



## Clinical organization of ear, nose and throat diseases departments during the COVID-19 outbreak

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### ABSTRACT

Currently, the world has been engulfed by the outbreak of a novel coronavirus infection, namely severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; COVID-19) pandemic. The healthcare workers are on the frontline with an increased risk of exposure to the SARS-CoV-2 infection. In particular, otolaryngologists are at a unique risk due to the close contact with mucus membranes of the upper respiratory tract and are among the most affected healthcare workers in hospitals. This situation necessitates some changes in the daily routine of the otolaryngology clinics. In this review, we present the changes of the paradigm and provide additional data regarding the clinical organization of the Otolaryngology Department of Istanbul University, Istanbul Faculty of Medicine.

**Keywords:** Clinical organization, COVID-19, ENT.

A new member of human ribonucleic acid (RNA) coronavirus, which caused a viral pneumonia outbreak, was newly identified in Wuhan province of China. This outbreak was declared as a public health emergency on January 30<sup>th</sup>, 2020 by the World Health Organization (WHO). On March 11<sup>th</sup>, 2020, the WHO announced a pandemic, pointing over 118,000 cases of Coronavirus 2019 (COVID-19) in over 110 countries and territories around the world and the sustained risk of further global spread. The International Committee on Taxonomy of Viruses officially named it as severe acute respiratory syndrome-coronavirus 2 (SARS-CoV-2).

By the end of April 2020, there are approximately 2,345,470 infected individuals all around the world and 161,192 of them have lost

their lives due to the pandemic. Consequently, SARS-CoV-2 has become a significant and urgent threat to global health. It is an obvious fact that healthcare workers are on the frontline with an increased risk of exposure to the SARS-CoV-2 infection. In China, 3.8% of all cases of SARS-CoV-2 were healthcare workers, while 14.8% of them had severe or critical diseases.<sup>[1]</sup>

The SARS-CoV-2 predominantly exists in the airway, with the highest viral load detected particularly in the nasopharynx, nasal cavity, and oropharyngeal cavity.<sup>[2]</sup> Therefore, the primary method of transmission is thought to occur from the droplet spread in which the virus particles are carried in large droplets. Due to the high mass, these droplets stay airborne for a few seconds and travel only a short distance before landing onto surfaces. However, under

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certain circumstances such as during bag-mask ventilation or upper airway endoscopy, the virus particles can become aerosolized or airborne which increases the risk of spread.<sup>[3]</sup> Thus, healthcare workers who mainly perform aerosol-generating procedures such as otolaryngologists, pulmonologists, anesthesiologists, and dentists are at the high-risk group.

Otolaryngologists are by the nature of their work at a high risk for exposure to respiratory pathogens. During routine evaluation and management of patients, otolaryngologists and their staff will inevitably come into direct contact with the upper airway tract secretions or blood, which may become aerosolized during an inadvertent sneeze or cough. Such events can occur during a nasal and upper airway endoscopy while performing a nasal culture or nasopharyngeal swab for SARS-CoV2, or simply during a routine examination of the oral cavity and oropharynx, exposing the healthcare provider to potentially infectious agents.<sup>[3]</sup> Furthermore, the first fatality of a physician documented globally was that of an otolaryngology physician in Wuhan on January 25<sup>th</sup>, 2020, whose situation was similar to that of an otolaryngologist who died of SARS in Hong Kong in 2003.<sup>[4]</sup>

Due to the high transmission rates, it is crucial to take precautions to protect healthcare workers from being infected. However, there are still few data in the literature documenting how Otorhinolaryngology & Head and Neck Surgery (ORL-HNS) departments should approach otolaryngologic diseases in patients diagnosed with COVID-19 and how to best protect otolaryngologists during the pandemic. Also, it is not clear how to best establish efficient strategies to carefully identify and triage patients and ensure appropriate protection during outpatient and inpatient otolaryngology care.<sup>[5]</sup> In this review, we present the changed of the paradigm and provide additional data regarding our clinical organization during the SARS-CoV-2 pandemic and discuss in the light of literature.

### GENERAL PRECAUTIONS

With the onset of the SARS-CoV-2 outbreak, several changes have to be made in the schedule of the ear, nose and throat (ENT) healthcare workers to use manpower efficiently. Due to a

reduction in the number of outpatient visits and surgeries and an increased need in physicians for the COVID-19 related services, the shift work system was started in our clinic. Our main goal was to reduce working hours to alleviate the viral load faced by ENT healthcare workers, including physicians, nurses, and other medical staff and to prevent transmission of the virus between healthcare workers both in the incubation period and in the asymptomatic phase of the disease, in case of any infected healthcare professional present in our clinic. In addition, all conferences including tumor boards, otological disease and cochlear implantation boards, grand rounds and literature review meetings are canceled or carried out in the virtual setting, if applicable.

Similar applications of reducing the working hours of healthcare workers using a shift work system and online platforms for clinical meetings and conferences have been suggested by clinics in the United States,<sup>[6]</sup> Italy,<sup>[7]</sup> and China.<sup>[4]</sup>

### OUTPATIENT CLINICS

In our outpatient clinics, the number of daily outpatient clinic appointments were reduced by more than 80%. Outpatient clinic services for none-urgent complaints are postponed until the effects of the outbreak subside. Furthermore, telemedicine methods are used for follow-ups, and only in the presence of an urgent condition, the patients are invited to the clinic. By this way, we aim to reduce the number of patients with appointments to reduce the risk of viral transmission in the asymptomatic phase of the disease.

The evaluation of the patients, whose ENT evaluation should not be postponed, has been conducted in association with the system designed by our hospital to evaluate and treat patients with COVID-19 suspicion or diagnosis. The first evaluation of the patients with COVID-19 suspicion is performed in a newly built triage outpatient clinic and referred to the COVID-19 outpatient clinic for further evaluation. Necessary blood tests, cultures, and computed tomography scans are taken in the COVID-19 outpatient clinic and, if the patient meets the hospitalization criteria, he/she is referred to the pandemic inpatient clinic. All patients attending to the outpatient clinic

department must have their body temperatures checked on arrival and questioned whether they have any other COVID-19-related symptoms. In case of any suspicion, the patients are referred to the emergency department to be evaluated for COVID-19. All outpatient clinic patients are seen with otolaryngology physicians mandatorily wearing at a minimum an N95 mask, gown, cap, eye protection, and gloves, as suggested in the literature.<sup>[8]</sup> Some aerosol-generating procedures, such as endoscopy, used for the diagnostic purposes in the normal ENT routine, are not used, unless there is an emergency.

Although similar applications are present in the literature,<sup>[4,6,9]</sup> there are some differences between regions. In an Italian study,<sup>[7]</sup> all patients were first evaluated in the emergency room for SARS-COV-2, and only after that, they were seen by an otolaryngologist in the emergency room, if necessary.

### INPATIENT CLINICS

Due to the increased need for hospital beds for COVID-19 patients, the entire ENT inpatient clinic is cleared off for the pandemic. The patients who are already in our inpatient clinic are safely transported to a clean inpatient clinic of another department. If an admission of a patient due to an emergent condition is necessary, the patient is first evaluated in the COVID-19 outpatient clinics and, if there is any contact or suspicion, the patient is admitted to COVID-19 inpatient clinics. If no clinical or radiological suspicion is present, the patient is, then, admitted to our inpatient clinic.

The safety policies that we have taken include a strict prohibition against visitors, routine use of personal protective equipment (PPE) including an N95 mask (while closer than 1 meter with the patients), gown, cap, eye protection, and gloves, use of breathing filter systems for patients with tracheostomies. Similar applications in inpatient clinics have been suggested by other clinics such as closed systems for patients with tracheostomies<sup>[4]</sup> and prohibition of visitors.<sup>[6]</sup>

### SURGERY

Our approach to surgical interventions is similar to other clinics all around the world. During the pandemic, we have postponed all

elective cases including benign neoplasia and some malignancies with slow progression which do not likely to affect the survival. Furthermore, due to the conversion of our inpatient clinic for the pandemic and operating theatre to an intensive care unit, we are unable to perform elective surgeries for malignancies which may affect survival, if not treated. For malignancies for which irradiation is also an oncologically safe treatment modality, we have referred the patients for irradiation. For tumors for which open surgery is obligatory, we have referred the patients to external centers where open surgeries are maintained. Studies from the

United States,<sup>[6]</sup> Italy,<sup>[7]</sup> and China<sup>[4]</sup> also suggest that all elective surgeries which will not affect the prognosis of the patient should be postponed and surgeries for malignant tumors should be performed.

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