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DIRECT LARYNGOSCOPIC EXAMINATION AND BIOPSY IN COVID -19 ERA(POST LOCKDOWN) – GUIDE TO SAFE METHOD.

Otorhinolaryngology

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ABSTRACT

Introduction- To describe a safe method to undergo direct laryngoscopic examination and biopsy, during the post lockdown period (of COVID-19 pandemic).A case study in retrospect.

Result-Thirty patients with suspected laryngeal malignancy requiring laryngoscopic examination during the period of 1st June 2020 to 31th January, 2021 were identified. Screening for COVID-19 was done and then the patients were taken up for the procedure under general anaesthesia (irrespective of site of growth). Health workers followed all precaution protocols (use of personal protective equipment, N95 mask, eye shield, etc.).

Conclusion- Although lockdown controlled the spread of COVID-19, it had a drastic effect on services offered to the patient. Safety can be ensured to the health workers, if we carry out the procedure with full precautions in the post COVID period.

KEYWORDS

COVID-19, Personal protective procedure, Aerosol generating procedure, post lockdown

INTRODUCTION:

Coronavirus illness 2019 (COVID-19) is associated with acute infectious respiratory disease induced by the novel β coronavirus SARS-CoV-2, or novel coronavirus. COVID-19 was announced as a worldwide pandemic by the World Health Organisation on March 11, 2020.[1] COVID-19 primarily spreads via droplets, secretions and direct contact.[2] It is diagnosed principally by lower respiratory tract symptoms like fever, cough, dyspnoea and chest tightness that might advance rapidly to acute respiratory distress syndrome (ARDS).[3] It has been occasionally linked with nasal congestion, sore throat and smell dysfunction.[4]

Otolaryngologists are most susceptible to be at high risk amongst the health care employees, since the majority of head and neck procedures involve the upper part of aerodigestive tract.[5] There are study units regarding how the otorhinolaryngology departments are supposed to approach ailments in patients who are not affected with SARS-CoV2 in the current circumstances and how the emergency cases are to be dealt with.

Within the COVID-19 era, it was thoroughly counseled that each otolaryngologist should limit their services of patient care to those people who have emergency medical or surgical conditions.[6] Amongst that suspected case of malignancy in larynx(with or without breathing difficulty) is prevalent in developing countries, for which Direct Laryngoscopic Examination and biopsy is needed.

Aims And Objectives

In this article, we describe a safe methodology to undergo the procedure at a tertiary referral hospital during the post lockdown period by medical professionals to maximize the safety of concerned health care personnel and avoid the possibility of transmission of infection inside the hospital premises.

Inclusion Criteria

The patients who had breathing difficulty and had following conditions, were included in the study.

1. Suspected malignancy in supraglottis/ glottis/ subglottis(for biopsy)
2. Laryngeal obstruction other than malignancy – foreign body, laryngeal papilloma, congenital condition.

Once the patient came with breathing difficulty , we performed 70° endoscopy. The number of patients in the waiting area were kept minimum with proper social distancing and were explained regarding the higher than usual risk of transmission in the area.

MATERIALAND METHODS

All patients who presented to the emergency / out patient department with breathing difficulty (fitting the above criteria) between June 1, 2020 and January 31, 2021 were included in the study. As the patient arrived in the hospital, their temperature was recorded and screening was done. Alongwith the admitted patients underwent the RT-PCR(reverse transcription polymerase chain reaction) swab test (oropharyngeal) for Covid-19. An endoscopy was performed with all precautions- staff wearing personal protective equipment(PPE) , use of lignocaine viscous10%; after use sterilisation by immersing the scope in 2% glutaraldehyde solution for 20 minutes.

A total of thirty patients were admitted during the time period(COVID negative). All of them presented with difficulty in breathing except ten who had stridor. They belonged in the age group of 45-75 yrs. Ten patients with stridor immediately underwent tracheostomy with proper precautions in minor operation theatre under local anaesthesia.

The direct laryngoscopic examination and biopsy of the patients were done under general anaesthesia with oral or tracheal intubation. The number of people in the operating room were kept to bare minimum. Air conditioners were not used during intubation and extubation. The temperature in the operating room was maintained at 18-20°C. All people(surgeon, nursing staff, helpers) in the operation theatre were asked to put on full PPE with coveralls, N95 mask and hood. Donning and doffing were done in designated areas. (Fig-1)

Fig 1: Surgeon Performing Procedure Wearing PPE

In all the cases, biopsy tissue was taken and immediately transferred to appropriate containers with cover. Also other regions of the larynx, pharynx and oral cavity were also examined to rule out any synchronous growth. The surgeon entered the room after intubation and exited before extubation. The least amount of assistance was preferred. The suction tube was changed after each procedure. Post procedure, the operating room was cleaned meticulously with 1% hypochlorite solution.

RESULTS

Out of the thirty patients , twenty patients were discharged on postoperative day two and were asked to follow-up in the OPD(out-patient department) with the biopsy report for further management. Ten patients who were tracheostomized were discharged on postoperative day seven with tube in situ , after teaching the attendants about the tube care. All cases came out to be malignant carcinoma of the larynx.

DISCUSSION

Adequate health system response within the setting of a pandemic involves not only the implementation of necessary social precautions, proper medical resource conservation and reallocation; but also, the presence of conjointly clusters of mentally and physically healthy medical professionals.

Majority of the procedures in otolaryngology, particularly oral, nasal and airway surgeries, place the surgeon at a higher risk of acquiring the disease. Diagnostic laryngoscopy and biopsy is an aerosol generating procedure (AGP). Because of the potential for viral particles to become aerosolized, these procedures have been established within the limited existing COVID-19 literature, to be higher risk for viral transmission.[7,8]

As per the suggestions of European Rhinologic Society, all elective ENT(ear, nose throat) surgeries ought to be delayed because of COVID-19 pandemic.[9] For patients requiring an emergency surgery, the otolaryngologist should wear a fluid resistant N95 mask, single use and fluid resistant gloves and gown, glasses or full face shield. Double gloving throughout the operation is usually suggested for surgeons. The number of professionals attending the OR throughout the emergency ENT surgery should be restricted to minimum.[10]

Tracheostomy is one of the most frequently performed ENT surgeries. During this pandemic era, every patient requiring an emergency surgical procedure should be considered a suspect (COVID-19 positive) to avoid delays that could be fatal to the patient's life.[11]

As per the recommendations, each patient with unknown status of COVID-19 should be carefully examined by an otolaryngologist, who is fully equipped. The minimal PPE (personal protective equipment) includes FF3/N95 mask, gloves, gown, eye protection, shoe covers and a cap[12]. It is a critical precaution to be taken, because the mean incubation time of virus is 5.2 days, with 95 percent of the distribution at 12.5 days, indicating that even if the patient is asymptomatic, the medical expert can become infected.[13] If possible, patients who do not seem to need urgent ENT consultation, particularly those being treated for chronic diseases, should be taken care via online telecommunication. Individuals who absolutely require an ENT visit should be mandated to have their body temperature taken and their recent travel history noted before entering the outpatient clinic premises.[12](Table-1)

Table 1: Comparative Table Of Safety Methods In Different Time Period

	Pre COVID era	Post COVID era
Screening	Not required	Temperature measurement Questionnaire
Social distancing	Not necessary	Atleast 2 meters
Health worker Precautions	One layered mask Hand sanitization	PPE N95 mask Double gloves Eye shield
Procedure :		
COVID test	No	Yes
General anaesthesia	Variable	Always
Assistance	Variable	Minimum
OR fumigation	At the end of all cases	After every procedure

As previously stated, each patient who arrives at the emergency room is considered a COVID-19 suspect. To confirm the diagnosis of COVID-19, a molecular test must be performed in each case. The real-time reverse transcriptase-polymerase chain reaction (RT-PCR) test is required for SARS-CoV-2 detection. In the majority of cases, a positive RT-PCR test confirms the diagnosis of COVID-19, though false-positive results can occur.[14].

In our institution, the following protocol was followed. As the patient entered the OPD, screening was done by measuring the body temperature, a short history about travelling, recent contacts and symptoms was taken. When the patient presented with a complaint of breathing difficulty/ change in voice along with history of addiction, they were directed for endoscopy to rule out suspected malignancy (with proper precautions). As the diagnosis got confirmed clinically the patient was asked to undergo routine investigations and COVID swab test (OPD basis), after which only the patient was admitted(if COVID negative) and, direct laryngoscopy and biopsy was done under general anaesthesia.

However, when the patient presented to the emergency room with a complaint of stridor, all preventive measures were implemented, believing the case to be positive. Tracheostomy was performed with caution (wearing PPE, N95 mask, eye shield, double gloves). T-tube or wet cloth was placed over the tube to reduce the aerosol spread. COVID sampling and other routine investigations were carried out simultaneously. When the workup was completed, the laryngoscopy and biopsy were performed under general anaesthesia.

After every endoscopic procedure, the endoscopes were disinfected with 1% hypochlorite to scale back the infectivity. After each laryngoscopic procedure, the OR (operating room) was disinfected and the suction tube was changed. The patients' hospital stays were minimised.

CONCLUSIONS

Based on overall experience , we can say that while taking adequate precautions the emergency procedures can be done safely. In the lockdown period, all the routine health services were suspended that had a great negative impact on the conventional human life. Because patients were denied surgical access, we need a safe and secure approach to maintaining surgical care during the post-lockdown period. If we follow all of the precautions outlined above, we can ensure the safety of each patient and, as a result, the otolaryngologist.

List of Abbreviations :

Coronavirus disease 2019 (COVID-19), acute respiratory distress syndrome (ARDS), personal protective equipment(PPE), aerosol generating procedure (AGP), ENT(ear, nose throat), real-time reverse transcriptase-polymerase chain reaction (RT-PCR), OR(operating room), OPD (outpatient department).

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