

Original Research Article

A discussion on strategic considerations, effective safety measures and procedural deliberations in otorhinolaryngology practice and surgery during COVID-19: an integrative approach

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ABSTRACT

Background: Coronavirus disease of 2019 (COVID-19) has made an imperishable haunting mark worldwide, and has changed in many aspects the way medicine had been practiced till now. This study is intended to highlight the approach that was followed in the department of ear, nose, and throat (ENT) learning from the existing available guidelines to provide safe routine and emergency ENT care to all the patients irrespective of the COVID status. Objectives of the study were to highlight the changes, challenges, triage and safety recommendations associated with patient management during the ongoing pandemic.

Methods: This study conducted between 25th March 2020 to 15th September 2020 constitutes of following points covering various aspects of patient management such as education about personal protective equipment, the 3-station triage system starting from the patient's entry in the hospital, general working and precautions at the ENT outpatient department (OPD) registration counter, medical consultation with otorhinolaryngologist in OPD or in ER, general precautions in endoscopy room/voice lab, and operation theatre, patient transport, and postoperative care.

Results: A total of 8930 patients were seen from 25th March 2020 to 15th September 2020. 7885 patients were seen in ENT outpatient department, 561 in emergency room, and 484 patients were seen as referrals sent from other departments. 297 patients were advised admission for various surgical procedures whereas 22 patients were admitted for conservative management.

Conclusions: Through this study, we suggest a paradigm consisting of safety and triage recommendations to be followed while dealing with patients in a way to minimise the cross transmission of virus.

Keywords: COVID-19 pandemic, Coronavirus 19, SARS CoV-2, Otorhinolaryngology, Surgery, Outpatient department, Safety recommendations, RT-PCR

INTRODUCTION

According to the archives by World Health Organisation (WHO), Wuhan Municipal Health Commission, China reported a cluster of pneumonia cases in Wuhan's Hubei province on 31 December 2019. The disease outbreak news on the new virus was first published by WHO on 5th

January 2020, and from that day the coronavirus disease 2019 (COVID-19) has posed as the greatest public health emergency of this century.¹ As of 4th October 2020, over 34 million COVID-19 cases, and 1,030,160 COVID deaths worldwide have been reported to WHO.² Out of these, approximately 61,50,000 confirmed cases of COVID-19 and 96,378 deaths have been reported from India alone till

15th September 2020.³ Amongst the most “at risk group” of medical health care givers are the otolaryngologists, ophthalmologists, pulmonologists, and anaesthetists.⁴ The origin of the virus is not well understood, but it is thought that a bat or a pangolin might have served as the primary reservoir.⁵ The disease is commonly marked by spectrum of symptoms like fever, cough, shortness of breath, malaise, myalgias, diarrhoea, headache, and loss of smell or taste. Severe disease is characterized by an acute respiratory distress syndrome (ARDS), which has a 50-80% mortality in patients who require mechanical ventilation.^{6,7}

As with other countries, the Ministry of Health and Family Welfare of India also prioritised its policies to minimise person to person transmission, delay the acute surge of cases and prevent the entire country from going into community spread at once. These policies included the “lockdown period” that was implemented in the entire nation starting from 24th March 2020 which continued in various phases till 30th June 2020. Other methods included media and telephonic spread of memorandum by collaborating with all telecommunication services of the nation. However, while the entire nation was in lockdown, the health care workers continued to provide their services to patients either confirmed or suspected to have COVID-19 infection.

Taking lessons from other countries that had already been affected by the pandemic, we formulated a paradigm consisting of triage and safety recommendations to be followed while dealing with patients who came to our institute for medical and surgical otorhinolaryngology services during this ongoing pandemic.

The aim of this study is to highlight the changes, challenges, triage and safety recommendations associated with patient management which were practiced effectively at our institute during this ongoing pandemic situation and share our experience.

METHODS

This observational descriptive study was conducted in the department of otorhinolaryngology at a tertiary referral centre in the northern state of India. All patients presenting to the outpatient department (OPD), inpatient department (IPD), emergency room (ER), and those already in the intensive care units (ICUs) who required ENT opinion or intervention, irrespective of their COVID-19 status between 25th March 2020 and 15th September 2020 were included in the study.

Faced with the outbreak of COVID-19, when many big hospitals and medical colleges of the state were converted into dedicated COVID care facilities and were refusing all non-COVID services, our institute was the one which dealt with all kinds of routine as well emergency ENT consultations successfully.

Our indigenously formulated and institution-oriented modification of available guidelines were strictly followed by each and every personnel of the department.

This paradigm constitutes of following specific points that cover the various aspects of safety recommendations: education and training of the team about personal protective equipment (PPE); triage at hospital entry; patient triage and safety precautions in OPD, endoscopy room, and admission ward; safety precautions in operation theatre; education about patient transport; and decision about postoperative care.

Education and training of team about PPE

Education about donning and doffing procedures of PPE was given to every hierarchy of healthcare worker. Donning and doffing rooms were separate, and the proper sequence of donning and doffing was pasted on the wall of the changing rooms to help the beginners, trainees, residents, and even consultants. Consultants during outpatient or endoscopy room visits, and residents donned the following PPE set throughout the complete duration of OPD: double layered body covering which included a scrub suit inside, over which a disposable long sleeved full body covering gown is worn; an N95 respirator or filtering face piece 2 (FFP2) or higher respirator; double gloves; face shield; disposable head cap; and shoe covers.

Disposal of this PPE is equally important and was done in an infectious medical waste disposal receptacle before leaving the OPD.

The 3-station triage system starting from the patient’s entry in the hospital

Any patient who entered the hospital, had to first visit the bay area consisting of a team of 2-3 doctors donned in PPE and doing the 1st triage of the patients where they were segregated in 2 groups; those having respiratory symptoms, and those with non-respiratory symptoms. All the respiratory symptoms patients were diverted to the dedicated COVID-19 OPD (or flu OPD) for the sole purpose of care of COVID-19 suspected/confirmed patients.

2nd triage was also performed in the bay area where patients with non-respiratory symptoms were enquired regarding their history of contact with any COVID-19 positive patient, any history of travel abroad or to any of the containment zones declared by the government. If patient had no history suggestive of exposure to SARS-CoV-2 virus, patient was directed to the desired OPD for consultation. However, if there was a positive history of contact or travel, patient was examined for fever, and for oxygen saturation by pulse oximeter. If the examination revealed no abnormal findings, the patient was allowed to visit the desired OPD, whereas a patient who showed fever or decreased oxygen saturation, was directed to the dedicated flu OPD.

3rd triage was taken up in the flu OPD, where depending on the history, examination, and assessment of symptoms, the patient was either prescribed medicines, admitted in the dedicated isolation COVID ward/ICU of our institute, or asked for home isolation (Figure 1).

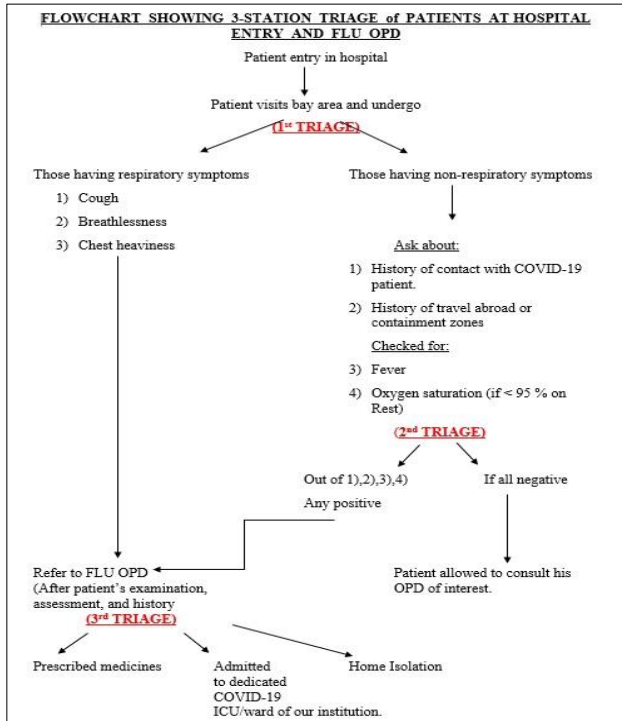


Figure 1: Flowchart showing 3-stage triage of patients starting from the main entrance of the hospital to flu OPD.

Patient triage and safety precautions in OPD, endoscopy room, and admission ward

General precautions at ENT OPD registration counter

Precautions taken with patients

Patient reaching ENT OPD registration counter was checked once again for fever using an infrared thermal scanner and was also made sure that patient was wearing a mask that was adequately covering both nose and mouth. Not more than 3 people at a time were allowed to stand in the queue at the registration counter with a distance of more than 6 feet between them (Figure 2A). Patients were not allowed to crowd in front of any room, nor were they allowed to sit closely in the OPD (Figure 2B).

Precautions taken by OPD staff

A barricading was done using a barrier to avoid the patient coming too close to the registration counter window. The OPD registration attendant was also dressed up with a scrub suit as the innermost layer, wearing a disposable gown on top of it, N95 respirator, a face shield, double gloves, shoe cover, and disposable head cap (Figure 2C).

These attendants were also advised to clean their gloved hands by rubbing them with an alcohol-based hand rub, and also changing the outer gloves frequently. We kept foot pedal operated dispensers with alcohol-based formulations in places with easy access for patients and their accompanying attendants (Figure 2D).

General precautions in OPD

We designated 2 rooms of OPD; one as influenza like symptoms OPD (ILS OPD), and other as a fumigation room (Figure 2E).

ILS OPD was a large well-ventilated room where patient with influenza like symptoms were made to sit at least 2 meters away from the surgeon and was enquired from behind a plastic curtain (Figure 3A).

Like many other hospitals, our institute also faced a severe shortage of PPE in the early days of pandemic, so we decided to reuse the surgical gowns after fumigating them. After every OPD, all gowns were placed in the fumigation room, which was daily fumigated with formalin and potassium permanganate combination, and sealed for approximately 16 hours.

Cleaning and disinfection of every room of the OPD was performed three times by a designated hospital personnel who sprayed prepared Hospidex®-OTD solution on commonly touched objects and surfaces. We also displayed posters in outpatient department, emphasising the importance of social distancing, wearing mask, and respiratory etiquettes (Figure 3B). Once allowed to enter the OPD consultation room or ER, the hands of patient were sanitised by an alcohol-based hand rub that contains at least 60% ethanol or 70% isopropanol.

Depending on the complaints of the patient, the following paradigm was followed.

Non-emergency OPD consultation

If the complaints were simple ear, nose or throat related and the additional history was not suggestive of any SARS-CoV-2 infection/contact/or exposure, patient was advised for a 5- or 7-days course of medication either without examination or after examining through a plastic curtain. The patient was then advised to not come for a follow up visit if the symptoms resolve. In case the symptoms decrease, but does not subside, the patient was then counselled to attend a telemedicine consultation.

Admission for conservative management in ward

We divided the ENT admission ward into general ward for admission of confirmed SARS CoV-2 negative patients, and isolation ward for patients with unknown COVID-19 status. If the patient's complaints were such that admission in the ward for conservative management is required.

The patient's history was taken and if it was suggestive of SARS-CoV-2 infection/contact/or exposure, the patient was directed to report to flu OPD.

If the history was not suggestive of any SARS-CoV-2 infection/contact/or exposure, the patient was advised admission in the isolation ward of ENT IPD, and allotted beds at a distance of more than 8 feet from one another (Figure 3C). COVID reverse transcriptase-polymerase chain reaction (RT-PCR) with other relevant investigations related to the ENT symptoms were sent. If RT-PCR comes out to be negative, the patient was shifted from ENT isolation ward to the general ENT ward. The nursing staff designated to attend the isolation ward patients wore a level 2 PPE. The duties are adjusted in a way that for 15 days 4 HCWs are designated to that ward followed by a 7 days quarantine period.

In case that a patient's RT-PCR came out to be positive after admission to the ENT isolation ward, but the patient had no symptoms; was designated as an "asymptomatic COVID positive patient". The patient was shifted from our isolation ward to the COVID isolation ward.

In case that a patient's RT-PCR came out to be the positive after admission to the ENT isolation ward, and started developing symptoms also, was designated as "symptomatic COVID positive patient". The patient was then directly shifted either to the COVID isolation ward or to the ICU, depending on the severity of the symptoms, and presence of co-morbidities.

Admission for surgical management in ward

If the patient required an emergency or routine surgical procedure and his COVID-19 status was unknown, with a regular surgical procedure consent, a separate consent was signed by the patient and his attendant clearly mentioning that there is a high risk that the patient can contract COVID infection during his stay in the hospital, which can change his course of treatment. We performed RT-PCR for elective surgeries, and rapid antigen test for emergency surgeries in all preoperative patients.

If a patient was confirmed to be COVID-19 positive after admission to ENT isolation ward for a routine (non-emergency) surgery, the procedure was deferred and patient was shifted to dedicated COVID-19 ward.

If a patient was confirmed to be COVID-19 positive, and was thought to be at risk of losing life or at risk for significant negative outcomes if surgery was postponed, the symptoms were assessed and was admitted in dedicated COVID-19 isolation ward. The management of such patients was then proceeded combinedly by otorhinolaryngologist, anaesthetist, and pulmonologist.

In COVID-19 positive patients who were critical, and were undergoing ICU care, ENT consultation was mostly restrained to the need for tracheostomy. In cases where

patient was on ventilator for more than 14 days, the need for tracheotomy was evaluated very carefully as the mortality and the disability eventually increase with or without tracheostomy in such cases. Tracheotomy in intubated COVID-19 patients was only performed when the anaesthetist, pulmonologist, and ENT surgeon, were sure that a considerable benefit is expected.

General precautions in endoscopy room/voice lab

Endoscopic examinations of the nose, pharynx, and larynx are among the most common otorhinolaryngology diagnostic procedures which are considered aerosol generating procedures.

Specific recommendations include the following: doctor and assistant always donned PPE set already described under section 1 "education and training of the team about PPE"; number of endoscopies performed daily were kept to a minimum and routine or lower-priority endoscopy were deferred; the examination was performed by the most experienced personnel available so as to decrease the duration of the procedure; or a nasal endoscopy, topical anaesthesia soaked cottonoids were placed to make the examination quick and more comfortable, use of topical anaesthetic sprays were absolutely avoided; lignocaine viscous was used as topical anaesthesia for performing a laryngeal endoscopy, use of topical anaesthetic spray was avoided, any office-based intervention such as biopsy, injection, laser etc. procedures was deferred; after each endoscopy the used endoscope was cleaned in running water to wash-off the dried secretions which gets adhered to its distal shaft and the tip, then it was disinfected by immersing it in CIDEX® OPA (containing orthophthalaldehyde) solution for a minimum of 15-20 mins; and laryngoscopy room was sanitised with a hospital grade disinfectant such as 2-3% hydrogen peroxide solution, 2-5 grams/litre chorine disinfectant, 75% alcohol, or formalin and potassium permanganate combination.

General precautions in operation theatre

All patients were operated under general anaesthesia with orotracheal intubation.

Preoperative determination of COVID-19 status of patient

Refer to section "Admission for surgical management in ward".

Operation theatre settings and requirements

The temperature in the operating room was maintained at 20–22 °C. COVID-19 negative cases were done in a regular OT. The regular operating rooms had positive-pressured ventilation system, the air circulation cycle was increased to at least 25 exchanges/hour. However, operations in patients with known COVID-19 infection were performed in a designated operating room with negative pressure system, as negative-pressured operation

rooms are reported to minimize the risk of infection transmission. Irrespective whether the surgery was performed on a COVID positive case or a negative case, the below mentioned PPE set was donned for performing the surgery -OT dress (scrubs) inside, over which a disposable long sleeved full body covering impervious surgical gown was worn; double masks including a 3-ply surgical mask inside, and N95 mask or PPF2 or higher respirator outside with proper sealing of mask with an adhesive tape over nose; double gloves; eye goggles; full face shield; disposable head cap; hood cap over disposable head cap; and disposable shoe covers. The surgeon, and his assistant in addition to the above wore an addition surgical green sheet gown over the OT dress (scrubs), and beneath the disposable gown as a 2nd layer of protection (Figure 4).

Precautions during intubation and extubation

People inside the operation theatre were kept to a minimum of 5 which included anaesthetist, anaesthesia technician, surgeon, surgeon’s assistant, and a scrub nurse. In all operations, whether patient is COVID-19 positive or negative, during intubation, only anaesthetist and anaesthesia technician were present in the room. Rest all were asked to leave the room and only return after the airway was secured. This routine was followed during extubation also. The surgeon entered the operating room approximately 10 minutes after intubation and exited before the extubation. Air conditioning and laminar flow of operation theatre were switched off both during intubation and extubation to limit the spread of aerosols.

OT etiquettes

The door of the operating room always remained closed during the surgery. All surfaces which may be contacted

during the surgery were covered beforehand. All areas at risk of contamination in the room were cleaned and disinfected after the surgery using Hospidex®-OTD solution. The tissue samples and their respective forms planned to be sent to the pathology department were marked with warning signs to minimize the risk of contamination.

Patient transport after surgery

Adequate PPE was donned during the transfer of SARS-CoV-2–positive patients or patients of unknown infection status. While shifting, non-intubated patient was given a surgical mask if tolerated by the patient. The ICU patients who underwent tracheotomy were shifted back to their respective ICUs by using closed inline catheter suction system, a closed circuit if patient was on ventilator or a T-piece if ventilator support was not required.

Postoperative care

If a confirmed COVID RT-PCR negative, or a COVID RT-PCR positive but asymptomatic patient developed any postoperative fever or pulmonary symptoms after the surgery, it could indicate infectious or aspiration pneumonia, pulmonary embolism, or pulmonary oedema. However, we kept a high suspicion index to identify and diagnose possible COVID symptoms in the postoperative patient.

If patient was diagnosed with a confirmed COVID-19 infection during the postoperative care, patient was transferred to the COVID isolation ward/ICU. Surgical postoperative care along with medical treatment for his COVID-19 infection was provided in isolation ward for 10 days continuously, from day of onset of symptoms.

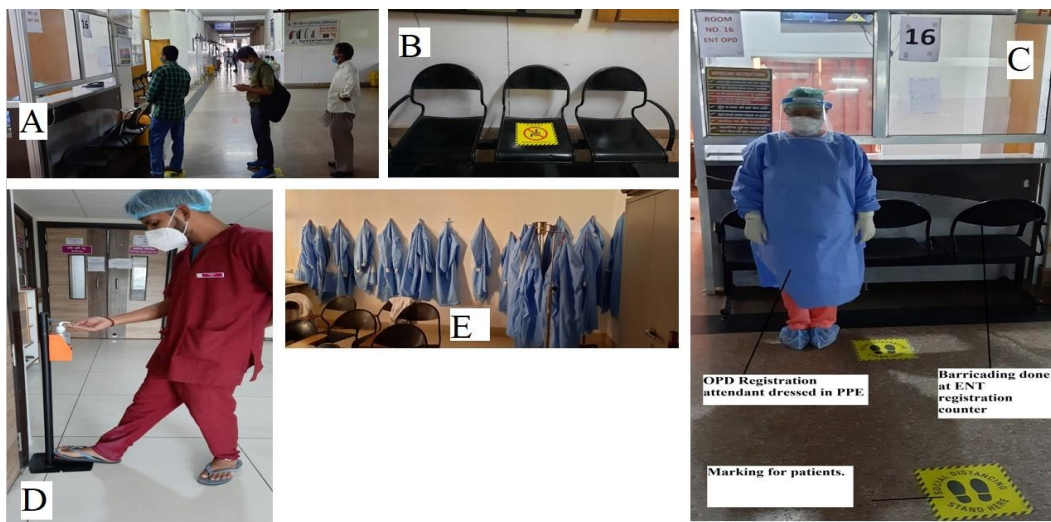


Figure 2: (A): Only 3 patients at a time allowed to stand in the queue at the registration counter with a distance of more than 6 feet between each patient, (B) seats showing “no sitting” sticker pasted on them so that patients can wait outside rooms while maintaining social distancing, (C) a barricading is done at the OPD registration counter window and OPD registration attendant seen in PPE, (D) foot-pedal operated dispensers with alcohol-based formulations kept in OPD and (E) fumigation room where all the gowns are placed after OPD for disinfection.



Figure 3: (A) ILS OPD where patient with influenza like symptoms were made to sit at least 2 meters away from the surgeon and was seen from behind a plastic curtain, (B) posters displayed in OPD emphasising the importance of social distancing, wearing mask, and respiratory etiquettes, and (C) beds allotted to patients in ward are at a distance of more than 8 feet from one another.



Figure 4: Surgeon in full PPE.

RESULTS

A total of 8930 patients were seen from 25th March 2020 to 15th September 2020. 7885 patients were seen in ENT outpatient department, 561 in emergency room, and 484

patients were seen as referrals sent from other departments. 297 patients out of 8930 were admitted for various surgical procedures, whereas 22 patients were admitted in ward for conservative treatment.

Out of 297, 288 cases were operated during this pandemic which included 55 nasal surgeries, 62 ear surgeries, 33 throat surgeries, 31 head and neck surgeries, 25 esophagoscopies, 16 bronchoscopies, 56 tracheostomies, and 10 cases of maxillofacial trauma (Table 1). Out of 288, 27 cases were performed as emergency surgeries and 261 as elective surgeries (Table 2). Out of 7885 patients seen in OPD, we found 410 patients with innocuous symptoms like sore throat, nasal congestion, anosmia, and ageusia which were further investigated by RT-PCR and other relevant investigations (Table 3).

The 27 emergency surgery cases include 4 deep neck space abscess, 3 penetrating trauma of neck, and 18 cases of foreign body retrieval from aerodigestive tract. 2 tracheostomies, were performed in emergency and both were preoperatively confirmed as COVID positive on rapid antigen testing.

49 tracheostomies were done electively in intubated patients requiring airway for prolonged ventilation in ICUs, and 5 were done electively for maxillofacial trauma patient (Table 1).

Out of 297 surgical patients admitted in ENT isolation ward, 11 patients came out positive in the preoperative COVID-19 RT-PCR report, 3 turned out positive in the immediate postoperative period, and 5 came out positive after being discharged from the hospital. There were 278 patients who remained COVID negative throughout their treatment. Out of 11 patients who were confirmed COVID positive before the surgery, 9 cases were deferred and were

advised planned surgical intervention later, whereas 2 cases were taken up as emergency cases (Table 3). Out of 22 patients admitted in ward for conservative treatment, 20 remained negative throughout their treatment tenure, whereas there was none who turned out positive on admission when their RT-PCR was sent, and 2 patients were negative on admission but started showing COVID specific symptoms in ward after 3-5 days of hospital stay; RT-PCR was sent, that turned out to be positive, and patients were then shifted to COVID-19 ward for management (Table 3). Except for 5 tracheostomies done in the ongoing pandemic time, there were no complications reported in any of the surgical or

conservative patients. These 5 patients succumbed to their debilitated overall condition.

Till date all the members of the ENT department (OPD, OT, and ward) have been strictly abiding by the triage and safety recommendations paradigm formulated by the department and hence, the department has been successful in remaining infection free for more than 6 months even after performing all the routine and emergency ENT procedures in the pandemic era, with zero incidence of any cross infection between patients, HCWs, or amongst themselves.

Table 1: Total surgeries done in ENT department.

Type of surgery	Number
Nasal surgeries	
Septoplasty	26
Endoscopic sinus surgeries (fess)	23
Septorhinoplasty	4
Transnasal transsphenoidal pituitary macroadenoma excision with skull base defect repair	1
CSF leak repair	1
Total patients	55
Ear surgeries	
Tympanoplasty/myringoplasty	31
Mastoidectomy	25
Myringotomy and grommet insertion	3
Stapedotomy	1
Cochlear implant	2
Total patients	62
Throat surgeries	
Direct laryngoscopy	18
Microlaryngoscopy	4
Adenotonsillectomy	10
Tonsillectomy with styloidectomy	1
Total patients	33
Head and neck surgeries	
Thyroid surgeries	10
Submandibular gland excision	3
Deep neck spaces incision and drainage (emergency)	4
Cyst excision in head and neck region	3
Penetrating trauma of neck (emergency)	3
Total parotidectomy	1
Partial laryngectomy	1
Total laryngectomy	1
Wide local excision of growth alveolus with anterior segmental mandibulectomy with bilateral supraomohyoid neck dissection with free fibula flap repair	1
Left partial glossectomy with left supraomohyoid neck dissection with free radial artery forearm flap	1
Maxillectomy	3
Total patients	31
Oesophagoscopy	
For dysphagia	11
For foreign body oesophagus (emergency)	14
Total patients	25
Bronchoscopy	
For patient not maintaining oxygen saturation after extubation or after tracheostomy tube removal, to look for tracheal or subglottic stenosis/web, or granulation etc.	12

Continued.

Type of surgery	Number
For foreign body bronchus (emergency)	4
Total patients	16
Tracheostomy	
Emergency tracheostomy (emergency)	2
Elective tracheostomy for intubated patient	49
Elective tracheostomy for Maxillofacial trauma patient	5
Total patients	56
Open reduction and internal fixation with arch bar fixation with IMF	
Maxillofacial trauma	10
Total patients	10

Table 2: Total surgical patients operated during pandemic.

Parameter	Elective surgeries N=261	Emergency surgeries N=27
Total surgical patients	288	

Table 3: Distribution of patients on the basis of otorhinolaryngology services provided during pandemic.

Surgical patients admitted in ward (n=297)						
Came out positive in preop period on preop RT PCR		Came out positive in post op period while in ward	Came out positive in the late postop period after being discharged from the hospital	Patient remained negative throughout	278	
Elective surgery	Emergency surgery					
9	2	3	5			
Patient denied surgery=9	Patient taken up for surgery 2+3+5+278=288					
Conservative patients admitted in ward (n=22)						
Came out positive in ward when routine RT PCR was sent after admission (asymptomatic positive)		Patient was negative on admission but became positive in ward after 3-5 days of stay in hospital (symptomatic positive)	Patient remained negative throughout (i.e. on admission, during stay, or after discharge)			
0		2	20			
OPD patients (n=7885)						
		Sore throat	Nasal congestion	Decreased or loss of sense of smell	Decreased or loss of sense of taste	All other routine ENT OPD complaints like neck swelling, ear complaints like tinnitus, decreased hearing, ear discharge, vertigo, etc.
		200	120	58	32	7475
Total patients with innocuous symptoms that could be COVID-19		410				
Total patients seen in OPD		7885				

DISCUSSION

Coronaviruses belong to a family of common respiratory viruses, and has been linked to several outbreaks, such as the severe acute respiratory syndrome (SARS) of 2002 and the middle east respiratory syndrome (MERS) of 2012.⁸

The main symptoms related to COVID-19 are sore throat, cough, fever, difficulty in breathing (dyspnoea), body aches, headache, fatigue, anosmia, and ageusia. It is noteworthy to mention that the individual can be an asymptomatic carrier also.¹

The main transmission route of SARS-CoV-2 is thought to be by large respiratory droplets carrying viral particles, which are formed during coughing, sneezing, and speech. If the diameter of these droplet particles is $>5-10\ \mu\text{m}$, they are called as respiratory droplets, and if the diameter is $<5\ \mu\text{m}$ they are called as droplet nuclei.⁹ Respiratory droplets stay in the air for a few seconds, and cover only a short distance before landing on the surfaces due to their weight. However, droplet nuclei are primarily formed during procedures such as mask ventilation, intubation, tracheostomy, tracheal aspiration, and endoscopic examination. After mixing with the air, they behave as aerosols. These aerosols can hang in the air and can remain active for up to 3 hours. They stay on the surfaces for even more time due to their lightness.¹⁰ The maximum distance of transmission for SARS-CoV-2 aerosols could range from 4 meters to 8 meters.¹¹⁻¹³

Clinical data indicate that approximately half of the patients with COVID-19 do not have fever during early stages of the disease, with some patients presenting to the otolaryngologist with fairly innocuous symptoms such as nasal congestion, sore throat, and hyposmia.¹⁴ We also found 410 patients with such innocuous symptoms which were further investigated by RT-PCR.

Where lockdown affected the COVID-19 progression in a beneficial way, it also had its share of adverse effects. Throughout the entire nation, many big hospitals that cater to a large population of the state were converted to dedicated COVID care facility, with absolute cessation of all consultation of non-COVID cases. Also, testing could not be carried out in patients who were afebrile in the early disease or were asymptomatic. These patients ultimately aided in spreading of infection.¹⁵

All patients coming to hospital should pass through the 3-station triage system. All routine ENT consultations should be commenced with adequate distancing between doctor and patient. Minor ailments and regular follow ups were done via telemedicine. Every HCW in the hierarchy should not just be educated but also monitored regarding following of new norms like social distancing, wearing respirators, following PPE and respiratory etiquettes, and hand hygiene. We suggest that all otorhinolaryngologists should examine every patient like a potential carrier of SARS-CoV-2 virus. Hence, the use of PPE in examining every patient is incontestable.

Learning the lessons from not just other countries that had already been affected by the pandemic, but also from other institutions and practitioners of the nation which have planned out a way of providing medical services to the public amidst the corona scare, an indigenous triage and safety paradigm was formulated by the department of ENT, meeting the necessary recommendations that helped in successfully fulfilling the medical and surgical needs of the public during the pandemic.

CONCLUSION

Through this study, we suggest that given the current pandemic situation and with high false negative rate associated with its diagnostic tests, a triage and safety paradigm formulated by us should be followed while dealing with patients in the otorhinolaryngology outpatient department, ward, and operation theatre so as to give the best possible care to the patient as well as minimise the cross-transmission of virus from patient to patient, patient to health care worker, and from health care worker amongst each other.

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