy. The Housebrackmann score of Grade IV (moderate severe dysfunction) which shows improvement upto Grade II (mild dysfunction) with slight synkinesis after 3 weeks of period.

### Conclusion

Kabat rehabilitation is associated with severe case of Bell’s palsy affected to have faster and better recovery as include

facial rehabilitation as well as correct movement pattern leaning neurologically to recruit appropriate motor units in desire movement or expressions & recover the symmetry of movement. This study shows there might be effect of Covid 19 virus on immune status of individual along with stress induced reactivation of underlying viral infection. Hence, there is need of to evaluate confirm correlation of Bell's palsy and novel Coronavirus.

### Consent

Written informed consent was taken from patient for utilization of information & images for publication purpose.

### Ethical Clearance

It was taken by Pravara institute of Medical Sciences (DU) Loni, by Institution of ethical committee.

### Conflicts of Interest

Nil.

### Acknowledgement

I thank to patient and her relatives for their co-operation and support for proving consent of publication.

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