



**ORIGINAL RESEARCH PAPER**

**Paediatrics**

**BILATERAL FACIAL NERVE PALSY AFTER SARS COV-2 INFECTION IN PEDIATRIC PATIENT**

**KEY WORDS:** COVID -19, Facial nerve palsy, C-reactive protein, MISC

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**ABSTRACT**

COVID-19 infection has been associated with several neurologic manifestations including anosmia, acute ischemic stroke, Guillain-Barré syndrome, encephalopathy and cranial nerve involvement. Though multiple cases of unilateral facial nerve palsy have been reported but bilateral facial palsy is very rare. Our case was 12 years old female patient who presented with difficulty in closing mouth, drooling of saliva and change in voice. On examination, there was loss of bilateral nasolabial folds, nasal twang of speech and incomplete eye closure bilaterally. Laboratory reports suggested raised CRP and amylase along with positive Immunoglobulin IgG covid-19 antibodies. Magnetic Resonance Imaging of brain and neck showed no abnormality. The child was managed conservatively with supportive care, subsequent to which she gradually improved over next 4-6 weeks. To the best of our knowledge, this is the first pediatric case where SARS-COV2 infection was found to be associated with bilateral facial nerve palsy as a post covid complication. Therefore, bilateral facial palsy should be considered as one of the associations of COVID especially in the present era. A detailed history and examination should be done as it often gets missed due to bilateral involvement. All differential diagnosis should be ruled out by relevant laboratory & radiological tests. Most children are likely to recover well with supportive treatment.

**INTRODUCTION**

A worldwide outbreak of coronavirus occurred in late 2019 leading to covid-19 disease.<sup>1</sup> The typical symptoms include fever, cough, dyspnea, fatigue, and myalgia<sup>2</sup>. A lot of post covid complications, including neurological deficits have been noted in children.<sup>3</sup> Unilateral facial nerve palsy, as one of the post covid neurological complication has been reported in large number of cases around the globe, but bilateral facial palsy is a rare manifestation. We believe this the first pediatric case where SARS-COV2 infection being linked to bilateral facial nerve palsy as a post-covid consequence.

**CASE REPORT**

A 12-year-old female child presented in pediatrics OPD with a history of inability of closure of mouth & bilateral eyes with difficulty in chewing, and speech for 7 days and pain abdomen (generalized, non-radiating, intermittent) for 2 days. Patient gave a past history of fever 20 days back associated with headache, cough cold and bilateral parotid swelling lasting for 5-7 days. There was no history of traumatic head injury, nausea, vomiting, impaired vision, ear discharge, tinnitus, giddiness, blood transfusion, or sexual promiscuity.

On examination, child was afebrile with a pulse rate of 84 bpm, respiratory rate 18/min with no distress, and blood pressure of 114/76 mm Hg on right arm in supine position. There was no parotid gland enlargement, lymphadenopathy or thyromegaly. On neurological examination higher mental functions were normal. Cranial nerves examination revealed bilateral lower motor neuron type facial nerve palsy with inability to close bilateral eyes and frown, inability to inflate mouth and presence of slurred speech. Other cranial nerves examination was normal. Motor, sensory and cerebellar functions were also within normal limits. The abdomen was soft on palpation with mild tenderness in the left upper

abdomen but no organomegaly. Ear nose and throat examination was normal. Other system examination was also within normal limits.

Blood investigations revealed raised CRP, transaminitis and serum amylase and lipase suggestive of pancreatitis (Table 1). A possibility of mumps infection was kept and supportive treatment started. Ultrasonography of abdomen reveals pancreas normal in size and echogenicity.

Magnetic Resonance Imaging (MRI) brain and neck was normal. Pure tone audiometry revealed mild conductive hearing loss on the right side. X-ray chest was normal though X-ray paranasal sinuses showed bilateral maxillary sinusitis. Surprisingly, IgM antibodies for Mumps were negative. Other infections with similar presentation were then considered and worked up. Herpes simplex virus 1 and 2 IgM antibody, HIV, Tuberculosis work up and varicella antibody were negative. A possibility of Covid infection was also considered. SARS-COV2 RTPCR was negative but covid IgG antibodies were strongly positive. As child was afebrile, a possibility of MISC was not considered as one of the differentials. Echocar diogram (echo) revealed no abnormality.

Patient was managed conservatively, kept nil per oral initially and started on intravenous fluid and antibiotics. Patient shows gradual improvement. Abdominal pain improved over next 24 hours and soft diet was introduced gradually under close monitoring. Repeat CRP after 48 hours showed a falling trend. The symptoms of epiphora and slurring of speech started improving in 5-7 days. Inflammatory markers gradually improved. She improved significantly over next four weeks and she was able to close her eyes and mouth without efforts. A final diagnosis of post covid bilateral facial palsy was made. Steroids were not added as child reported after 48-72 hours of

onset and also improved significantly with normalization of reports by the time diagnosis was established.

**DISCUSSION**

COVID-19 infection has been associated with several neurologic manifestations such as anosmia, Guillain-Barré syndrome, cranial nerves palsies and encephalopathy. Many of the pediatric patients may remain asymptomatic inspite of covid-19 infection.<sup>4</sup> Pediatricians seeing patients with these neurologic manifestations should consider COVID-19 as a differential diagnosis especially during the COVID-19 pandemic. Facial nerve palsy has also been reported as a post-viral sequelae of Covid-19.<sup>5,6</sup> Though facial nerve palsies have typically been noted in the ages of 15 and 45 years but pediatric patients have also been reported.<sup>7</sup> Bilateral facial palsy is a rare complication with no cases reported from pediatric age group. To the best of our knowledge, we are reporting first such case from India.

Facial nerve palsy may be idiopathic, but simultaneous bilateral facial palsies virtually exclude a diagnosis of bell's palsy. Occasionally bilateral facial palsy may be missed for many days simply because there is no asymmetry of face. As our case had a history of bilateral parotid swelling, so we initially had a strong suspicion of mumps as the most likely cause of facial nerve palsy, though bilateral facial palsy has not been documented in mumps as well. Hence mumps serology along with other common cause of facial palsy including herpes and varicella were excluded. Surprisingly mumps antibody turned out to be negative along with negative reports for Herpes and varicella antibody. As patient history and symptoms were not consistent with lyme disease, so it was excluded on clinical grounds. In view of significant febrile illness 20 days back and present complains of facial palsy, parotid swelling and pancreatic involvement, a possibility of post covid-19 infection sequelae was considered for which covid antibody was sent and found highly positive. As there was no recent fever, MISC was not considered as one of the etiologies and child was managed conservatively, to which she responded well over next one week. Neurological examination further improved gradually over 6 weeks. In a study conducted in Italy in 2020, they noted that 21% of the total patients who presented with facial palsy had positive covid antibody reports suggesting its casual association.<sup>6</sup> In another study by Hogg et al published in 2021, increased incidence of bell's palsy in children was reported among multiple centers during the covid era suggesting it as a post viral sequela.<sup>7</sup> Several cases of facial nerve palsy post covid infection sequelae has been reported across the globe in all age groups<sup>(8-12)</sup> but bilateral facial palsy in pediatric age group is not yet reported.

**CONCLUSION:**

SARS-CoV-2 should be considered as a potential trigger of facial nerve palsy. This potential risk should be considered by clinicians when treating COVID-19-positive patients regardless of their severe respiratory condition. Due to the significant number of neurological disorders induced directly or indirectly by SARS-CoV-2, neurological physical examinations should be routinely performed in all children visiting to hospital.

**Table 1: Laboratory investigations.**

Test	Results
Hemoglobin	12.1 gm/dl
Total leucocyte count	9500/c mm <sup>3</sup>
Packed cell volume	37.1%
Differential leucocyte count	Neutrophils-65% Leucocyte-28% Monocyte-5% Eosinophil-2%
C-reactive protein (CRP)	33.8 mg/L
Platelet count	327000

Serum Lipase	345.3u/l
Ferritin	47.5ng/ml
SARS-COV-2 Total Antibody	1.28 (Positive)
Mantoux test	negative
Urine culture	No growth
SARS-COV-2 virus qualitative	negative
X-ray Chest and cervical spine	Normal study
Ultrasound whole abdomen	Normal
MRI neck	Normal
Herpes simplex virus 1&2 gm	.003 (negative)
Mumps IgM antibody	0.85 (negative)

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