Editorial

TİNNİTUS DEVELOPİNG SİMULTANEOUSLY WİTH COVİD-19: 3 CASES

Mehmet CAN[1], Zehra AYDOĞAN[2], Emre SÖYLEMEZ[3], Kürşad KARAKOÇ[4], Suna TOKGÖZ YILMAZ[5]

Abstract

Although COVID-19 is generally characterized by symptoms such as high fever, cough, loss of taste and smell, and shortness of breath, it can also cause auditory symptoms. In this letter, we presented 3 cases of tinnitus after COVID-19 and our intervention.

Keywords: Tinnitus, Covid-19, Audiology, Hearing.

[1] PhD Student, Ankara University, Health Science Faculty, Department of Audiology, Ankara, Türkiye, mehmtcan027@gmail.com, ORCID: 0000-0001-5979-0439.
[2] PhD, Ankara University, Health Science Faculty, Department of Audiology, Ankara, Türkiye, zehraayaz@yahoo.de, ORCID: 0000-0003-4185-0063.
[3] PhD Student, Ankara University, Health Science Faculty, Department of Audiology, Ankara, Türkiye, emresylmz28@gmail.com, ORCID: 0000-0002-7554-3048.
[4] PhD Student, Ankara University, Health Science Faculty, Department of Audiology, Ankara, Türkiye, kursadkarakoc@gmail.com, ORCID: 0000-0001-7874-2029.
[5] **Corresponding Author:** PhD, Ankara University, Health Science Faculty, Department of Audiology, Ankara, Türkiye, sunayilmaz11@gmail.com, ORCID: 0000-0002-4656-099X.

Makale gönderim tarihi: *16.11.2022*
Makale kabul tarihi: *01.02.2023*

Künye Bilgisi: Can, M., Aydoğan, Z., Söylemez, E., Karakoç, K., Tokgöz Yılmaz, S. (2022). Tinnitus Developing Simultaneously With Covid-19: 3 Cases. *Selçuk Sağlık Dergisi,* 4(1), 116 – 120.

Covid-19 İle Eş Zamanlı Gelişen Tinnitus: 3 Vaka

Özet

COVİD-19 genel olarak yüksek ateş, öksürük, tat ve koku kaybı, nefes darlığı gibi semptomlarla karakterize edilse de işitsel semptomlara da neden olabilmektedir. Bu mektupta COVİD-19 sonrası tinnitus gelişen 3 vakayı ve uyguladığımız müdahaleyi sunduk.

Anahtar Kelimeler: Tinnitus, Covid-19, Odyoloji, İşitme.

Dear Editor,

Although COVID-19 is generally characterized by symptoms such as high fever, cough, loss of taste and smell, and shortness of breath, the literature has stated that it can cause various extrapulmonary, sensory and neural complications such as auditory and vestibular disorders (Jafari et al., 2022:1). In the early stages of the epidemic, COVID-19 was often associated with sudden and high-frequency hearing loss but, the relationship mechanism between the two is still not fully elucidated (Mustafa, 2020;1 Meng et al., 2022:2). We would like to report 3 cases who developed tinnitus concurrently with COVID-19, although neuro-otological examination and there was no noise exposure history. In two cases, 38 and 35 years old, male and without chronic disease, mild symptoms were observed during the covid 19 process and tinnitus started after the disease was over. In the first case, had a tinnitus in the right ear, while in the second case had it in his left ear. Although patients hearing thresholds, loudness discomfortable level (LDL), and speech discrimination (SD) scores were at normal levels, they had a decrease in pure tone hearing thresholds towards higher frequencies. (Figure 1A and 1B). Their pitches of the tinnitus were 8 kHz, and the tinnitus loudness were 25 and 18 dB according to the tinnitus matching and no residual inhibition (RI). First patient's tinnitus discomfortable level was 5 (very high), second patient's was 1 (very mild) according to the Tinnitus handicap inventory (THI). The discomfort levels were 7 and 4 according to the Visual Analogue Scale (VAS). The patients were counselled about tinnitus and followed up.

A 52-year-old female patient with hypertension and high cholesterol level was our third case. As in other cases, this one had mild symptoms during the Covid 19 infection. She did not have any audio-vestibular complaints such as hearing loss and tinnitus before COVID-19, and she stated that tinnitus developed after COVID-19 and sometimes had imbalance problems (figure 1C). In the tinnitus mathcing, the tinnitus pitch was 12.5 kHz, and the loudness was 35 dB. THI level was 1, and VAS was 8.

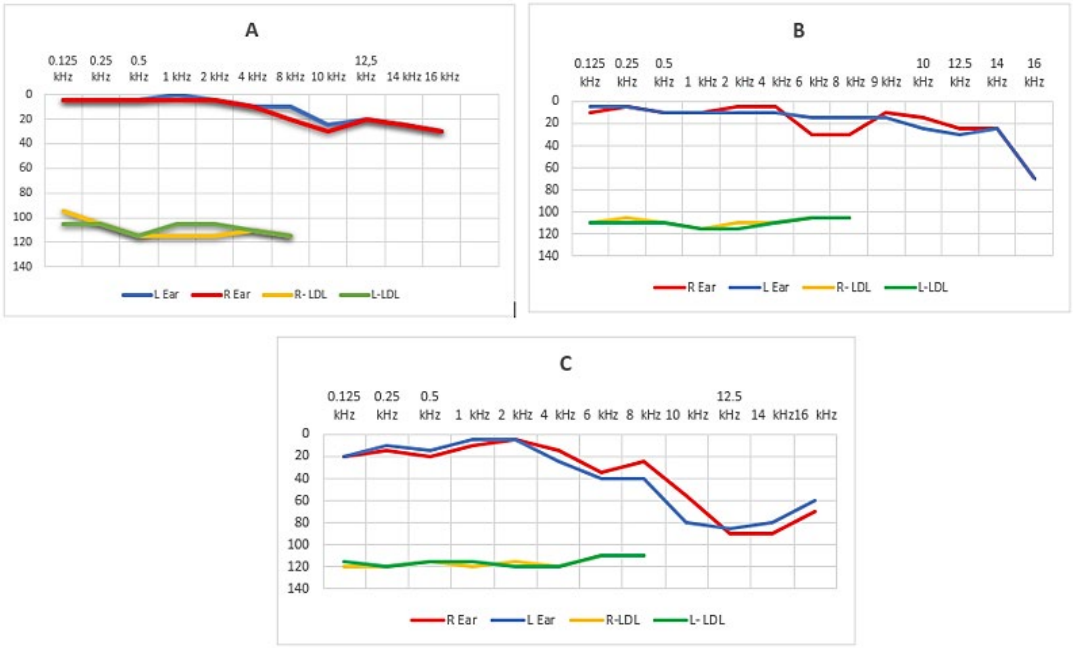

Figure 1: Pure tone air conduction hearing thresholds and loudness uncomfortable level of the cases.

A: Case 1, B: Case 2, C: Case 3.

This patient had partial RI. Sound therapy was applied to the patient along with counselling, and follow up evaluation was recommended.

Viral infections can damage the cochlea and cause spontaneous activity changes in the auditory pathways. The change in spontaneous activity can increase the activity of excitatory synapses and decrease the strength of inhibitory synapses (Turrigiano, 1999:2). Interruptions due to a lack of input like this can lead to the formation of new neural networks and tinnitus (Møller, A. R et al 2010). In our 3 cases, the pure tone averages (PTAs) were within the normal range. However, a deterioration was observed in the high frequency hearing thresholds of the 2nd and 3rd cases. The decrease in high frequency hearing thresholds reflects damage of the sensitive basal part of the cochlea and this damage may be considered as a potential cause of tinnitus in our cases. COVID-19 has generally increased individual' psychiatric disorders such as anxiety and stress (Huang and Zhao, 2022:4). Increasing stress and anxiety can cause tinnitus or increase the existing tinnitus level. Since both PTA and extended high frequency

hearing were normal for the first case, but the tinnitus severity and discomfort level were relatively high, it was thought that the cause of the patient's tinnitus might be due to psychiatric factors.

Tinnitus may be associated with many etiologies. In patients reporting tinnitus concurrently with COVID-19, extended high frequencies should be evaluated in addition to conventional audiometry tests frequencies. It is inferred from the presented cases that tinnitus can be developed in individuals who have mild COVID-19 symptoms; however, more studies by increased sample size are needed to be performed in order to clarify the association between tinnitus and COVID-19.

Compliance with Ethical Standards

Conflict of Interest Statement

There is no conflict of interest between authors.

Funding Sources

There is no financial support or funding for this study.

Ethical Approval

Written informed consent was obtained from all cases.

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