Canadian Audiologist
The Official Publication of the Canadian Academy of Audiology

# Disposing of Cerumen from Patients with a Positive History of COVID-19

Published March 9th, 2022

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This article addresses the current cerumen disposal practices used by audiologists with patients who have a positive history of COVID-19.

We have experienced and learned much about the SARS-CoV-2 virus or COVID-19 in the past 12 months. For audiologists (and staff), use of personal protective equipment (PPE) is now standard practice. For audiologists performing cerumen removal procedures, extra precaution will still need to be taken.

There are several unknowns that, hopefully, should have answers soon. For audiologists, several

concerns during and after cerumen removal include the following:

1. Does cerumen have a risk for transmission of *any* virus?
2. Specifically, does cerumen have a risk for transmission of the SARS-CoV-2 virus or COVID-19?
3. Can we assume that cerumen *cannot* transmit COVID-19? NOTE: Cerumen has already been evaluated for the transmission of two major viruses—the Human Immunodeficiency Virus (HIV) (Hanege et al, 2015) and the Hepatitis C Virus (HCV) (Bayianadir et al, 2005). Both studies showed no evidence of transmission through cerumen by either virus.
4. If COVID-19 *can* be transmitted in cerumen, what new precautions, if any, will need to be taken for both removal and disposal?
5. Given the heightened interest and concern about the COVID-19 pandemic, are audiologists doing all they can do to reduce the risk of the spread of the virus in their work setting when removing cerumen from a patient who has already tested positive for the virus?
6. What procedures are audiologists following with disposing of the cerumen once it has been removed from a patient who has a positive history of COVID-19?

This article will attempt to answer these questions and provide guidance for continued safety after removing cerumen removed from a patient who has a positive history of COVID-19.

## Background

A recent study attempted to identify the presence of SARS-CoV-2 in the cerumen of COVID-19 positive patients (Islamoglu et al, 2020). Sixty COVID-19 patients were evaluated from a pool of 825. Even though the SARS-CoV-2 was *not* detected in the cerumen samples in all 60 patients. the authors concluded that care should be taken during cerumen management (CM) due to the possibility of infection from the resulting contaminants (specula, plastic loops, gloves, catch basins, etc.).

However, a second study was published around the same time that also addressed the presence of SARS-CoV-2 in cerumen as well as the presence of the virus in saliva and tears (Hanege et al, 2020). The authors rationalized that, in order to better understand COVID-19, there is a need know which body parts and body secretions contain the virus. The viral load of COVID-19 was evaluated in 38 adult patients (24 female, 14 male). In contrast to the Islamoglu study, there was evidence of the virus in the cerumen in 15 of the 38 patients (39.5 percent).

**TABLE 1** shows the incidence of COVID-19 the saliva, tears, and cerumen in this small sample.

**TABLE 1.** Incidence (as a percentage) of the presence of the COVID-19 virus in saliva, tears, and cerumen (Hanege, et al, 2020).

| SAMPLE FLUID | PERCENTAGE (N = 38) |
|---|---|
| Saliva | 76.3 (29) |
| Tears | 55.3 (21) |
| Cerumen | 39.5 (15) |

The authors concluded that the COVID-19 virus *was* detectable in cerumen as well as in the saliva and tears of both symptomatic and asymptomatic patients. Their study highlighted the need for using PPE and hygiene precautions while performing procedures (i.e., cerumen management) that include contact with saliva, tears or cerumen.

Celik et al (2020) further analyzed the data from both the Islamoglu and Hanege studies and speculated that the virus may contaminate cerumen via air or from a variety of nearby secretions and accumulate there to give false-positive results. The authors (Celik et al, 2020) concluded that the combined analysis of these two studies support the hypothesis that SARS-CoV-2 was present in the secretions of the ceruminous glands at the time of secretion and was not the result of an external contamination.

## How Does the COVID-19 Virus Transmit to Cerumen?

The most likely path that the virus could transmit to cerumen would be through the secretions of the ear epithelium (Hanege et al, 2020, Kilic et al, 2020). The virus can also be transmitted through aerosols or by hand by scratching an itchy ear (Hanege et al, 2020).

## COVID-19 and the Endocrine System

Because the cerumen glands are part of the endocrine system, stress can cause an increase in cortisol that in turn can result in an overproduction cerumen (Herane-Vives et al, 2020). The authors found higher levels of cortisol in the cerumen of persons who reported stress in their lives. Having a diagnosis of COVID-19 can certainly add additional stress to any patient. Therefore, the risk of an increase in the production of cerumen can be greater.

This excess accumulation of cerumen could lead to ear discomfort and/or conductive hearing loss resulting in a visit to the audiologist or ear, nose, and throat (ENT) physician for intervention. Additionally, there is the *possibility* of the COVID-19 virus still present in the body and even in the cerumen (Hanege et al, 2020).

Finally, Pal and Banerjee (2020) concluded that involvement of the endocrine system with COVID-19 remains ‘unexplored.’

## COVID-19 Cerumen Management in Clinical Practice

To identify the current cerumen management practices during the COVID-19 pandemic, a non-scientific survey was conducted by the author between February 18-22, 2021. Data came from members of a popular audiology social media page (over 11,000 members as of February 18, 2021). Respondents were audiologists of various ages, gender, length of time in the profession and from various work settings.

All respondents were performing their usual cerumen removal procedures (forceps/curette, irrigation, and/or suction) on patients who were COVID-19 survivors. Several respondents reported that their practice does not see patients who have had the COVID-19 virus or have not yet quarantined (not time specified). A total of 146 responses were validated.

Fifteen responses were not included in the analysis because the respondents answered the question incorrectly (i.e., respondents indicated that they do not see COVID-19 patients, yet they ‘throw out the cerumen in the trash’).

**TABLE 2** shows how the audiologists disposed of cerumen taken from patients who had a positive COVID-19 diagnosis.

**TABLE 2.** Methods of disposal of cerumen by 146 audiologists from patients with a positive history of COVID-19.

| HOW CERUMEN IS DISPOSED | NUMBER | PERCENTAGE (ROUNDED) |
|---|---|---|
| Throw in the trash only | 115 | 79% |
| Flush or use the sink drain only | 10 | 7% |
| Throw in either trash or flush/use the sink | 15 | 10% |
| Dispose in a biohazard bag | 6 | 4% |
| **SURVEY TOTAL** | **146** | |
| COVID-19 patients are not seen in the office | 7 | |
| Only until after quarantine* and home treatment | 1 (included in 'trash only' response) | |

**Duration not specified.*

A second survey was posted during the same time frame (same social media website) asking all the respondents to the first survey if they were aware of the *possibility* that the COVID-19 virus could be present in cerumen of their COVID-19.

Fifty (45 percent) of the 110 respondents reported that they were aware COVID-19 could be present in cerumen, while 60 (55 percent) responded that they were not.

## Survey Summary

Results of the online survey demonstrated that 96 percent of the audiology respondents are disposing of cerumen in the trash/drain/toilet just as they would normally do even from patients with a positive history of COVID-19. Only 4 percent (n=6) were taking an extra precaution by using a biohazard bag and disposing the contents accordingly. Consequently, if audiologists are disposing potentially infected cerumen into a sink or flushing it in the toilet, could SARS CoV-2 also be detected in wastewater? Several studies have demonstrated it could (Haramoto, 2020; Dhama, 2021); however, Wang (2020) noted that the diseases is not transmissible from wastewater.

The second survey had 110 respondents volunteer their knowledge of the possibility that the cerumen from a COVID-19 survivor could be contaminated or could transmit the COVID-19 virus. Only 50 already knew of the transmission risk in cerumen.

## COVID-19 Cerumen Disposal Procedures in the United Kingdom

It is always important to know what our colleagues are doing in other countries. In January 2021, a document from the Association of Independent Hearing Healthcare Professionals (AIHHP), the British Academy of Audiology (BAA), the British Society of Audiology (BSAA) and the British Society of Hearing Aid Audiologists (BSHAA) was published online titled *Audiology and Otology Guidance During Covid-19* (2021).

The 32-page guideline is an excellent reference and resource for managing COVID-19 patients; however, the document does not specifically address the issue of cerumen disposal after removal

from patients who have a positive history of COVID-19. This is not an oversight by any means nor a critique of these well-respected organizations that are responsible for its content. Rather, the document was more than likely prepared at a time when the possibility of the existence of the COVID-19 virus in cerumen was not known.

Finally, as with any guideline, updates usually occur after the document is published. The U.K. document is scheduled for review on May 31, 2021.

## Importance of Infection Control

Cerumen management (CM) is within the scope of practice for audiologists according to the American Academy of Audiology (AAA), the Academy of Doctors of Audiology (ADA) and the American Speech-Language-Hearing Association (ASHA) (AAA, ADA and ASHA, 2021). Infection control protocols for audiologists have already been developed and should be followed routinely (Clark et al, 2003). Sterilization of CM tools, disinfecting surfaces and the use of PPE is critical for your safety and the safety of your staff and patients.

## Summary

There is only one published study that identified evidence of that the SARS-CoV-2 virus or COVID-19 virus could be found in the cerumen of newly diagnosed COVID-19 patients. The Hanege study (2020) had a 39.5 percent incidence, but the number of subjects in their study was very small (n=38).

At first glance, this would make cerumen removal a real concern for safety; however, more studies with larger sample sizes are needed to assess the real risk of the COVID-19 virus being transmitted in the cerumen of patients with positive COVID-19 diagnosis. The results of an online survey of audiologists (n=146) identified a very small number (n=6) of audiologists who are disposing of cerumen in a biohazard bag.

The other respondents reported that they are disposing cerumen in the trash, flushing it or using a sink drain (n=140) while others (n=7) are not seeing COVID-19 patients at all in their office or seeing COVID-19 patients after an unspecified quarantine period (n=1). More than half of the respondents in a second survey had no knowledge that the COVID-19 virus could be present or could be transmitted in the cerumen of patient with a positive history of the virus.

As of this publication date, it is still not fully known if traces of the virus will be present after a few weeks or even months after the diagnosis. This issue remains open for additional research.

## Recommendations

Audiologists who perform any type of cerumen removal procedure should consider treating *all* COVID-19 survivors as if the virus was still present. Until there is more data from larger sample sizes, it still may be safe to dispose of cerumen from patients who have a positive history of COVID-19 without any special handling. However, exercising extra caution may be the best option in the interim. Finally, the importance of the consistent use of PPE along with standard infection control protocols (Clark et al, 2003) is strongly recommended.

## References


1. Academy of Doctors of Audiology. Scope of practice. www.audiologist.org. Accessed online 2/18/2021.
2. American Academy of Audiology. Scope of practice. www.audiology.org. Accessed online 2/18/2021.
3. American Speech-Language-Hearing Association. Scope of practice in audiology. (www.asha.org). Accessed online 2/18/2021.
4. Association of Independent Hearing Healthcare Professionals, British Academy of Audiology, British Society of Audiology, British Society of Hearing Aid Audiologists. (2021). Audiology and otology guidance during Covid-19. Independent publication, January 15, 2021. Accessed online 2/20/2021.
5. Bayindir Y, Kalcioglu MT, Durmaz R, Ozturan O. (2005) Detection of HCV-RNA in Cerumen of chronically HCV-infected patients. *Laryngoscope*, 115, (3) 508-511. https://doi.org/10.1097/01.mlg.0000157828.00509.a0. Accessed online 2/19/2021.
6. Celik S, Kalcioglu MT, Esen F, Hanege F, Cag Y, Kocoglu E. (2020) SARS-CoV-2 presence in cerumen. *ENT J*, December 15. 145561320981451. Advance online publication. https://doi.org/10.1177/0145561320981451.
7. Clark JG, Kemp RJ, Bankaitis AU. (2003) Infection control in audiological practice. *Audiol Today*, 15:5. www.audiology.org/publications/guidelines-and-standards/infection-contro.... Accessed online 1/8/2021.
8. Dhama K, et al. (2021) SARS-CoV-2 existence in sewage and wastewater: a global public health concern? *J Environ Manage*. 280.
9. Hanege FM, Kalcioglu MT, Sargin F, Cetinkaya Z, Tekin M, Vahaboglu. (2015) Does cerumen have a risk for transmission of HIV? *Eur J Clin Microbiol Infect Dis* Apr34(4):789-93.doi: 10.1007/s10096-014-2292-7. Accessed online 2/19/2021.
10. Hanege FM, et al. (2020) SARS-CoV-2 presence in the saliva, tears, and cerumen of COVID-19 patients. *Laryngoscope* 10.1002/lary.29218. Advance online publication. https://doi.org/10.1002/lary.29218. Accessed online 1/8/2021.
11. Haramoto E, et al. (2020) First environmental surveillance for the presence of SARS-CoV-2 RNA in wastewater and river water in Japan. Sci Total Environ. 737.
12. Herane-Vives A, Ortega L, Sandoval R, Espinoza S, Hayues A, Benohr J. (2020) Measuring earwax cortisol concentration using a non-stressful sampling method. *Helyion*, 6(11), e05124, November, 2020. doi:https://doi.org/10.1016/j.heliyon.2020.e05124. Accessed online 2/19/2021.
13. Islamoglu Y, Bercin S, Aydogan S, Sener A, Tanriverdi F, Gunaydin GP, Dinc B. (2020) Assessment of SARS-CoV-2 in the cerumen of COVID-19-positive patients. *ENT J*. October 15. 145561320966067. Advance online publication. https://doi.org/10.1177/0145561320966067.
14. Kilic O, Kalcioglu MT, Cag Y, Tuysuz O, Pektas E, Caskurlu H, Cet?n, F. (2020) Could sudden sensorineural hearing loss be the sole manifestation of COVID-19? An investigation into SARS-COV-2 in the etiology of sudden sensorineural hearing loss. *Int J Infect Dis*. 97:208–211. https://doi.org/10.1016/j.ijid.2020.06.023. Accessed online 2/18/2021.
15. Pal R, Banerjee M. (2020) COVID-19 and the endocrine system: exploring the unexplored. *J Endocrinol Invest* 43:1027–1031 (2020). https://doi.org/10.1007/s40618-020-01276-8.
16. Wang J, et al. (2020) SARS-CoV-2 RNA detection of hospital isolation wards hygiene monitoring during the coronavirus disease 2019 outbreak in a Chinese hospital. *Int J Infect Dis*. 94:103-106