

A review study of nasal endoscopy protocol during the COVID-19 pandemic

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ABSTRACT

During ENT practice, we have to examine the nose and perform several nasal procedures in our clinics. Otolaryngologists are at a high risk of exposure to the COVID-19 virus. Nasal endoscopy is a major procedure for the diagnosis of the nasal and paranasal sinus diseases and introducing proper health services for our patients. In addition, the world is living the era of the COVID-19 pandemic, for which we have to protect ourselves, educate our medical staff, and work together against the spread of this severely contagious disease within our communities. The main purpose of this study is to review the protocol of nasal endoscopy in the ENT clinic and enhance the safest way to deal with patients during this pandemic.⁽¹⁾

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INTRODUCTION

COVID-19 is a novel type of coronaviruses, initially recognized in December 2019, in Wuhan, China. The virus may cause severe respiratory distress. Furthermore, the virus can be transmitted through either close contact with an infected person or contact with droplets from an infected person's sneezing and coughing. Therefore, the rhinologist usually is at a hazardous risk of exposure to the patient's droplets. Other modes of

transmission include touching contaminated objects from patient secretions and then touching one's face.⁽²⁾

Before the era of COVID-19, there were no special precautions for nasal endoscopy, but the examiner usually puts on non-surgical gloves and sometimes uses aprons to protect their clothes.⁽³⁾ Moreover, before beginning a nasal endoscopy, the nasal mucosa should be prepared with a nasal spray or decongestant to facilitate the

technique; then the endoscope must be reprocessed to prepare for another patient.⁽³⁾ Nasal endoscopy is considered an aerosol-generating procedure (AGD), and therefore, it can be done when the benefits outweigh the risk of infection. In addition, if you need to use local anesthesia, it should be done using a cotton soaked with local anesthetic agents instead of a local nasal spray.⁽⁴⁾

The COVID-19 pandemic has brought about many changes in different countries all over the world. In the UK, for instance, the ENT UK guidelines were changed during the pandemic as mentioned below.

Doctors and nurses or healthcare assistant (HCA) should use personal protective equipment (PPE), which include:

1. Double gloves
2. A plastic apron or gown
3. Eye protection (visor/face shield)
4. Surgical face mask (PPF2 or PPF3)
5. Hair cover is optional

Finally, after the nasal endoscopic examination is finished, the equipment should be sterilized using a special technique, such as the Tristel decontamination process, to reuse it.

The Tristel Trio Wipes System comprises three primary steps, which are as follows:

1. Cleaning using impregnated triple enzymatic detergents and surfactant wipes, used to remove organic matters
2. High level of disinfection using chlorine dioxide which is considered highly effective against viruses, bacteria, mycobacteria, and spores for at least 30 seconds
3. Rinsing with a non-woven wipe impregnated with deionized water and a

low antioxidant content used to eliminate the residue from the surface (Fig.1).^(3, 5, 6)

However, in the USA, outpatient nasal endoscopy is performed with full PPE gear, which consists of face shields, gowns, gloves, and N95 masks. This is followed in other regions of the USA, such as at UT Health and the McGovern Medical School, which prefers the use of half-face elastomeric respirators instead of the N95 mask.^(7, 8)

The European Rhinology Society (ERS) have advised examining only the non-elective patient in an outpatient setting, with full PPE, such as PPF2/N95 surgical masks, disposable impermeable gown, gloves, and eye protection.⁽⁹⁾

On the other hand, in China, where the pandemic originated, they also found that otolaryngologists face a high risk of infection from COVID-19, especially when dealing with confirmed cases of COVID-19. Therefore, they have outlined a policy to protect their healthcare workers.⁽¹⁰⁾ They have advised restricting the need for ENT consultations via several strategies, such as enhancing telemedicine and trying to avoid interventions as much as possible for nasal or laryngeal endoscopy. The following are the protocols:

If an ENT doctor wants to conduct a nasal or laryngeal endoscopy in the outpatient setting for an ordinary patient, they should use the following:

1. Medical protective mask (such as N95).
2. Goggles/face shield (if necessary)
3. Work clothes (scrubs)
4. Isolation gowns
5. Gloves

6. Hair cover

If ENT doctors have to deal with suspected or confirmed cases of COVID-19, then they should use the following PPE:

1. Medical protective masks (N95)
2. Goggles/face shield
3. Powered air-purifying respirator (PAPR; if necessary)
4. Work clothes (scrubs)
5. Coverall protective clothing
6. Shoe cover
7. Hair cover⁽¹⁰⁾



Figure 2: N95 mask



Figure 1: Tristel Trio Wipes System⁽⁶⁾

DISCUSSION

It is important to recognize the health workers who face the highest risk of exposure to COVID-19; otolaryngologists are considered to be at high risk because of the viral load in the nasal cavity and airways, and therefore, many changes have been applied to nasal endoscopy protocols.⁽⁹⁾

A summary of nasal endoscopy safety guidelines is provided in Table 1.

Table 1: Nasal endoscopy safety guidelines

Country or region	Gown(impermeable)	Eye protection	Gloves	Surgical face mask	Work clothes	Shoe cover	Hair cover
1 UK	Yes	Face shield	Double gloves	PPF2 or PPF3			Optional
2 USA	Yes	Face shield	Gloves	N95 or elastomeric respirator			
3 ERS	Yes	Face shield	Gloves	PPF2 or N95			
4(a) China (for ordinary patients)	Yes	Face shield or goggles	Gloves	N95	Yes		Yes
4(b) China (for suspected or confirmed cases)	Yes	Face shield or goggles	Gloves	N95 or PAPR	Yes	Yes	Yes

In our review of a variety of nasal endoscopy safety guidelines worldwide, during the COVID-19 pandemic, we noticed that all the protocols recommend the use of gowns, face shield/goggles, gloves, and specific surgical masks (such as N95, PPF2 or PPF3), PAPR, and shoe covers for cover just in suspected or confirmed cases. In addition, work clothes with hair covers are only used in China.

All these protocols and safety strategies have been gathered from observational data and personal experiences.⁽¹⁰⁾ In addition, when the endoscopic examination is finished, the healthcare worker should clean the endoscope of the blood and mucus secretions and then immerse it in a suitable container with Cidex OPA for 12 minutes. Following this, the device needs to be removed from the solution and rinsed with sterile water.⁽¹¹⁾

The Cidex OPA solution works at a minimum effective concentration of 0.3%. It should be changed after every 14 days of use.

CONCLUSIONS

As an otolaryngologist, for probable safety measures during endoscopic nasal examinations, we have to wear gown, gloves, and eye protection devices with face masks, such as N95 or PPF2 or PPF3, and adhere to the usual way of conducting an endoscopy with an attached camera and monitor system, facing away from the face of the patient. Afterwards, we must clean the endoscope of the nasal secretions and put it in an antiseptic solution (such as Cidex) as mentioned above.

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