

Impact of Covid-19 Pandemic on Otorhinolaryngology Practice in India

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Received: 17-10-2022 / Revised: 20-11-2022 / Accepted: 08-12-2022

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Conflict of interest: Nil

Abstract

Background: Covid-19 has dramatically changed everyday life across the globe. Otorhinolaryngologists were at the forefront of being exposed to the virus. As the virus evolved so did the practice of otorhinolaryngology in the country. Some innovative tacks for protecting otorhinolaryngologists and improving patient care were put into our practice by many doctors. Assessment of these techniques will help us to overcome the difficulties if a similar situation arises in the future.

Materials and Method: An online survey was conducted among Indian otorhinolaryngologists. The invitation to participate in the survey was circulated among otolaryngology consultants and postgraduates all over India through multiple modalities on social media. The survey consisted of 4 sections with a total of 24 questions, related to covid vaccination status, changes made in practice, OPD (outpatient department) consultations during the lockdown period, and modifications done in outpatient and operation theatre setups. Google forms were kept open for one month.

Results: There were changes in outpatient and operation procedure management like screening of patients before treatment and surgery, patient health care declarations, vaccination status, improvisation done in the methods of sterilization of ENT instruments, endoscopes, case selection of elective OT (operation theatre) cases. This paper aims to give a brief overview of current knowledge about the impact of covid 19 on otolaryngology practice using the best available evidence.

Conclusion: COVID-19 had made crucial changes in ENT practice forever which will help otorhinolaryngologists in the better care of patients if a similar situation arises in the future.

Keywords: Covid-19, otorhinolaryngologists, outpatient department, operation theaters, Endoscopes.

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Introduction

In December 2019, a new coronavirus called SARS-CoV-2 caused an outbreak of a respiratory illness ranging from the common cold wave to severe lower respiratory tract infection. On January 7, 2020, the causative agent was linked to the new coronavirus and the disease was named COVID-19 by WHO [1]. Various molecular studies showed nasal epithelial cells, specifically goblet and ciliated cells, as the entry site for coronavirus and a reservoir for dispersion of virus, both within a given patient and from person to person. The development of acute loss of smell and taste was recognized as one of the symptoms of COVID-19 [2].

Like other countries, India's health priorities have been to decrease person-to-person transmission, including among healthcare workers. A lockdown was imposed on the state of Kerala on March 23, 2020, following which certain precautions and restrictions were introduced within our department also namely teleconsultations, time-based appointments, limiting numbers of patients, screening of patients at OPD entry, usage of safety equipment social distancing, changes in endoscopy and surgery protocols. These restrictions were later removed when the state government lifted the lockdown. The second wave of covid arrived in May 2020 with an even more infectivity rate and mortality rate. The early mentioned precautions had to be reintroduced in our department following another round of Government imposed lockdown.

In the ENT field, clinical examination and invasive procedures on the respiratory tract and adjoining cavities (paranasal sinuses) expose health professionals to SARS-CoV-2 by inhalation of contaminated droplets or ocular projection (direct transmission), or by contact with contaminated hands, surfaces, or

objects (incidental transmission). Medical and surgical procedures in ENT, therefore, put practitioners and nursing staff at high risk when they come into contact with patients of COVID-19 [3]. As a result, the practice of otolaryngology has changed fundamentally in response to COVID-19. The number of surgical procedures performed had reduced tremendously during the period. One of the main changes in ENT practice during the pandemic was to conduct surgery only for emergency patients. New devices were developed to limit the spread of aerosols and also for the adequate sterilization of instruments including UV sterilizers and air filters [4].

A large group of otolaryngologists stopped consultations during the first few months of the pandemic and had only resumed with major changes including a reduced number of patients seen in the OPD, type of outpatient-based procedures performed, utilization of personal protective equipment, and mitigation of risk for staff. Even if in many countries the covid is slowing down and medical practice has been adapted to a new normality, a new pandemic wave in the upcoming season is a possibility. This survey aims to assess the impact of Covid 19 pandemic on ENT practice mainly regarding OPD consultations, case selection of OT elective cases, screening protocols, and methods of sterilization of ENT instruments.

Materials and Method

The study was initiated in the month of October 2021. An online survey questionnaire was circulated among otolaryngologists, consultants, and postgraduates all over India through multiple modalities on social media like WhatsApp, Telegram, and Facebook. Informed consent

was taken, and anonymity of the data was assured. The form was completed by 490 respondents. The predesigned semi-structured questionnaire consisted of 4 sections with a total of 24 questions (table 1). The survey contained sections related to covid vaccination status, changes made in practice and OPD consultations during the lockdown period, and modifications done in operation theatre setups. The Google forms were kept open for one month. Ethical clearance was obtained before the commencement of the study. The data collected was coded and entered in MS Excel and analyzed. The results were presented in terms of frequencies and percentages.

Results

A total of 490 responses were obtained within one month. Out of 490, 164(33.5%) were working in medical colleges, 152 (31%) were practicing in private hospitals, 136 (27.7%) were working in government hospitals, and 38(7.7%) were affiliated with private ENT clinics. This shows that an almost equal proportion of otorhinolaryngologists affiliated with medical colleges and private hospitals participated in the study.

It was noted in our study that 110(22.4%) were infected by COVID 19 and 478 (97%) ENT doctors participating in the survey were vaccinated. Initially, 47.7% of the doctors had stopped practicing during the lockdown, but that number reduced to 14.65 % as the lockdown proceeded and more doctors started to practice.

Out of 84% (421/490) of doctors who started practice, a good majority, 67.52% (284/421) attended all types of cases, and 30.57% (227/421) managed only emergency cases. Only 54.14% (227/421) performed endoscopic procedures during lockdown time; the rest, 44.59% avoided endoscopy. Regarding surgeries during the lockdown period, 55.41% (233/421) did only emergency surgeries,33.8% (142/421) managed both elective and emergency cases,

and 5.10% (22/421) undertook only elective cases. Among emergencies attended,38.3% (161/421) of the total attended foreign body removal, 36.64% (154/421) managed epistaxis, 19.52% (82/421) did tracheostomies. 5.11% (21/421) of ENT doctors did not undertake any emergency cases.

Analyzing the changes in ENT OPD after the relaxation of covid lockdown, the majority 91.8% (450/490) was seeing all patients irrespective of covid status, 3.8% (19/490) of consultants saw only RAT (Rapid Antigen Test) or RTPCR (Reverse Transcription Polymerase Chain Reaction) negative patients, 2.5% (12/490) were seeing patients without active symptoms of upper respiratory tract infection. 1.9% still did not restart consultations. It was noted that 44.8% (219/490) of otorhinolaryngologists were doing endoscopies in all indicated patients,14.72% stopped doing endoscopies completely during this period and 31.9% (156/490) were doing endoscopies only after testing RTPCR/RAT, 8.59% (42/490) conducted endoscopies in patients who were free of symptoms of upper respiratory tract infection.

Regarding precautions taken by the respondents, 100%of the respondents used a mask always, 91% used hand sanitizer after seeing every patient, 57% used gloves, 49% used a face shield occasionally, 44%used gowns,22% washed their hands after seeing every patient,12.7% used goggles,47.7% maintained social distance with patients, 25.4% used scrub dress and 0.07% wore PPE (personal protective equipment) kits (Fig 1). About 75.7% (368/490) resumed seeing patients without limiting appointments and 22.93% (112/490) limited the number of patients seen per day. To prevent aerosol exposure 51.59% (253/490) were not doing posterior rhinoscopy and indirect laryngoscopy in OPD. The doctors were asked to specify the measures they took to prevent aerosol spread while doing

endoscopies. A good majority (81%) used a face shield, 60.6% were doing endoscopies after using anesthetic sprays, 43% used aprons, 14% advised patients not to cough or sneeze during a procedure, 38% were consultants doing recording to avoid multiple endoscopies(Fig2). Coming to the method of sterilization of endoscopes, 66.46% (326/490) of otorhinolaryngologists used cidex solution to sterilize, 18.35% (90/490) used soap and water for cleaning, 15.19% (74/490) cleaned with sanitizer (Fig3). Regarding the method of sterilization of metal instruments in ENT OPD, an almost equal proportion of doctors sterilized their instruments by employing an autoclave and sterilizer, 50% and 46%, respectively.26% of respondents used cidex solution for the purpose, some used vapors, dry heat (4.4%) and formaldehyde (3%) as a method of sterilization (Fig4).

On analyzing the changes made in executing surgeries in the post-lockdown period of the pandemic, 58.8% of surgeons limited the number of surgeries in a day. About case selection in elective OT procedure,79.62% (390/490) doctors indicated that they would

want to perform RTPCR preoperatively before surgery, 12% (59/490) doctors needed only RAT negative and 3.18% (16/490)were doing surgeries irrespective of the covid status of the patient by wearing PPE kit. As an additional precaution, 67.5% of ENT surgeons wore face shields or goggles, and 14.6% wore PPE kits while operating. 54% (265/490) of surgeons were doing surgeries in post-covid patients only after 28 days of RAT negative report while 25.85% (127/490) were doing it within a 15-21 day period. Only a minority 6.1% (30/490) did it within 14 days. About case selection for surgeries, 21% (103/490) surgeons operated on covid and non-covid patients in separate operating rooms in different OT complexes,20% (98/490) managed both category patients in separate OT in the same OT complexes,6.8% (33/490) using the same theatre for all cases after fumigation and 52.7% (258/490) doctors not doing surgeries on covid positive patients at all. 95% did not buy any new equipment in OT for purpose of additional protection but a minority of 5% bought new UV sterilizers, air filters, respirators, and sanitizer dispensers.

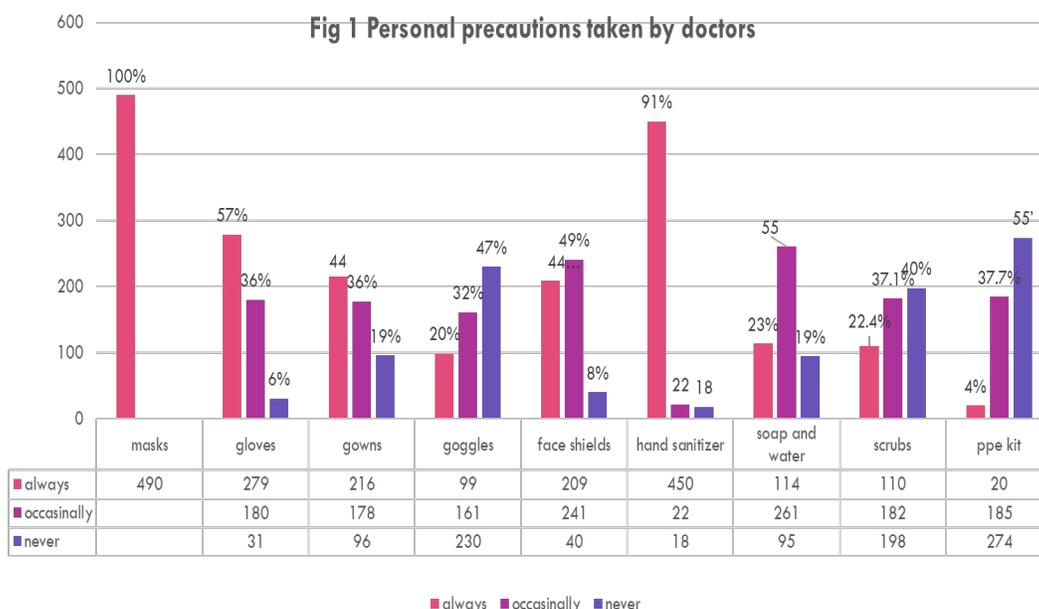


Figure 1

Fig 2 METHODS TO PREVENT AEROSOL TRANSMISSION WHILE DOING ENDOSCOPIES

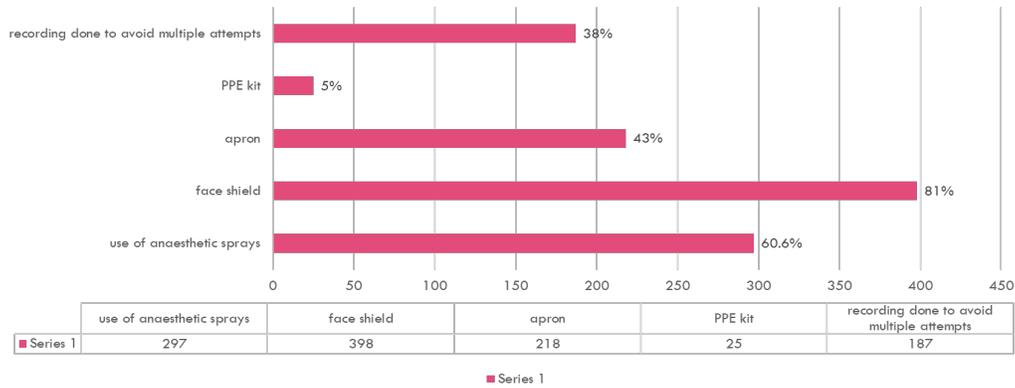


Figure 2

Fig 3 Method of sterilization of endoscope after every patient

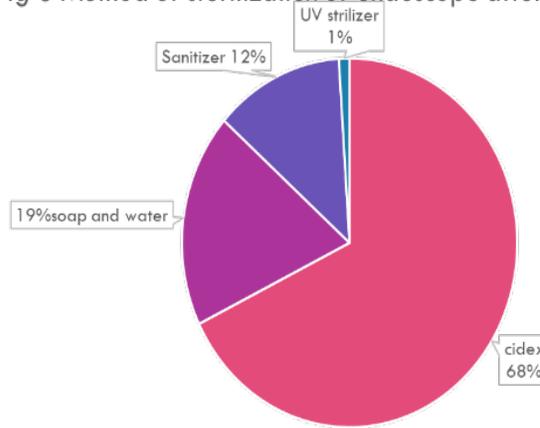


Figure 3

Fig 4 Method of cleaning ENT metal instruments

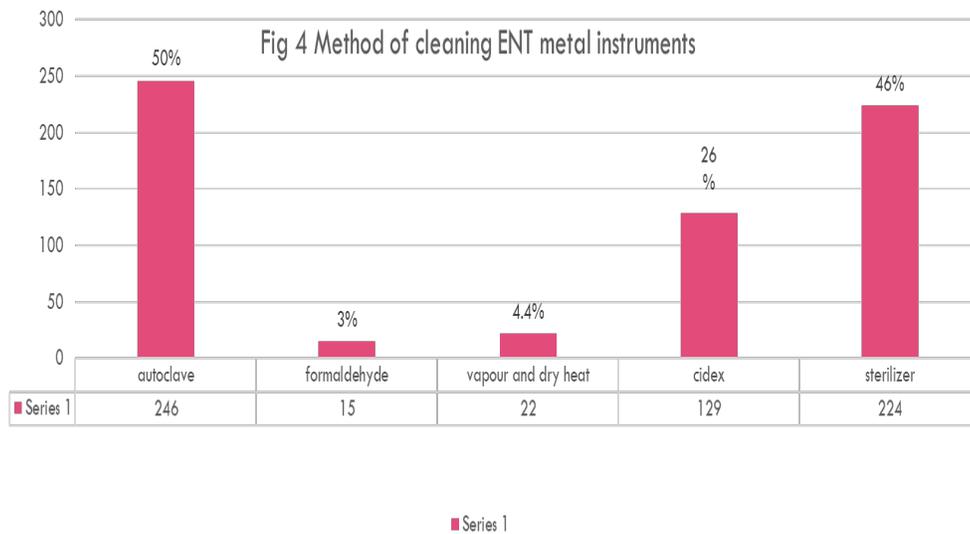


Figure 4

Discussion

Without a doubt, Covid has changed the ENT practice visibly like many other specialties of medicine. Given the close physical contact nature of their work and considering the modes of transmission of the virus, it is clear that ENT surgeons are also more at-risk to get COVID infection. The first recorded physician to die in Wuhan, China, related to COVID-19 was an otolaryngologist on 25 January 2020.⁷In our survey, it is good to notice that about 77.6% of respondents did not get a covid infection so far. It is evidently due to the foremost steps taken by ENT surgeons while practicing in OPD and doing surgeries. It is reassuring to note that at the time of responding to the survey 97.5% of doctors were vaccinated.

While the ENT surgeons themselves were available, the lack of managerial, administrative, nursing and other supporting staff posed logistical and operational challenges to running a healthcare facility in times of covid pandemic. It was noted that most of the otorhinolaryngologists working in medical colleges and government hospitals (61.7%) were still consulting and operating cases than in private clinics. This is understandable since large hospitals tend to be better provided in terms of staff, protective equipment, medicines, and IP facilities for isolation than smaller clinics. During the lockdown, about 44.59% stopped doing endoscopies in OPD which might be due to scarcity of manpower, cost constraints, and also fear of getting an infection. During lockdown emergencies such as stridor, trauma, epistaxis, foreign body removal, and head and neck malignancy that qualified for emergency care, based on the judgment of the clinician, remained the most common procedures being performed. After the relaxation of covid lockdown and the percentage of clinicians attending the OPD cases increased from 51.9% to 91.8%. It may

be due to the launching of new screening methods like thermal screening, and hand sanitization. Considering fever is one of the earliest and most common symptoms, temperature-based screening helps identify infected cases and check the spread of the virus. This can be performed using non-contact infrared thermometers and/or thermal scanners at entry points to hospitals. This was meant to be applied as part of a composite program in combination with self-reporting of relevant symptoms, contacts, and travel history. The idea was that people who have a rise in body temperature be treated as having a suspected case of COVID-19 and be isolated until definite test results are obtained. Regarding surgeries, during the lockdown, 55.4% attended only emergency cases, which resulted in the delay of elective surgeries in a fair number of patients.

An OPD is a high-risk environment for both, the examining doctor as well as the patient. Andreas *et al* in their study of otolaryngology in covid 19 pandemic era mentioned that the virus appears to be present in the upper aerodigestive tract, with very high concentrations in the nasal cavity and nasopharynx compared to the rest of the pharynx.^[4] Endoscopic examinations should be avoided if possible and should only be done if it cannot be avoided (e.g. increased suspicion or risk of malignancy, airway obstruction) [5-8]. Our study shows only 31.9% of doctors were doing RAT/RTPCR before doing endoscopies in the post-lockdown period and the majority were doing it without knowing the covid status of the patient and this might be due to cost constraints or the practical difficulty in implementing such protocols. So, as the above study mentioned it is better to do endoscopies in mandatory cases only during similar pandemic situations in the future. The study conducted by Soma M *et al* says that

anesthetic techniques that minimize coughing along with pre-oxygenation with 100% oxygen and rapid sequence induction are highly recommended to avoid manual ventilation that carries a higher risk of aerosol generation [9,10]. 66.2% of ENT doctors used anesthetic sprays while doing endoscopies which decreases gagging and coughing. This will decrease aerosol generation. Others started recording and advising patients not to cough during endoscopies. ENT doctors have taken innovative steps during this period to prevent exposure while providing excellent care to the community. Among our respondents, a minority started using UV sterilizers, UVC radiation has been shown to destroy the outer protein coating of the Coronavirus, which is a different virus from the current SARS-CoV-2 virus. The destruction ultimately leads to the inactivation of the virus [11].

Overall, in our study, we found that surgical procedures majority concentrated only on emergency cases during the lockdown, but post-lockdown a good number of surgeons started doing both electives and emergencies. With regard to personal precautions, PPE kit usage was limited to very small numbers post-lockdown in the OPD, while the majority were using masks and sanitizer, and a reasonably good number of doctors using face shields. The usage of PPE is limited due to the inconvenience of proper donning and doffing and the deficit of PPE kits. Although the shortage has forced the development of alternate strategies, there is currently no study to support the safety of repurposed or recycled PPE [12]. Our study shows that 58.4% of ENT surgeons limited the number of surgeries per day compared to the previous era. The majority of the ENT surgeons were doing RT PCR preoperatively and waiting for 28 days post covid infection before doing surgeries for patients.

Negative pressure rooms also help in optimizing clinical care and minimizing the exposure of patients and health care

professionals to SARS-CoV-2 as it uses lower air pressure to allow outside air into the segregated environment [13]. This trap and keeps potentially harmful particles within the negative pressure room by preventing internal air from leaving the space. Our study failed to encounter the usage of negative pressure rooms. It is recommended that operating rooms be converted to negative-pressure rooms so that infectious transmission originating from within the room does not occur [14,15].

Some changes in ENT practice improved patient care in India but some also created certain difficulties for the patients. Improved patient care included better sterilization of OPD metal instruments and endoscopes after examining each patient, and using separate operation theatres for covid and non-covid cases (40.9% in our study), thus reducing the spread of infection. Patient difficulties included delays in getting an appointment with the doctor as they were seeing limited number of patients per day(22.93%), increased cost of health care as the cost of procuring personal protection equipment and covid testing adds to the bill of the patient. Other patient difficulties include an increased chance of getting infected and postponement of elective surgeries.

Conclusion

Otorhinolaryngology practice had been largely affected by the COVID-19 pandemic, which will have an impact on both short- and long-term ENT practice. Changes that happened within the clinic, appointment policy, active screening of patients for fever, sterilization of endoscopes and ENT instruments, and usage of masks, gloves, and aprons may become permanent. Staff protection and precautions to stop droplet and fomite transmission are also likely permanent changes. It is possible that in the days to come, evidence may emerge which can change the prevention strategies for COVID-19. The restrictions in place for limiting its

spread can change for the Indian otorhinolaryngology community and the global ENT fraternity. Newer guidelines have to be evolved depending on these changes made by regulatory bodies for such situations to help patient care without compromising on safety for both doctors and patients.

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