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A Case Report of Retrograde Intubation: A Different Approach to Challenging Airways

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Abstract

Patients with an anticipated or unexpectedly difficult airway can benefit from retrograde intubation (RI) whether they are sedated, obtunded, or apneic. When a fiber optic bronchoscope is not accessible, retrograde intubation can be utilized as a backup airway management technique in situations with an unexpectedly difficult airway. We here report a case of successful management of an unanticipated difficult airway of 56-year-old male with a BMI of 40.8 kg/m² and a weight of 98 kg brought to the ER who was diagnosed with Hypertensive crisis with aspiration pneumonitis with respiratory acidosis. RI is an efficient and safe substitute for traditional methods when managing a challenging airway.

Keywords: Airway management, difficult airway; Case report, Intubation, Retrograde

Introduction

Emergency physicians and anesthesiologists frequently encounter challenges while handling challenging airways. Appropriate preoperative airway assessment reduces associated morbidity and death through efficient planning by predicting troublesome airways. However, we should always be prepared for a difficult airway and remember that no test is perfect. ^[1]

Preventing hypoxemic damage to the brain with proper oxygenation and limiting airway trauma remain the cornerstones for handling unexpectedly difficult airways during induction of anesthesia. The Difficult Airway Society's airway standards are based on the anesthesiologist's ongoing efforts to conceptualize and prepare for a backup plan in case of failure. ^[2]

Patients who are somnolent, apneic and who have an unexpectedly difficult airway can benefit from retrograde intubation (RI). It is also used as a backup where fiberoptic scope is not available.

Case Description

A case of 56-year-old male with a BMI of 40.8 kg/m² and a weight of 98 kg brought to the ER who was diagnosed with Hypertensive crisis with aspiration pneumonitis with respiratory acidosis, Type II Respiratory failure with hypoxemia and a difficult airway led to his admission to the critical care unit.

We here to report a case of successful management of an unanticipated difficult airway of semiconscious patient, with a GCS of 8, and was neurological deficit. Mallampati grade was not assessed due to low GCS, bilateral nasal patency of the patient was also found to be adequate, Cormack Lehane was grade IV. Prioritizing oxygenation throughout the procedure and reducing airway trauma is essential after an unsuccessful attempt of intubation. In the case that the fiber-optic bronchoscope was unavailable, our fallback options were surgical tracheostomy and retrograde intubation. The patient was properly informed about the tracheostomy procedure and gave consent to it. ^[3]

Anesthetic Management

Propofol 2 mg/kg was injected intravenously to induce the patient. Following propofol induction, 100 mg of succinylcholine

was administered intravenously. It was seen that while mask ventilation was feasible, there was some resistance to air entry into the trachea, as indicated by stomach inflation and reservoir bag resistance. Guedel's airway was placed in order to simulate the airway resistance. Saturation was maintained and airway resistance was reduced following airway insertion.

Even after applying external laryngeal pressure, the glottis was not visible during the attempt at endotracheal intubation, but the epiglottis was. Using the epiglottis as a guide, we tried the gum elastic bougie for the third time a McIntosh #4 blade, it was discovered that the no glottis structure visible (Cormack Lehane grade 4). We could try an emergency retrograde intubation because the patient was already sedated and paralyzed.

The nasal cannula was used to maintain peri-intubation oxygenation at 6 L/min throughout the surgery to reduce the risk of hypoxemia. The nasopharyngeal airway was secured to improve ventilation and oxygenation and to keep the tongue from slipping back and obstructing the airway. No extra measures were taken to lessen airway trauma and the chance that it could develop into a condition in which

breathing is not feasible. The patient's oxygen saturation remained at 95% during the surgery, and 4 mg IV Vecuronium was administered intravenously.

Under all aseptic and sterile conditions, a 16 G needle and a 60 cm long guide wire used for central venous cannulation were used to pierce the Cricothyroid membrane. Through the needle guide wire was passed and advanced cephalad via the needle, the larynx, and out of the mouth then Endo tracheal tube of size 7.0 mm was passed over the guide wire and secured. After confirming the end-tidal carbon dioxide waveform and on Bilateral auscultation of air entry patient was put on Intermittent Positive Pressure Ventilatory mode. Retrograde intubation was determined to be a safe and effective alternative to emergency situation management once the procedure was finished. After successfully completing the procedure, we draw the conclusion that the RI was a safe and efficient approach to get past a problematic airway, whether or not it was an emergency. This approach may be beneficial for patients with facial trauma, trismus, ankylosis of the jaw and cervical spine, upper airway tumors, hemorrhage, and trauma patients requiring cervical spine immobilization.

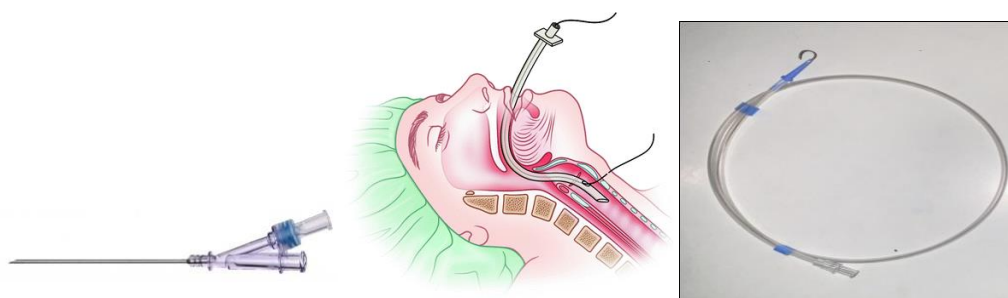


Fig 1:

Discussion

Retrograde intubation was first described in 1960 by Butler and Cirilio^[4] and since then various studies^[5, 6] have described the utility of this technique. One of the optional methods for managing airways effectively without a fiberoptic bronchoscope and with few risks is retrograde intubation.^[5, 6, 7] A non-surgical translaryngeal airway access is provided as part of the process to enable a guided nasotracheal or orotracheal intubation. This approach is helpful in these situations since it does not cause vision loss with blood and secretions, as observed with a fiberoptic bronchoscope. Even though this method is less intrusive than a surgical tracheostomy, its unfamiliarity and inflated sense of its invasiveness have prevented this approach from being taught and practiced as much.^[8]

Conclusion

When addressing a difficult airway, RI is a safe and effective alternative to conventional techniques. The process can be completed fast, easily, and safely in the correct conditions. By averting tracheostomy, open cricothyrotomy, hypoxia, and airway damage, it can also save patient lives.

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