

The 9-Month COVID-19 Pandemic Experience of Otorhinolaryngology Staff at a Tertiary Health Center

Üçüncü Basamak Bir Sağlık Merkezindeki Kulak Burun Boğaz Kliniği Personelinin 9 Aylık COVID-19 Pandemisi Deneyimi

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This study was presented as an oral presentation at the 42. Turkish National Ear Nose Throat and Head & Neck Surgery Congress, 3-7 November 2021, Antalya, Türkiye

ABSTRACT Objective: To document our experiences in a tertiary health center in the planning and accomplishment of safe and efficient otolaryngology, head and neck surgery (OHNS) practices, and the rates of coronavirus disease-2019 (COVID-19) among our healthcare professionals during the COVID-19 pandemic. **Material and Methods:** We retrospectively investigated the COVID-19 infection rates among OHNS department professionals during the first 9 months of the pandemic (between 15 March 2020 and 15 December 2020), and also the number of patients examined at our clinic, the number and types of operations done with comparison to pre-pandemic period. The general and specific precautions for OHNS staff were also revised. **Results:** During the 9 months, the numbers of OHNS outpatient examinations (minimum 5.9% and maximum 43.3%) and inpatient hospitalizations (minimum 0.8% and maximum 31.4%) decreased significantly, compared to the same months in 2019. The rate of COVID-19 diagnosis among our staff was 25.45%. The highest rates of COVID-19 positivity were seen among outpatient technicians (40%), and the lowest rate was among the nurses in the operating rooms (12.5%). **Conclusion:** The OHNS staff is at high risk as they are extremely exposed to upper airway diseases, and these healthcare professionals are in a very risky position in terms of COVID-19 transmission. All of the staff must follow the absolute precautions during examinations and procedures including all types of patient care.

Keywords: COVID-19; educational personnel; precautions; health personnel

ÖZET Amaç: Bu çalışmamızda, kliniğimizde koronavirus hastalığı-2019 [coronavirus disease-2019 (COVID-19)] pandemisinin ilk 9 ayında planladığımız güvenli, verimli kulak burun boğaz ve baş boyun cerrahisi (KBB-BBC) uygulamalarını, bu süreç boyunca personelin COVID-19 enfeksiyon oranlarını, yapılan poliklinik ve ameliyat hizmetleri hakkında deneyimlerimizi sunmayı amaçladık. **Gereç ve Yöntemler:** Salgının ilk 9 ayında (15 Mart 2020-15 Aralık 2020 arasında) KBB-BBC kliniği çalışanları arasında COVID-19 enfeksiyon oranları, kliniğimizde muayene edilen hasta sayısı, uygulanan operasyonların sayısı ve türleri pandemi öncesi dönemle retrospektif olarak karşılaştırıldı. **Bulgular:** Dokuz aylık dönemde KBB-BBC ayaktan muayene (en az %5,9 ve en fazla %43,3) ve yatan hasta (en az %0,8 ve en fazla %31,4) sayısı 2019'un aynı aylarına göre önemli ölçüde düştü. COVID-19 tanısı personelimiz arasında %25,45 idi. COVID-19 pozitifliği en fazla poliklinik teknisyenlerinde (%40), en az ise ameliyathane hemşirelerinde (%12,5) görüldü. **Sonuç:** KBB-BBC personeli, üst solunum yolu ile ilgilenen bir bölüm olması ve muhtemel COVID-19 hastalığına aşırı derecede maruz kalmaları nedeniyle bu hastalık için yüksek risk altındadır. Muayene ve her türlü hasta bakımı dâhil olmak üzere tüm işlemlerde mutlak tedbirlere uyulması gerekmektedir.

Anahtar Kelimeler: COVID-19; çalışan eğitimi; önlemler; sağlık çalışanı

Coronavirus disease-2019 (COVID-19) infection, caused by severe acute respiratory syndrome-coronavirus-2, is a disease that causes several

manifestations in the human body and severe acute respiratory syndrome is the worst of them. The disease also has been leading to humanity, economical

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Peer review under responsibility of Journal of Ear Nose Throat and Head Neck Surgery.

Received: 25 Nov 2022

Accepted: 17 Jan 2023

Available online: 23 Jan 2023

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and social crises all over the world. COVID-19 has quickly become the world's 6th public health emergency of international concern (PHEIC), declared by the World Health Organization (WHO) since 2009.¹ The other PHEICs were the swine flu, Polio, Ebola virus at 2 different times, and Zika virus.

Currently (as of the end of November 2022), while there are 17,004,677 confirmed cases with 101,419 deaths in Türkiye, there are 637,684,664 confirmed cases with 6,615,231 deaths worldwide, as reported to WHO. The COVID-19 pandemic has been still striking hard on mankind. United States of America, India, and Brazil currently have the highest number of infected and dead people. The overall mortality appears to be around 1.03%.² Social distancing and wearing a surgical mask appear to be the strongest scientific validity to prevent the spread of the disease until the effective specific treatments arrive and/or the vaccines become worldwide.

Unfortunately, the very first bad news came from an otolaryngologist in Wuhan. He was the first health personnel to die of COVID-19 in January 2020. Turkish Medical Association reported that over 556 health workers have died from COVID-19 in Türkiye until late-November 2022.³ Considering these facts, the number of infected people and the number of people who may be in close contact is in a very serious situation.

The main route of transmission of COVID-19 is through droplets, surfaces, and aerosols.⁴ Fever, cough, dyspnea, hyposmia, anosmia, dysgeusia, myalgia, and fatigue may be the symptoms. So, patients who have COVID-19 may present with these upper respiratory tract symptoms and apply to otorhinolaryngologists which are quite risky in terms of spread. However, some asymptomatic patients may also shed a heavy viral load.⁵

There have been clear consequences in the planning of clinical routines since the pandemic has begun in Türkiye as in other countries. Only urgent cases have been allowed for surgery in the initial months, based on the recommendations given by the Ministry of Health. The reduction of outpatient and surgical activities occurred in all surgical fields, and relevant reduction of the congestion in the public

healthcare system provided a capacity for these patients in need of treatment. But in the following months after May 2020, the normalization process has taken place in all our practices.

The purpose of this article is to document our experiences in the planning and performance of safe, efficient otorhinolaryngology and head and neck surgery (OHNS) practices, and the disease rates among our healthcare professionals in a tertiary health center.

MATERIAL AND METHODS

We retrospectively documented the general precautions, we have taken to overcome transmission of COVID-19; behavior to the patients at outpatient and inpatient clinics, the safety during physical examinations and surgical procedures, comparison of the number of patients admitted to our clinic with the pre-pandemic period, comparison of the operation numbers with the pre-pandemic period, features of surgeries performed, the disease rates among OHNS department professionals, and educational constraints between 15 March-15 December 2020, for 9 months in University of Health Sciences, Dışkapı Yıldırım Beyazıt Training and Research Hospital as a tertiary health center. The approval of the Ethics Committee of Health Sciences University Dışkapı Yıldırım Beyazıt Training and Research Hospital was obtained on December 28, 2020 with the decision number of 101/12. The study was conducted in accordance with the principles of the Declaration of Helsinki.

RESULTS

GENERAL PRECAUTIONS AND STRATEGIES FOR THE STAFF TO OVERCOME TRANSMISSION DURING CLINICAL PRACTICE

After the first case was diagnosed with COVID-19 in Türkiye, the number has been rapidly increasing. Our hospital and department administrations have taken strict precautions based on the recommendations of the Ministry of Health. First of all, one of the buildings of our hospital campus has been allocated for patients with the diagnosis or suspect of COVID-19 infection, for both outpatient and inpatient clinics. Every suspected, symptomatic patient who applied to

our emergency department or outpatient clinics has been sent to the relevant triage team consisted of doctors, nurses, and paramedics. Patients who were asymptomatic but have traveled abroad recently or close contact with symptomatic patients were referred to triage, and the other patients were examined at our outpatient clinics.

Special arrangements were performed to reduce the patient flow, to minimize the risk of cross-transmission, and preserve manpower at the clinics. Surgical masks, protective gowns, glasses, face shields, and N95 respirators were supplied and distributed to all doctors and staff who had direct contact with the patients. Additionally, patients were asked to wear a surgical mask at all times before entering the hospital area to minimize the dispersal of droplet nuclei while patients are walking inside the hospital. Otolaryngology outpatient clinic number was 12 before the pandemic; it has been decreased to 2 with the onset of the pandemic. Our pre-pandemic 45-bed inpatient clinic capacity has been decreased to 15. Only one patient stayed in each room and only one companion was allowed to accompany the patient if necessary. The people who wanted to visit their patients were prohibited to enter the clinic. Operation rooms have been decreased from 5 to 2, as well as the number of surgeries and only emergency cases were allowed for the first 1.5 months. Then gradually the number of outpatient clinics and inpatient beds and operations were increased in the following months.

Our OHNS clinic consists of 110 healthcare professionals; including otolaryngologists, residents, inpatient clinic nurses, inpatient care staff, operating room nurses, operating room technicians, audiometrists, audiologists, speech pathologists, secretaries, outpatient technicians. The flexible working hours started to be implemented and the whole department staff was divided into 3 shift groups; meaning that each group has come to the shift every 3rd day. Flexible working system has gradually turned to almost normal in 3 months.

Online multi-platform messaging applications have been used to declare the precautions to the staff. All members of the department were informed about the work schedule, information about infection con-

trol, particularly regarding proper concepts of infection control in terms of hand hygiene, the donning and doffing of personal protective equipment, the handling of suspected or confirmed cases of COVID-19, contact tracing, the proper disposal of clinical waste, and the handling of specimens for any laboratory investigations. The staff was also continuously warned about prohibiting their social activities at work, home, and outside. All members were instantaneously informed on this platform when there was a new and important stride.

BEHAVIOR TO THE PATIENTS AT OUTPATIENT AND INPATIENT CLINICS, AND SELECTION FOR SURGERIES

Routine appointments for the outpatient clinic were canceled and a new schedule was created that 15 minutes breaks would be given after each patient. Furthermore, we also gave a break every hour for 15 minutes for staff to disinfect the computer, desk, examination chair, instruments, and door handles. Some personnel was assigned to measure the temperature of each patient and ask them if they had any COVID-19 symptoms at the building's entrance. Those patients who had high temperatures or symptoms were directed to the COVID-19 building without being examined.

All appointments for surgeries were canceled initially. Elective surgeries have been suspended for 1.5 months; only oncologic surgeries and emergency surgeries have been performed. All the patients were questioned for COVID-19 symptoms and close contact history. Then the patients were hospitalized 3 days before the surgery and get isolated from the society; swab samples were taken from the nasopharynx and oropharynx 2 times with a 24-hours interval for COVID-19 reverse transcriptase-polymerase chain reaction (RT-PCR) and they were not allowed to go out of the clinic to avoid contact. They also underwent thorax computed tomography 1 day before the operation. We performed surgeries if 2 RT-PCR results were negative as well as the negative tomography findings in terms of ground-glass opacities, consolidation areas which are thought to be specific for COVID-19. The patients who needed medical treatment for advanced-stage facial palsy and sudden

sensorineural hearing loss with uncontrolled diabetes mellitus or hypertension, deep neck infections, or upper airway obstructions also underwent COVID-19 RT-PCR testing before hospitalization. If there is no time for the result and the thorax tomography to intervene or operate on the patients, they were hospitalized, isolated, and operated on as if they were COVID-positive.

SAFETY DURING EXAMINATION

All of the fiberoptic endoscopes were labeled with code numbers, specific endoscopes were used to minimize contact. We strongly preferred to perform office endoscopic procedures while wearing high-level personal protective equipment (PPE) (face shield, N95 respirator, long-sleeved disposable fluid-resistant gown, and disposable gloves). During the fiberoptic examinations, only the nostrils were left open. Ear cerumen removals were not performed if it was not impacted. Other examinations were performed with maximum care with PPE.

Contact transmission was the most common route of COVID-19 transmission in audiology practice. Because of that, test numbers for evaluating hearing were reduced, and only suspected cases of sudden sensorineural hearing loss or emergency cases that would be operated on were evaluated. Newborn hearing tests were performed, and children with the suspect of sensorineural hearing loss were evaluated carefully not to delay the hearing aid rehabilitation. Audiologists used appropriate PPE for self-protection in any situation. The number of audiological examinations has been increased in the following months parallel to the increase of numbers at outpatient clinics.

Speech and voice therapies were not performed during these 9 months; the assessment and training of patients about swallowing were only performed for patients with malignancy after surgery and acute neurological disorders.

OPERATION ROOM ARRANGEMENT AND SAFETY IN SURGERIES

Surgical masks, protective gowns, glasses, face shields, sheaths covering the neck area, and N95 respirators were used for every operation. All protective

materials were disposable except protective glasses and face shields. Face shields were used to protect the contamination of surgical masks or N95 respirators so that extended use could be possible after appropriate cleaning. Every patient who underwent emergency surgery without preoperative RT-PCR tests were regarded as COVID-19 positive. These patients were intubated in a special protective cabinet by the anesthesiologists.

The number of healthcare personnel in the operating room was kept in minimum during all surgeries but especially tracheotomies. Senior anesthesiologists and experienced otolaryngologists performed the surgery and all the operating room staff members used high-level PPE.

NUMBER OF PATIENTS EXAMINED AND OPERATED DURING PANDEMICS

The number of patients examined at the outpatient clinics and hospitalized in the inpatient wards is compared with the same period of the previous year and are presented in [Table 1](#). The mean number of patients for each month was compared to the same month in the previous year-2019. The monthly number of outpatients dropped to 944 in April 2020 with the onset of pandemic and increased to 5,746 patients in September 2020. The number of inpatients included both patients who needed medical treatment and patients undergoing operations. Operation numbers were around 320 per month within 5 operation rooms before the pandemic and this number dropped to 3 patients in April 2020 and increased to 101 patients in November 2020.

The majority of the patients at outpatient clinics had complaints of ear blockage due to cerumen impaction, sore throat, and vertigo. They have been examined with minimum invasive methods and examination times were kept as short as possible.

In our clinic, as it has been one of the referral centers of the country and has a large capacity; emergency and malignant cases were relatively more than other OHNS clinics. The distribution of the surgeries performed is shown in [Table 2](#). Head and neck malignancies were the most common surgical indication. They were prioritized by their diagnosis and associ-

TABLE 1: Comparison of the number of outpatients and inpatients with the same period of the previous year.

Months	Average number of patients in clinics (%)			
	Outpatient		Inpatient	
	2019	2020	2019	2020
March*	16,332	1,761 (10.7%)	332	36 (10.8%)
April	15,798	944 (5.9%)	341	3 (0.8%)
May	16,836	1,512 (8.9%)	333	19 (5.7%)
June	11,420	4,060 (35.5%)	298	41 (13.7%)
July	11,905	4,231 (35.5%)	280	79 (28.2%)
August	11,403	3,940 (34.5%)	292	56 (19.1%)
September	13,250	5,746 (43.3%)	322	87 (27%)
October	16,872	4,890 (28.9%)	339	95 (28%)
November	13,356	5,719 (42.8%)	321	101 (31.4%)
December**	16,674	5,518 (33%)	342	45 (13.1%)
Average per month	14,384	3,832 (26.6%)	320	56 (17.5%)

*After 15th of March 2020; **Until 15th of December 2020.

ated problems. There were also non-malignant patients at the beginning of the pandemic; like voice prosthesis applications, and bleeding control after tonsillectomy. Most of the otologic problems were advanced cholesteatoma, so we didn't want to delay these surgeries in order not to face complications. Patients who were inserted ventilation tubes had severe conductive hearing loss due to upper airway infections. Cortical mastoidectomies were performed due to acute mastoiditis after otitis media. Most of the rhinologic surgeries were performed for patients who had advanced nasal polyps with comorbidities. Mucormycosis debridement was performed for 1 patient who had uncontrolled diabetes mellitus and was positive for COVID-19 3 weeks ago. Airway disorders might be the most challenging one. Most laryngeal stenosis cases were due to prolonged intubation. Patients with bilateral vocal cord paralysis after thyroidectomy at another institution were operated for airway management. Among the patients who had the tracheotomy, 4 were emergent due to laryngeal mass, 4 were due to prolonged intubation from other causes except for COVID-19, and 3 were due to prolonged intubation from COVID-19.

On the other hand, the patients were hospitalized for medical treatment if they had comorbidities like uncontrolled diabetes mellitus or hypertension. Patients with vertigo had been diagnosed to have

vestibular neuritis and labyrinthitis. Some patients with malignancies undergoing radiotherapy and/or chemotherapy were hospitalized due to lack of oral nutrition or respiratory distress. They were hydrated and nutritional supplements were provided.

Although 2 consecutive swab samples were taken making sure that they were negative before operation; 5 patients were diagnosed as COVID-19 positive in the postoperative days. These patients had fever on their postoperative first 4 days and their new swab samples were positive for COVID-19 and immediately they were transferred to the COVID-19 department. These patients had thyroid papillary carcinomas, larynx carcinomas, or cerebrospinal fluid leakage repair.

Currently, as of April 2021, we are performing all types of surgeries with strict precautions, leaving 45-minute breaks between the surgeries in each operation room.

DISEASE RATES AMONG OTORHINOLARYNGOLOGISTS AND OTHER HEALTHCARE PROFESSIONALS

We had 110 healthcare professionals who work at the OHNS department at the beginning of this pandemic. The distribution of these healthcare professionals and the distribution of the personnel diagnosed with COVID-19 are shown in Table 3. Our resident doc-

TABLE 2: Numbers of the operations performed and the indications for hospitalization for 9 months (15 March-15 December 2020).

Head & Neck	336 (59.78%)	Rhinology	60 (10.67%)
Laryngoscopy for biopsy	72	Endoscopic sinus surgery	37
Thyroidectomy/parathyroidectomy	69	Endoscopic skull base surgery for malignant tumor	5
Oral cavity/oropharynx/ nasopharynx biopsy	49	CSF leak repair	4
Cervical mass excision+/- neck dissection	28	Nasal fracture	3
Laryngectomy+/-neck dissection	23	Epistaxis control	3
Voice prosthesis	22	Endoscopic surgery for advanced juvenile nasopharyngeal angiofibroma	2
Laser cordectomy	17	External frontal sinus surgery	2
Superficial/total parotidectomy	14	Endoscopic transnasal transpterygoid surgery for malignant tumor	1
Mass excision from nasal tip, auricula	9	Repair of oroantral fistula	1
Oral cavity tumor excision +/-mandibulotomy/ mandibulectomy+/-neck dissection + reconstruction with free flap	8	Endoscopic transnasal mucormycosis debridmant	1
Wound revision	6	Dacryocystorhinostomy	1
Endolaryngeal mass excision	5	Airway management	40 (7.11%)
Maxillectomy	4	Laryngotracheal stenosis surgery	20
Mass excision from lower lip+ reconstruction with local flap	3	Tracheotomy	11
Preauricular mass excision+ reconstruction with rhomboid flap	2	Endoscopic transnasal approach for choanal atresia	5
Bleeding after tonsillectomy	2	Vocal fold suture lateral fixation/cordotomy	2
Diagnostic tonsillectomy	2	Foreign body removal from larynx	1
Glomus caroticum extirpation	1	Laryngomalacia surgery-supraglottoplasty	1
Otology	79 (14.05%)	Medical conditions	47 (8.36%)
Cholesteatoma surgery	33	Peripheric facial palsy	13
Tympanoplasty	27	Deep neck space infections	13
Cochlear implant	11	Respiratory distress	7
Ventilation tube insertion	4	Deterioration of medical condition	5
Acute mastoiditis	2	Vertigo	4
Facial decompression	1	Sudden sensorineural hearing loss	3
Bone anchoring hearing aid implantation	1	Wound infection after nose filler	1
		Watch-pad	1

tors, otolaryngologists, nurses, and care staff have had rotations at the COVID building for inpatient and outpatient services since March 2020.

The overall rate of COVID-19 diagnosis among our staff was 25.45%. None of them had acute respiratory distress syndrome or requirement for intensive care unit. It was thought that outpatient technicians got the disease in their social life from other personnel working in other departments who later turned out to be COVID-19. Inpatient clinic nurses' source was themselves again because some of them were working at COVID inpatient clinic and they were always together outside the hospital for lunch or dinner; also some of them were at the same night shift. Two resident doctors had it from the outpatient technicians, 1

TABLE 3: Disease rates among healthcare professionals.

Professions	Total number	Number of professionals diagnosed with
		COVID-19 (%)
Otolaryngologist	23	5 (21.73%)
Resident doctors in otolaryngology	13	4 (30.76%)
Inpatient clinic nurses	25	9 (36%)
Inpatient care staff	15	3 (20%)
Operating room nurses	8	1 (12.5%)
Operating room technicians	4	1 (25%)
Audiometrists, audiologists, speech pathologist	12	2 (16.66%)
Outpatient technicians	5	2 (40%)
Secretaries	5	1 (20%)
All professions	110	28 (25.45%)

COVID-19: Coronavirus disease-2019.

from his father, and 1 during a vacation at the beginning of the pandemic. One operating room technician had it from his spouse. Among otolaryngologists; 1 got the disease from her spouse after working together at COVID-19 inpatient clinic for 1 month, 1 from outpatient technicians, 1 from his spouse who worked for COVID-19 clinic, and 1 from a COVID-positive patient. One secretary got the disease from her spouse. Inpatient cleaning staff was responsible for the whole inpatient ward's sanitation; it was thought that they had it from a patient or companion.

EDUCATIONAL CONSTRAINTS

Grand rounds that have been held every week routinely were suspended for a while. Only the nurses, residents, and the otolaryngologist responsible for the patients visited the patients. Lectures, seminars, multidisciplinary tumor, sleep diseases, cochlear implant, endocrine surgery, or upper airway disorders boards which had been organized weekly for many years have switched to the online structure. Due to the reduction of outpatient and surgical activities, the practical learning opportunities for residents and fellows have been also reduced. Online dissection course videos and practice courses have started to be performed twice a week to close the gap for educational concerns. Also, national online congresses are very helpful in terms of online accessibility.

DISCUSSION

The COVID-19 pandemic has created a crisis on the human race and the healthcare system. Pandemic had significant effects on the activity of the medical departments. It is thought that vaccines developed by various countries, when applied to all people will finish the spread of the pandemic. But social distancing, wearing a mask for the public, and PPE for healthcare professionals have been and will be the best choices for protection until then.

Endoscopic examinations of the nose, sinuses, oropharynx, hypopharynx, and larynx for otolaryngologists are considered aerosol-generating procedures (AGP) and guidelines have been suggested for physicians performing AGPs.⁶ Logically AGPs should be performed in negative pressure rooms with

personal protective equipments to minimize the risk of spread. Topical anesthetics should be used for minimal sneezing and coughing of the patients. Healthcare professionals need to recognize which procedures are potentially aerosolizing so that appropriate precautions can be taken.

Especially for otolaryngologists, special care should be taken when using CO₂/diode lasers, electrocautery, high-speed rotating devices, and performing pharyngeal and tracheal procedures. Standard level 2 airborne PPE, including N95 masks, are recommended for the vast majority of the endonasal procedures. Level 3 PPE like powered air-purifying respirators (PAPR) or body/face/eye protection with N99/FFP3 respirators is recommended for aerosolizing procedures in COVID-19 positive or suspected patients.⁷ PAPRs reduce the risk of exposure more than N95 masks, but how much more they reduce the risk depends on the airflow setting. The assigned protection factor range is 25 to 1,000 for PAPRs and 10 for N95 masks.⁸

Mattioli et al. indicated in their study that there was no clear indication regarding the timing of tracheotomies and suggested avoiding potential tracheal damages within 7-14 days.⁹ Among our patients who had tracheotomy due to COVID-19, none of them were in their first 2 week-period of disease.

Some studies revealed that head and neck squamous cell carcinoma had a high doubling rate, worse prognostic outcomes, and progression of TNM stage if waiting time would be more than 4 weeks.¹⁰ So, we didn't delay our malignancy surgeries. We prioritized patients in terms of the aggressiveness of the tumor, presence of complications like airway obstruction, dysphagia, and bleeding.

Among our healthcare professionals in the OHNS department, only 25.45% of the 110 OHNS staff got the infection, and almost half of them had it from social activities within the 9 months of pandemics. Chou et al. reported that the rates were ranging from 3.8-45% among healthcare workers.¹¹ Sowerby et al. reported in a study for otolaryngologists that had held among 30 countries that 54% of cases were from the clinical activity and 11% of cases from prolonged exposure to a colleague.¹² In another

study held in Italy, Paderno et al. stated there were 5 (9%) patients among 58 professionals from the OHNS department.¹³

Better protection methods and guidelines should be created like installing filters, negative pressure ventilation in clinics or endoscopes with remote control. Tele-consultations with or without video calls might be provided for follow-up patients. In addition, other patients can be interviewed for the first time and they can be informed whether they need to go to the hospital or not.

We believe that the reorganized health system has reduced congestion and preserved a capacity for patients in need of treatment. Although we started our contingency plan very early and every single person has adopted it quickly, obeyed all rules; there were healthcare professionals diagnosed with COVID-19. It was observed that professionals who saw a small number of patients were affected less by the disease, like the audiology division and nurses in the operating rooms. It was also observed that, though the staff obeyed the rules in the hospital they couldn't do the same in their social lives.

We wish we didn't learn this like that, but we know that, for any later contagious infectious disease, there should be always protective equipments. If similar pandemics occur again, OHNS professionals due to the nature of diseases should wear them during dealing with the patients.

It is also difficult to accept the reduced functionality of the clinics for residency and fellowship training problems. These changes should evolve and it is necessary to restructure and reformulate a training program to provide an adequate education. Online dissection courses and scientific meetings, journal clubs might be held more frequently not to interrupt the education of trainees. We believe that even during the COVID-19 crisis it is mandatory to restructure and guarantee optimal training. As reported by the cohort of residents included in a study, there is a perceived reduction of all learning activities with a general concern that COVID-19 may harm final skills, which is more evident among senior residents.¹⁴

CONCLUSION

Our study was an observational retrospective study that showed an experience of OHNS staff in a tertiary health center. We think that we put our emergency plan into action quite early and accomplished the education of healthcare professionals in our department which led to less contamination; because the contamination was basically from outside the hospital or from the social environment inside the hospital. The situation could be worsened if we had taken action lately. Therefore, we know that clinical and personal precautions work and protect the staff from getting the infection from the patients. We hope our experiences might be a guide for healthcare professionals in OHNS and related multidisciplinary clinics during this COVID-19 pandemic.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Tuğçe Pütürgeli Özer, Ömer Bayır, Mehmet Hakan Korkmaz; **Design:** Tuğçe Pütürgeli Özer, Ömer Bayır, Gülezer Saylam, Emel Çadallı Tatar; **Control/Supervision:** Murad Mutlu, Muharrem Dağlı, Mehmet Hakan Korkmaz; **Data Collection and/or Processing:** Tuğçe Pütürgeli Özer, Ömer Bayır; **Analysis and/or Interpretation:** Tuğçe Pütürgeli Özer, Ömer Bayır, Murad Mutlu; **Literature Review:** Tuğçe Pütürgeli Özer; **Writing the Article:** Tuğçe Pütürgeli Özer, Ömer Bayır, Gülezer Saylam, Emel Çadallı Tatar; **Critical Review:** Murad Mutlu, Muharrem Dağlı, Mehmet Hakan Korkmaz; **References and Fundings:** Tuğçe Pütürgeli Özer, Mehmet Hakan Korkmaz.

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