

KORONAVİRÜS HASTALIĞI (COVID-19) İLE EŞ ZAMANLI ANİ SENSÖRİNÖRAL İŞİTME KAYBINDA İNTRATİMPANİK STEROİD TEDAVİSİ

INTRATYMPANIC STEROID THERAPY IN SUDDEN SENSORINEURAL HEARING LOSS CONCURRENT WITH CORONAVIRUS DISEASE 2019 (COVID-19)

Ecem Sevim AKI¹ Enes AYDIN¹ Abdullah DALGIC²

¹Sağlık Bilimleri Üniversitesi, İzmir Bozyaka Eğitim ve Araştırma Hastanesi, Kulak Burun Boğaz Kliniği, İzmir

²Sağlık Bilimleri Üniversitesi, İzmir Tıp Fakültesi, Kulak Burun Boğaz Kliniği, İzmir

Anahtar Sözcükler: İntratimpanik steroid, Koronavirüs Hastalığı, sensorinöral işitme kaybı

Keywords: Coronavirus disease, intratympanic steroid, sensorineural hearing loss

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ÖZ

Giriş: SARS-CoV-2 pandemik hastalığa neden olan yeni bir virüsdür. Enfekte hastalarda genellikle ateş, öksürük ve solunum sıkıntısı gibi semptomlar görülse de atipik semptomlarla da karşımıza çıkabilmektedir. Virüslerin ani sensörinöral işitme kaybına neden olabileceği bilinmektedir. Ancak SARS-CoV-2 ve ani işitme kaybı arasındaki ilişki henüz netlik kazanmamıştır.

Olgu: Bu raporda SARS-CoV-2'nin neden olduğu Koronavirüs Hastalığı (COVID-19) ile eşzamanlı sol kulakta ani sensörinöral işitme kaybı ortaya çıkmış 54 yaşında kadın olgu sunulmaktadır. Laboratuvar tetkikleri ve radyolojik incelemede işitme kaybını açıklayan spesifik bir neden saptanmamıştır. İntratimpanik steroid tedavisi uygulanan hastanın işitme kaybında herhangi bir iyileşme gözlenmemiştir.

Sonuç: Ani sensörinöral işitme kaybı, COVID-19'un otolojik bir bulgusu olabilir. COVID 19 ile birlikte ani işitme kaybı saptanmış olguların tedavi planlamasında bir görüş birliği bulunmamakta ve ileri çalışmalara ihtiyaç duyulmaktadır.

SUMMARY

Background: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a novel virus that causes a pandemic disease. Although infected patients usually have symptoms such as fever, cough and respiratory distress, this disease may also present with atypical symptoms. It is known that viruses can cause sudden sensorineural hearing loss (SSNHL). However, the relationship between SARS-CoV-2 and SSNHL has not yet been clarified.

Case: This paper presents a case of 54-year-old female who has left SSNHL concurrent with Coronavirus Disease 2019 (COVID-19). Laboratory tests and radiological examination did not reveal a specific cause explaining the hearing loss. No improvement was observed in the hearing loss of the patient who was treated with intratympanic steroids.

Conclusion: SSNHL may be an otologic manifestation of COVID-19. There is no consensus on the treatment planning of cases with sudden hearing loss with COVID 19 and further studies are needed.

INTRODUCTION

Coronavirus Disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was detected in Wuhan, China in December 2019 and spread rapidly (1). The virus is transmitted from human to human via droplet or direct contact with the mucous membranes of the mouth, nose, and eyes. The symptoms are fever, cough, dyspnea, headache, muscle pain, sore throat, diarrhea, anosmia and ageusia (2).

There are limited documented reports of otological manifestations of COVID-19. The first note on the link between SARS-CoV-2 and hearing loss was stated by Sriwijitalai in April 2020, and then limited cases who have detected a hearing loss with COVID-19 were reported in the literature (3-5). There is not enough information about the treatment of new-onset hearing loss with COVID-19.

CASE

A 54-year-old female patient was admitted to otolaryngology department with the complaint of sudden onset hearing loss and tinnitus in the left ear. It was learned that she had upper respiratory tract infection symptoms for 3 days and then hearing loss started. The patient had no known metabolic disease. There was not additional complaints such as fever, dispnea, muscle pain and diarrhea. Otosopic examination was normal, there was only minimal discharge in the bilateral nasal cavity and hyperemia in the pharynx.

Pure tone audiogram, tympanometry and PCR test for COVID-19 were requested from the patient on the same day. In pure tone audiometry, severe sensorineural hearing loss with flat type curve affecting all frequencies from 250 Hz to 8000 Hz was detected in the left ear. Hearing in the right ear was within normal limits (Figure 1). The patient was subjected to additional examination with ear MRI (magnetic resonance imaging) and laboratory tests. The result of the PCR test was awaited before starting the medical treatment. In the evening on the same day, the PCR test was reported as positive

and it was decided to start intratympanic steroid therapy for the patient.

When the results of the patient's imaging and laboratory tests are examined, there was only mild leukocytes and CRP elevation due to COVID-19. No pathology was detected in the inner ear and internal auditory canal with MRI and autoimmune markers were negative. Influenza was reported as negative in viral screening. Intratympanic steroid treatment was performed to the patient for 5 times in total, every other day and no improvement in hearing loss was observed in control pure tone audiograms (Figure 2).

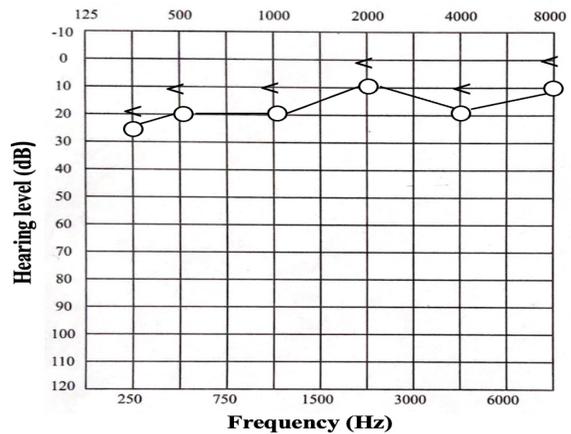


Figure 1a. Initial hearing level for right ear.

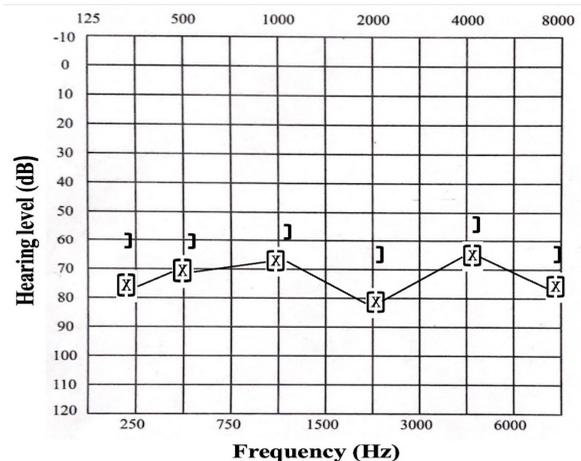


Figure 1b. Initial hearing level for left ear.

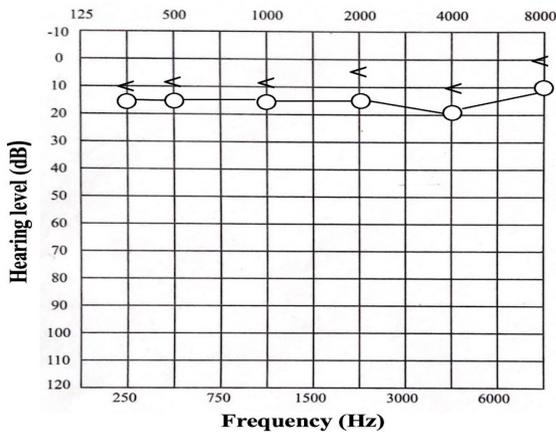


Figure 2a. Follow-up hearing level for right ear.

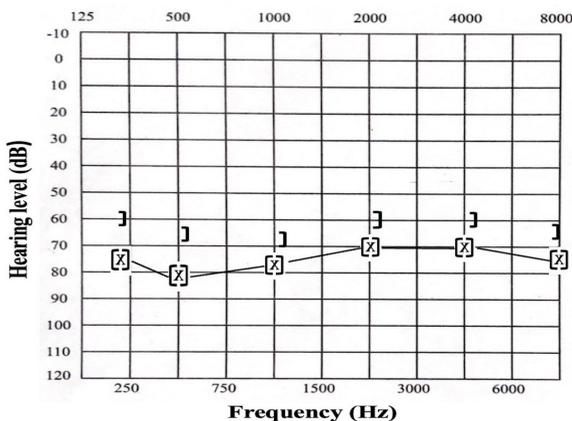


Figure 2b. Follow-up hearing level for left ear.

DISCUSSION

Sudden sensorineural hearing loss (SSNHL) is defined as a hearing loss of at least 30 dB in at least three consecutive frequencies that has occurred within 72 hours (6). It was first mentioned by Sriwijitalai in the literature that SARS-CoV-2, the infection could cause sensorineural hearing loss and this idea has been strengthened by the increasing number of case reports over time (3-5). Although the link between SARS-CoV-2, and SSNHL has not yet been clarified in the literature, many theories have been put forward to explain this relationship. Direct invasion of the cochlear nerve and cochlea, hematogenic and perilymphatic transmission to the inner ear, ischemia and hypoxia due to microthrombosis in the cochlea or temporal lobe are the most prominent among these theories (7).

It is still unclear when the hearing loss that may accompany the symptoms of COVID-19 will occur, and this issue is tried to be clarified with the reported case reports. Except for asymptomatic cases in which COVID-19 was detected incidentally, the onset of SSNHL was observed earliest 12 days after the COVID-19 symptoms, and this period extended up to 47 days. Based on this, it was stated by Beckers et al that SSNHL is more likely to occur in the downwards phase of SARS-CoV-2 infection (8). However, the occurrence of SSNHL on the 3rd day following the COVID-19 symptoms in this case refutes this hypothesis and has the characteristic of case in which SSNHL develops as soon as possible after the COVID-19 symptoms.

In the literature, there is no common opinion on the treatment of hearing loss in cases of SSNHL detected concurrent with COVID-19 and It is seen that very few of the presented case reports mention the treatment and outcomes of hearing loss (4,5,8). Corticosteroids are medical agents frequently used in the treatment of sudden hearing loss, but their use in COVID-19 is controversial as they can delay viral clearance and increase the severity of infection (9). Lang et al. administered oral prednisolone treatment to a 30-year-old female patient whose COVID-19 symptoms regressed and who subsequently developed sudden hearing loss in her right ear, but they did not observe any improvement in hearing loss (10). Koumpa et al observed hearing loss after extubation in a patient who was intubated due to respiratory distress related to COVID-19, and observed partial improvement with oral prednisolone and intratympanic steroid therapy (4). Degen et al. detected deafness in the right ear and severe sensorineural hearing loss in the left ear in the late period of COVID-19, and they performed a cochlear implant surgery in their case because of failure to respond to medical treatment (5). In our case, SSNHL was detected in the early period of COVID-19. Oral or intravenous steroids were not administered to this patient, considering that it may change the course of the disease and increase its severity in the early period. Intratympanic steroid was applied as primary treatment without wasting time, but no improvement in hearing was observed with 5 doses of intratympanic steroid treatment in the patient.

CONCLUSION

The effects of COVID-19 and its possible sequelae are still the subject of research. It should not be forgotten that SSNHL may be a

symptom of this disease and patients should be evaluated in this respect. Further studies are needed to determine the treatment protocol and to establish a common consensus in SSNHL concurrent with COVID-19.

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Corresponding author

Ecem Sevim AKI (Specialist M.D)
University of Health Sciences
Izmir Bozyaka Education and Research Hospital,
Department of Otorhinolaryngology/Head and Neck Surgery
Izmir, Turkey
Address: Saim Cikrikci Street, number: 59
Karabaglar, Izmir, Turkey.
Postal code: 35170
Phone: 90 554 809 67 39
E-mail: ecem.longur@gmail.com
ORCID: 0000-0001-6256-2015

Enes AYDIN (Asistant, M.D) ORCID: 0000-0003-3413-0535
Abdullah DALGIC (Associate Professor M.D) ORCID: 0000-0002-6958-4169