Introduction

COVID-19, the respiratory illness caused by the novel SARS-CoV-2 virus has rapidly emerged as a serious global health concern. As of March 12, 2020, the World Health Organization (WHO) has declared this virus a pandemic. In the United States, there have been 35,841 cases diagnosed and 465 deaths, with both prevalence and mortality continuing to escalate. The WHO has enacted various protocols for healthcare institutions internationally in an attempt to slow the spread of disease, including adjustments for procedures performed by otolaryngologists. This paper aims to review the current literature pertaining to adjustments in nasal endoscopy protocols and appropriate precautions in the era of COVID-19.

Methods

A comprehensive literature review was performed searching for any published English-language literature discussing nasopharyngoscopy and COVID-19. The search strategy primarily queried PUBMED using search terms: "COVID-19 or coronavirus" with "nasopharyngoscopy or nasal endoscopy." Additionally, google translate was used to find published Chinese-language literature discussing nasopharyngoscopy and COVID-19. Simple web searches were also utilized, taking advantage of media reporting from both China and the US. All articles, webpages, reports, and official statements were reviewed by one author (JF).

Discussion

Otolaryngologists appear to be at higher risk than their colleagues of contracting COVID-19 according to the director of the intensive care unit at Peking Union Medical College Hospital. This may be due to higher levels of viral shedding from the nose, as viral loads have been found to be higher in the nose compared to the throat. Additionally, the frequent use of irrigation and anesthetic sprays in otolaryngology may aerosolize these viral particles. This can dramatically increase exposure to COVID-19 as the virus can remain airborne viable for longer than 3 h. These compounding risks justify...
the need to establish clear protocols for physicians performing any nasal procedure. Nasopharyngoscopy remains one of the most widely performed procedures in otolaryngology. However, given the concerns mentioned previously, in this time of COVID-19, indications to perform nasopharyngoscopy should be judiciously weighed against the potential risks. As of March 18, 2020, the Centers for Medicare & Medicaid Services (CMS) has limited “all non-essential planned surgeries and procedures, including dental, until further notice”. Only procedures/surgeries in a high acuity situations or in unstable patients should continue. Some providers have already modified their use of nasopharyngoscopy in perioperative evaluation of patients undergoing endoscopic dacryocystorhinostomy. Based on the surgeon general’s advice, all elective procedures should be currently halted. Endoscopy at this point should only be considered for emergent/urgent cases, which in the case of endoscopy is likely limited to a very select number of tumor cases and possibly severe refractory epistaxis. Even with these cases, providers should consider utilizing imaging modalities (CT, MRI, CTA) for diagnostic purposes and reserve endoscopy for critical situations where it will have a significant impact on management. In the minority of cases where nasopharyngoscopy cannot be avoided, a protocol has been developed in China and adapted by physicians in the United States. Chinese medical officials recommend three levels of protection during endoscopic procedures. These measures include protective clothing, N95 masks, goggles, face shields, and hand and feet covers. In the US, Stanford University has adapted these guidelines to require wearing a gown, N95 masks, and face shields for all outpatient nasal endoscopies. Additionally, in the outpatient setting, visits have been restricted to urgent/emergent patients and the replacement of aerosol decongestants/anesthetics with nasal pledgets. The above recommendations are also followed for inpatient settings, with the addition of the placement of powered air purifying respirators (PAPRs) for those in the OR as N95s may not be sufficient. This procedure is supported by guidelines set forth by the Centers for Disease Control and Prevention and healthcare agencies in China as the usage of PAPRs may help control viral dissemination. Lastly, some institutions have postponed elective surgeries in cases where patients tested positive for COVID-19 in the 48 h prior. These institutions are requiring patients to retest with a negative result before proceeding with the operation.

Conclusion

Considering the current health crisis caused by COVID-19, the following guidelines are recommended for all outpatient nasal endoscopies: Patient visits must be limited to only urgent/emergent cases for the time being. Only vital personnel should remain in the room if performing any nasal endoscopic procedure as this will both reduce exposure and conserve vital personal protective equipment. Three levels of protection are recommended for the person performing the procedure: gown, N95 mask, and face shield. PAPR should be used in place of an N95 if available. Use nasal pledgets in place of aerosol decongestants and anesthetics. In addition, COVID-19 testing prior to emergent surgeries should be performed, with the expectation that the procedures for patients who test positive will be postponed. Finally, just as in office visits, all non-essential personnel should be limited during any emergent ENT surgeries.

Declaration of Competing Interest

The author declare no conflict or interest relevant to this paper.

References

1. WHO. WHO Director-General’s Opening Remarks at the Media Briefing on COVID-19; 11 Mar. 2020. www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19—11-march-2020.
2. Schiffmann A. World COVID-19 Stats. 23 Mar. 2020. ncov2019.live/data.
3. WHO. Operational Planning Guidelines to Support Country Preparedness and Response; 2020. www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/training-courses.
4. Zou L, Ruan F, Huang M, et al. SARS-CoV-2 viral load in upper respiratory specimens of infected patients. N Eng J Med. 2020; 382:1177–1179.
5. van Doremalen N, Bushmaker T, Morris DH, et al. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. N Eng J Med. 2020;382:1564–1567.
6. Tran K, Cimon K, Severn M, Pessoa-Silva CL, Conly J. Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: a systematic review. PLoS One. 2012;7, e35797.
7. Alvi S, Harsha P. Flexible Nasopharyngoscopy. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020. https://www.ncbi.nlm.nih.gov/pubmed/?term=Alvi+SS;+C+Harsha+P.;+Flexible+nasopharyngoscopy.+-StatPearls.
8. Services CFMM. CMS Adult Elective Surgery and Procedures Recommendations. http://ccqcounter.com/whois/domain/cfmm.com.html; 2020.
9. Lai THT, Tang EWH, Chau SKY, Fung KSC, Li KKW. Stepping up infection control measures in ophthalmology during the novel coronavirus outbreak: an experience from Hong Kong. Graefes Arch Clin Exp Ophthalmol. 2020;258:1049–1055.
10. Xinhuanganet. How to reduce the Risk of ENT Diagnosis and Treatment during the Epidemic? Expert Interpretation. www.xinhuanganet.com/health/2020-03/03/c_1125655864.htm; 3 Mar. 2020.
11. Liang TB. Handbook of COVID-19 prevention and treatment. The First Affiliated Hospital, Zhejiang University School of Medicine; 2020. https://files.alicdn.com/tfservice/93a40876a4e1208b84fe852394ce7de69.pdf?spm=a3c0h.14138300.810242062.6.df36477w4Hs&file=93a40876a4e1208b84fe852394ce7de69.pdf.
12. Patel ZM, Fernandez-Miranda J, Hwang PH, et al. Letter: precautions for endoscopic transnasal skull base surgery during the COVID-19 pandemic. Neurosurgery. 2020. pii: nyaa125. [Epub ahead of print].
13. CDC. Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings. www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control/control-recommendations.html; 13 Apr. 2020.