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COVID -19 and sudden sensorineural hearing loss, a case report

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Introduction

The Coronavirus disease-2019"COVID-19" pandemic is caused by novel Corona Virus-2019 (nCoV-19). The outbreak was identified in Wuhan, China, in December 2019 [1]. The World Health Organization has declared the outbreak a Public Health Emergency of International Concern on 30 January and a pandemic on March 11, 2020 [2]. As of may 1, 2020, more than 3.5 million cases of COVID-19 have been reported in over 187 countries and territories, resulting in more than 250, 000 deaths [3].

The clinical symptoms of this disease may appear 2–14 days after exposure (based on the incubation period of COVID-19 virus). These symptoms include fever, sore throat, cough, myalgia and some patients had gastrointestinal infection symptoms [4]. The elderly people with comorbidity are more susceptible to infection and prone to serious outcomes, which may be associated with acute respiratory distress syndrome (ARDS). Neurological symptoms such as sudden loss of smell and taste also was reported in a significant number of COVID-19 patient [1-5].

Sudden sensorineural hearing loss (SSNHL) is defined as sensorineural hearing loss of 30 dB or greater in at least three consecutive frequencies occurring over 72 hours. Some viral infections can cause SSNHL that can be congenital or acquired, unilateral or bilateral. Viral infections has been proposed as a cause of SSNHL through damage of inner ear structures or by precipitating inflammatory responses which then cause this damage [4,6].

Case report

A written informed consent has been obtained from the study participant. On April 11 a 52-year-old male physician declared close contact with a confirmed COVID-19 case. He was isolated and nasopharyngeal swab for nCoV-19 PCR was obtained. On April 15 PCR result was obtained and it was positive for nCoV-19. 3 days later he was referred to ENT clinic because he complained of sudden onset left-sided hearing loss that was preceded by gradually worsening tinnitus. The patient has no ear pain, discharge, dizziness nor vertigo. He had no history of head trauma or ototoxic medications during isolation.

Otoscopic examination revealed bilateral normal external auditory canals and tympanic membranes. Tunning for tests demonstrated bilateral positive Renne test while Webber test lateralized to right side. There was no other focal neurological deficit.

The patient was discharged on April 26 after two negative respiratory swabs. Audiometry was done that revealed right normal hearing level and left severe sensorineural hearing loss (Fig. 1) with bilateral type A impedance audiometry.

Full blood count was normal, CPR was high (27.81) while viral serology markers for cytomegalovirus, HIV, hepatitis B and C and syphilis serology were negative. Autoimmune screening was performed and it was also negative for antinuclear antibodies.

Pre and post contrast MRI of the brain revealed normal intracranial appearances; specifically, no abnormalities were seen at the internal auditory meatus or cerebellopontine angles.

Intra-tympanic injection of corticosteroid (methylprednisolone 40 mg/ml) under local anesthesia was carried out on three sessions with 5 days apart [7,8].

Follow up pure tone audiometry done one week after last session of intra-tympanic injection that revealed improvement of hearing level (Fig. 2).

The patient was scheduled for another session of intra-tympanic injection and his general condition was very good.

Discussion

In this case, the patient did not present by the typical characteristics symptoms of COVID-19 like fever, cough, expectoration, but sudden loss of hearing was the only presenting symptom. In addition, no abnormal laboratory or radiological testing (except positive PCR for COV-1 9 and high CRP, mostly due to COVID19 infection) that could explain the cause of such hearing loss.

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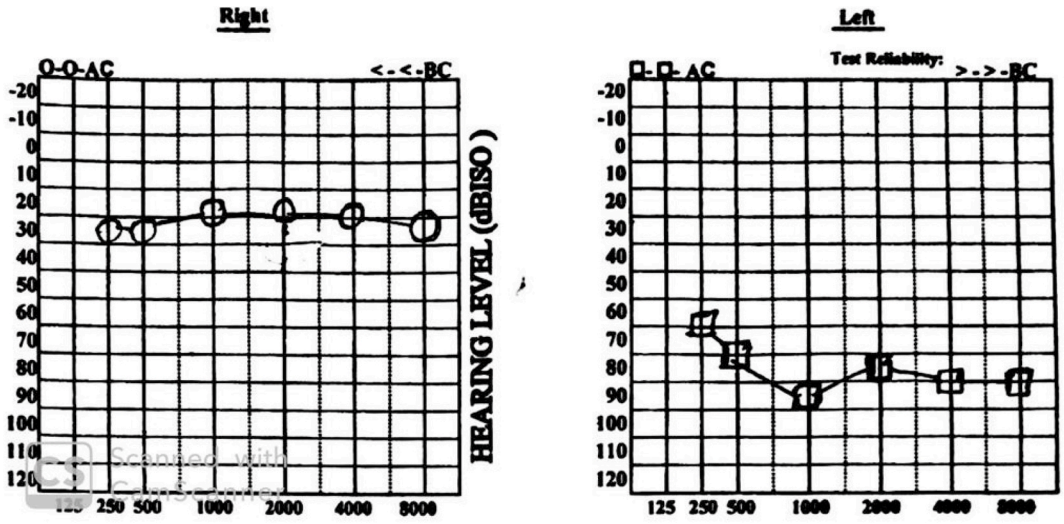

Fig. 1. Diagnostic pure tone audiometry.

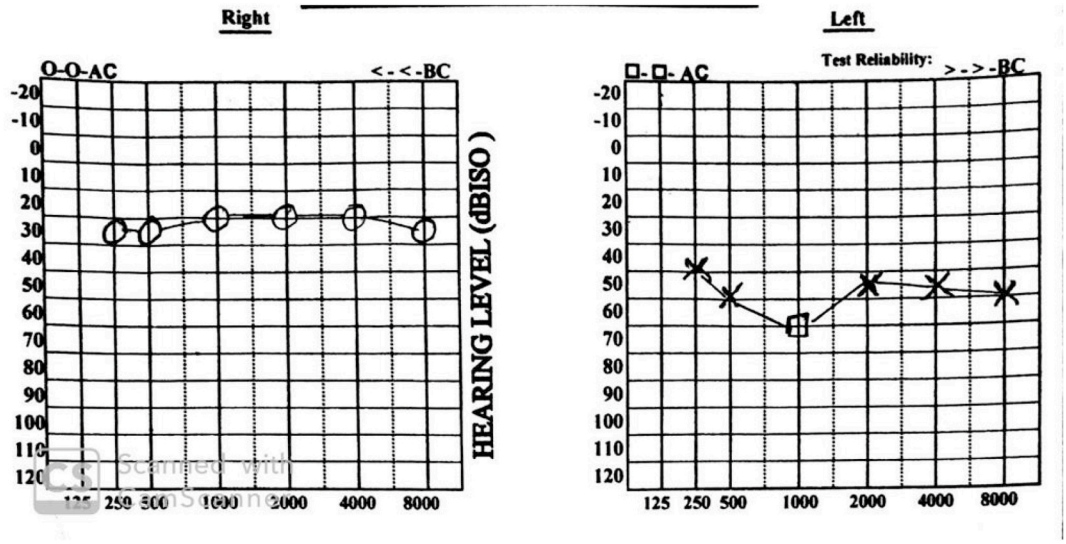

Fig. 2. Follow up audiometry.

SSNHL is an emergent otolaryngology disorder and early management is required, but there was a great challenge because Up to the time of writing this case report, there is little documenting how otolaryngology departments should approach otolaryngologic diseases in patients infected with COVID-19.

For the management of this case we preferred intra-tympanic corticosteroid injection as there is controversy about the use of systemic steroid in the treatment of COVID-19 patients.

Mostafa MWM has conducted a study to compare the amplitude of transient evoked otoacoustic emissions and latencies of vestibular evoked myogenic potentials between asymptomatic COVID-19 PCR-positive patients and normal non-infected subjects and concluded that COVID-19 infection could have deleterious effects on cochlear hair cell functions [9].

Sriwijitalaia W and Wiwanitkitb V preliminary reported that acase, an old female, has sensorineural hearing loss was recorded in Thailand and she was cared by standard respiratory care and recovery with no observation on change of hearing loss problem [10].

Conclusion

COVID-19 should be taken into consideration in patients presented with sudden hearing loss nowadays. Much work up for understanding the pathogenesis and auditory complications of this challenging disease still extremely needed next days.

Declaration of competing interest

The authors whose names are listed immediately above certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript Yours Sincerely.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.xocr.2020.100198.

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