

UNILATERAL VOCAL CORD PARALYSIS POST COVID-19 INFECTION: A CASE REPORT

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ABSTRACT

Late-onset neurological complication post-SARS-COV-2 infection is an atypical feature of COVID-19 infection. Vocal cord paralysis is one such complication that can cause symptoms ranging from mild hoarseness of voice to severe dyspnoea requiring mechanical ventilation. In this case report, we describe a 51 years old male with sudden onset of hoarseness of voice six months after recovery from COVID-19 pneumonia without endotracheal intubation and no history of respiratory or any other new illness in between. Nasopharyngolaryngoscopy revealed the left vocal cord paralysis, and a CT scan showed fibrosis, an air cyst in the upper lobe of the left lung, and bilateral lung diffuse ground glass opacity. There was no significant improvement in voice on treatment with prednisolone for nine days and speech therapy. Thus, unilateral vocal cord palsy can present as sequelae of COVID-19 pneumonia.

KEYWORDS

COVID-19, unilateral, vocal cord

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INTRODUCTION

SARS-COV-2 virus primarily affects the respiratory system, however, reports have shown neurological manifestations during and after infection as well.¹ The distinguishable feature of COVID-19 infection from other upper respiratory tract infections is its neurotropic effect through the ACE2 receptor.² There have been a few cases of vocal cord palsy with COVID-19 infection as the only clear cause reported.³ Here, we report a case of unilateral vocal cord palsy six months after recovery from severe COVID-19 pneumonia with no other risk factors or illness in between.

CASE REPORT

51 years old male with a history of gouty arthritis, hypertension, and diabetes mellitus II and denied having any respiratory disease

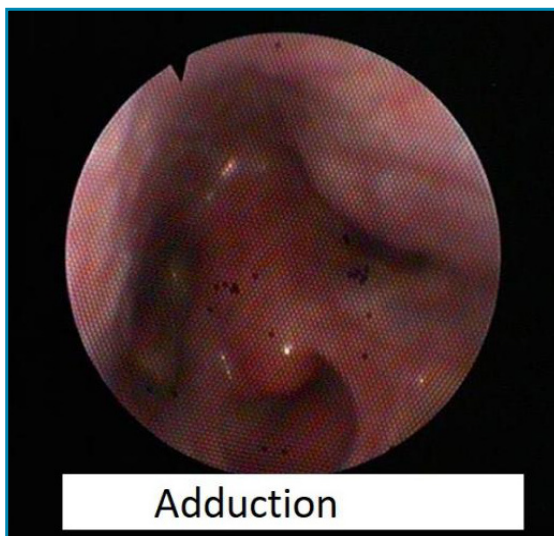


Fig. 1: Adduction of the vocal cords

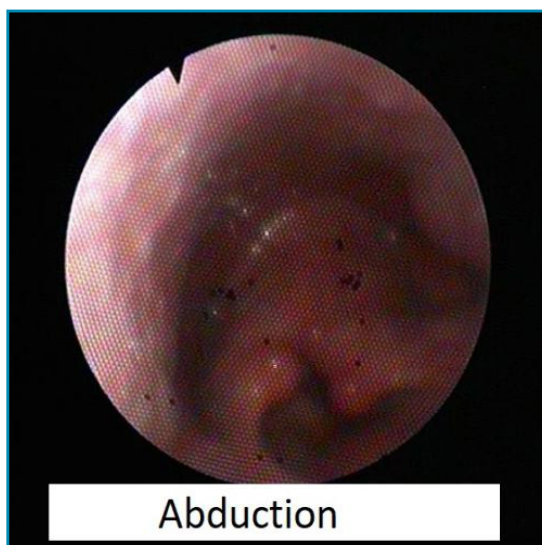


Fig. 2: Abduction of the vocal cords

in the past except for COVID-19 infection in the last six months confirmed by PCR. He presented to our otorhinolaryngology outpatient department with a complaint of hoarseness of voice, six months after recovery from COVID-19 pneumonia for which he was admitted to ICU for two months and was given respiratory support through a nasal mask. However, no endotracheal intubation was done thus eliminating any possibility of trauma-related etiology. The patient had a long history of alcohol consumption and chewing tobacco for the last 30 years until he became severely ill with a COVID-19 infection. There was no history of any surgery in the past.

The patient was then asked to undergo nasopharyngolaryngoscopy which revealed left vocal cord paralysis as shown in figure 1 and 2 and was also asked for a CT scan of the neck and chest to rule out any evidence of malignancy that could have caused the paralysis. CT scan of the chest revealed fibrosis with minimal bronchiectasis and an air cyst in the left upper lobe. There was also diffuse ground glass opacity in the bilateral lung. Speech therapy was initiated and was prescribed prednisolone for nine days. However, there was no significant improvement in voice quality.

DISCUSSION

The most common aetiologies of vocal cord paralysis are idiopathic, neoplasm, and surgical intervention accounting for 31.1%, 31.1%, and 28.9% respectively.⁴ There are 1.4-2.5 times as many reports of left vocal cord paralysis as right.⁴ It has been hypothesized that viral aetiologies account for a major portion of idiopathic causes.⁵ This has also been supported by retrospective research that found a connection between the high rate of viral upper respiratory tract infections and idiopathic instances of vocal cord paralysis.⁶ This has been criticized as well since only 8% of vocal cord paralysis was associated with viral infection as per a study.⁷

Currently, the most accepted theory regarding the neurotropism of novel coronavirus is by the mechanism of the ACE2 receptor, which has been discovered as the functional receptor for SARS-COV-2. ACE2 receptor is expressed by many human tissues mostly by type II alveolar cells and to some extent by glial cells, neurons, capillary endothelium, heart, kidney, and testicles making them potential targets for the COVID-19 virus.⁸ Two types of complications are caused by the coronavirus: central and peripheral neurological

complications. Headaches, altered degrees of awareness such as stupor, coma, delirium, ataxia, severe cerebrovascular illness, and seizures are CNS-based neurological symptoms whereas the common peripheral neurological complications are anosmia/hyposmia, ageusia, and chemosensory dysfunction.² Left recurrent laryngeal nerve palsy is an uncommon peripheral neurological symptom. A few cases of unilateral vocal cord paralysis^{9,10} and bilateral vocal cord paralysis¹¹ presumed to be related to COVID-19 were presented in a recent paper.

As the patient's CT scan also revealed fibrosis on the left upper lobe, it can be considered a possible mechanism since fibrosis might exhibit its traction effect on the Left recurrent laryngeal nerve resulting in left vocal cord

paralysis due to its long course in the thorax than right recurrent laryngeal nerve. With CT scans ruling out injury and other recognized causes like malignancies, the SARS-COV-2 virus is most likely to blame for the patient's vocal cord paralysis either due to its neurotropic effect or by causing pulmonary fibrosis.

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