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Management of Unpredictable Difficult Nasotracheal Intubation in the Era of COVID-19: A Case Report

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Abstract | **Case Report**

During COVID19 pandemic, anesthesiologists are vulnerable to contract the infection. They face many situations considered at high risk of aerosolization. Here we describe an approach to manage the risks to anesthesia provider while maintaining safety, optimal and high-quality care. Airway of patient undergoing maxillofacial surgery was successfully secured by passing Eschmann bougie through the nasopharyngeal route assisted by McGrath videolaryngoscope. Fiber optic intubation was avoided. We suggest using a Gum Elastic Bougie from the first attempt for nasal intubation in patients with unpredictable difficult nasotracheal intubation during COVID-19 pandemic in order to minimize the risk of aerosolization.

Keywords: (Airway Management); (COVID-19); (Intubation); (Laryngoscopes); (SARS-CoV-2);(Jaw Fractures).

INTRODUCTION

In the times of the COVID-19 outbreak, and with every day managing airways, anesthesiologists were particularly vulnerable to contract the infection by way of droplet transmission both due to the area of work and airways equipment. These frontline healthcare workers had to be aware of the new challenges implied by the risk of virus transmission between patients and medical staff.

They faced many situations considered at high risk of aerosolization such as noninvasive ventilation (NIV), high-flow nasal cannula (HFNC), bag-mask ventilation, and intubation [1,2].

We, anesthesiologist are always rigorous about infection control and security when managing the airways. Nevertheless, it was worthwhile to review our current practices of infection control to tighten them even further.

Several difficult airway guidelines from worldwide exist before the onset of the COVID-19 pandemic but they were not perfectly adapted to the new measures implied by the management of patients with COVID19. Consequently, they needed to be modified in order to align with the principles of the anesthetic COVID-19 guidelines. However, airway strategies after failed tracheal intubation were lacking in most of the anesthetic COVID19 guidelines.

We have encountered a patient with an unanticipated difficult airway who required nasotracheal intubation.

Here we describe an approach to manage the risks to anesthesia provider while maintaining security, optimal and high-quality care in the time of COVID-19 outbreak.

CASE DESCRIPTION

A 45-year-old male (178 cm, 85 kg, BMI 27 kg/m2), previously healthy, presented at the emergency department 40 minutes after a motor cycle accident. He was managed according to Advanced Trauma Life Support® protocols (American College of Surgeons, Chicago, Illinois, USA). He reported abdominal and mandibular pain. He was conscious, hemodynamically and respiratory stable (vital signs: blood pressure: 145 /65 mmHg, heart rate: 92 beats/min, respiratory rate:18 cycl/min, SpO2 = 97% at room air, Glasgow Coma Scale = 15 with no deficit). The body CT scan revealed: jaw fractures (Lefort 1) and a free intra-peritoneal air suggestive of bowel perforation mandating urgent

laparotomy. At the pre-anesthetic assessment, a part from abdominal guarding, no other abnormalities were noted. The patient did not have difficult intubation/ventilation criteria. He had three finger-width mouth opening, 6,5 cm thyro-mental distance, normal head and neck extension. He was assigned a Mallampati score Grade II. The patency of both nostrils was assessed by examining the pattern of condensation from expired breath on a spatula and inspecting the caudal end of the nasal septum.

His laboratory work-up was unremarkable. His last meal was over 6 hours. Staff suggested performing a one step surgery: an urgent laparotomy followed by mandibular fixation. Hence, general anesthesia with nasotracheal intubation was required. The patient did not present with symptoms suggesting a COVID-19 infection. His chest computed tomography did not reveal any abnormalities suggesting COVID-19. Despite this, a nasopharyngeal swab was sent for reverse transcriptase polymerase chain reaction (RT-PCR) testing for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. Without waiting for the results, the patient was admitted to the operating room wearing a surgical face mask. The anesthetic team included an attending anesthesiologist and a certified nurse anesthesia. Both wore FFP2 mask, face shield, and gloves. Standard intraoperative monitors were applied. 1000 ml of Ringer lactate were administered. He was given Amoxicillin /Clavulanic Acid (2g) + Gentamicin (320 mg) and midazolam 2 mg iv. Vital signs were: blood pressure: 130 /75 mmHg, heart rate: 96 beats/min, respiratory rate : 20 cycl/min, SpO2 = 96% at room air. Lidocaine 2% mixed with adrenaline was applied into both nostrils before induction of anesthesia. After preoxygenation with 100 % oxygen for 10 min, anesthesia was induced by propofol (180mg) followed immediately by a rocuronium (90 mg). The Sellick maneuver (cricoid pressure) was applied to prevent regurgitation of gastric contents. 1 minute later, a heated 6.5-mm nasotracheal tube was inserted into the patient's left nostril. McGRATH™ Video-Laryngoscopy with a blade number 4 revealed Cormack-Lehane grade 3 (no part of the glottis can be seen, but only the epiglottis). BURP maneuver(backwards/upwards/rightward/posterior) tried to optimize the view of vocal cords. Cricoids pressure was released. Nasotracheal intubation was then attempted but failed. The call for help has been launched. A Gum elastic bougie (GEB: Eschmann bougie) was then lubricated with Lidocain spray 8% and passed through the nasotracheal tube. Guided by Magill forceps we performed an upward movement of the extremity of the bougie and passed succefully on the first attempt into the glottis. The 'hold-up' sign attested the passage of the bougie. The 6.5 mm tube was smoothly advanced. Then the patient's lungs were ventilated with 100% oxygen. The capnography confirmed the correct position of the tube. 250 ug of Fentanyl was then administered. The patient's O2 saturation remained at 92–100% throughout these maneuvers which required approximately 4 minutes without need for bag mask ventilation. The exploratory laparotomy revealed free fluid in the peritoneal cavity and perforation on the stomach. Perforation repair was performed. Then the patient underwent maxilla mandibularrepair followed by fixation. After 6 hours of surgery, he was transferred to post-operative care unit. The extubation was uneventful. The patient has provided written consent to publish this case report.

DISCUSSION

The present case illustrates unanticipated naso-tracheal intubation in the context of COVID-19. In such situation, some authors advocated to "look before you leap" prior to nasotracheal intubation. They suggested to pass the tube through the nose only in patients with a grade 1 or 2 view using Cormack and Lehane classification to avoide epistaxis, and if laryngoscopy is difficult (grade 3 or4), the fiberoptic or supraglottic techniques can be used without bloody secretions in the hypopharynx [3]. In the same line of reasoning, others suggested when encountering grade 3 or 4 view to perform first an orotracheal intubation and described conversion strategies for oral to nasal tracheal tube exchange [4]. These algorithms seem to us unsuitable for the patient confirmed or suspected of COVID-19. It is clear that if we perform a first fiberoptic or orotracheal intubation, we extend the intubation sequence over time and we expose anesthesia provider to more high risk aerosolization situations. Additionally, the techniques of converting the tube from the mouth to the nose require a lot of handling, and this goes against the principle adopted during the COVID-19 pandemic of limiting contact with the airway's instruments and secretions. Besides that, the two algorithms proposed by these 2 authors [3, 4] adopt a classification based on a view obtained by the standard Macintosh laryngoscope (classification by Cormack and Lehane). However, in these circumstances of managing the airway in patients' wit suspected/confirmed COVID-19, most guidelines recommend the use of the video laryngoscope [5]. In addition, the introduction of video-laryngoscopy has complicated the situation by creating dissociation between the view obtained and the probability of successful intubation. A good laryngeal view at videolaryngoscopy does not necessarily correlate with ease of tracheal intubation [6]. For this reason, the precedents two algorithms [3,4] cannot be applied in this situation. In the present case report, airway of suspected patient with COVID-19 undergoing maxillofacial surgery was secured by passing GEB (Eschmann bougie) through the nasopharyngeal airway. Once the bougie was under the view of a McGrath videolaryngoscope, it was advanced toward the glottis. The Magill forceps helped a quick redirection (tilt upwards the extremity) of the introducer to enter the larynx. The GEB is a device that has been used for more than 50 years when facing difficult intubation [7]. It was designed to advance beneath the epiglottis to allow the

tube to slide over them into the trachea. This aid to difficult intubation is very popular. It is the first alternative in cases of difficult intubation, either in the operating room or emergency department. Nevertheless, using GEB via nasotracheal route is very unusual. Difficult airway management guidelines suggest using introducers early, in case of unanticipated difficult intubations, but always via orotracheal route. The association of videolaryngoscopy and different kind of introducers via nasotracheal route has been described as successful [8-10] but it remains seldom applied.

Finally, some authors found that using the modified Magill forceps to advance Eschmann stylet into the larynx is better and faster than standard forceps under indirect laryngoscopy, in patients with an expected difficult nasotracheal intubation [10]. In our case we used standard Magill forceps to guide the GEB since we did not have any problem with mouth opening.

CONCLUSION

Through this case report, we suggest the use of GEB from the first attempt for nasal intubation in patients with unpredictable difficult nasotracheal intubation in the times of COVID-19 outbreak in order to minimize the manipulation of the airways. This can reduce the risk of aerosolization.

However, this plan could work even in post pandemic. We suggest using GEB even if Cormack grade 3 /4 is encountered during nasotracheal intubation. Because converting tube from the mouth to the nose can generate several complications ranging from laryngeal edema to bronchospam, this proposed plan could be ideal for patients with airway hyper reactivity.

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REFERENCES

1. World Health Organization. Transmission of SARS-CoV-2: implications for infection prevention precautions: Scientific Brief; 9 July 2020. Accessed: September 10, 2020. https://www.who.int/news room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions.
2. 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(4):e35797.
3. Piepho T, Thierbach A, Werner C. Nasotracheal intubation: look before you leap. Br J Anaesth 2005; 94: 859–60.
4. Uria M, Kost K, Schricker T, Backman SB. Case report: nasotracheal intubation-- look before leaping to assess the laryngeal view. Can J Anaesth. 2008;55(5):302-305.
5. Cook TM, El-Boghdadly K, McGuire B, McNarry AF, Patel A, Higgs A. Consensus guidelines for managing the airway in patients with COVID-19: Guidelines from the Difficult Airway Society, the Association of Anaesthetists the Intensive Care Society, the Faculty of Intensive Care Medicine and the Royal College of Anaesthetists. Anaesthesia. 2020;75(6):785-799.
6. Jenkins BJ. The view from the top. Is it worth recording for posterity? Anaesthesia 2018; 73: 151–4.
7. Macintosh R. An aid to oral intubation. Br Med J 1949; 1:28.
8. Bhanumurthy S, McCaughey W. Gum elastic bougie for nasotracheal intubation. Anaesthesia 1994; 49:824–5.
9. Combes X, Soupizet F, Jabre P, Margenet A, Marty J. Out of hospital difficult intubation resolved with nasotracheal use of a gum elastic bougie. Emerg Med J. 2006;23(8):e46.
10. Staar S, Biesler I, Müller D, Pförtner R, Mohr C, Groeben H. Nasotracheal intubation with three indirect laryngoscopes assisted by standard or modified Magill forceps. Anaesthesia. 2013;68(5):467-471.