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Difficult Nasotracheal Intubation Guided by an Eschmann Stylet

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Abstract | **Case Report**

Nasotracheal intubation is a means of airway management; it is the preferred method for surgeries in the head and neck region, especially oropharyngeal, dental and maxillofacial surgeries. In the process and management of nasotracheal intubation, additional instruments, drugs and skilled maneuvers are required, and with the recent development of techniques and methods, potential problems or complications can be avoided. We report a case of difficult nasotracheal intubation planned for maxillofacial surgery successfully using a lesser-used Echmann chuck technique that requires personal and technical experience to facilitate safe intubation with reduced complications.

Keywords: Intubation, difficult, Nasotracheal, Chuck, Eschmann.

INTRODUCTION

L'intubation nasotrachéale est utilisée comme méthode de base pour la gestion des voies respiratoires, avec l'intubation orotrachéale sous anesthésie et en soins intensifs.

It has become an effective alternative method to orotracheal intubation with increased benefits of providing better mobility and a better surgical field in oral and maxillofacial surgery and possibly in traumatized and critically ill patients [1].

Nasotracheal intubation methods have evolved over the years with accumulated clinical experience and improved instruments to facilitate safe intubation with reduced complications.

We report in this observation a case of difficult nasotracheal intubation planned for a successful maxillofacial surgery by the use of an Eschmann mandrel.

PATIENT AND OBSERVATION

Presentation of the Patient

Patient A Z, aged 26, with no particular pathological history, presented for genioplasty surgery, classified ASA: 1.

The Preoperative Examination, we note:

- Unremarkable cardiac and pulmonary auscultation,
- Blood pressure at 120/70 mmHg,
- Fine and inconspicuous veins,

Intubation Criteria

A Mallampati score of 3 in phonation, a mouth opening greater than 3 finger widths, a normal sized tongue, complete dentition, a dislocatable mandible, normal cervical spine mobility, and a short neck with a thyro-mental distance of less than 4 fingerbreadths and retrognatism.

Management in the Operating Room

- General anesthesia is decided despite the risk of difficult intubation due to the anxious terrain, the length of the gesture, the difficult intubation tray is ready and checked.
- The patient is installed in the supine position with a block below the shoulders to clear the neck, and the head slightly elevated in the amended Jackson position.
- Careful pre-oxygenation for 3 to 5 minutes is started to obtain denitrogenation. 3 mg of Midazolam is injected for anxiolysis.
- Anesthesia is started and Propofol is injected at 2.5 mg/kg until sleep is obtained.

As soon as you lose consciousness, you perform a Sellick maneuver.

- It is checked that mask ventilation is possible with small volumes.
- We make an attempt at exposure which a priori is impossible.

- The anesthesia is continued by injecting fentanyl 2 µg/kg.
- We ventilate with a mask for 3 minutes at small volumes.

During the second exposure, the glottis is high and not visible, whatever the blade used, only the arytenoid cartilages are seen, a blind intubation attempt results in failure: auscultation is subnormal, but there is no exhaled CO2.

The mandrel tube that is given an upward bend also slides into the esophagus. We correct the position, we deepen the anesthesia, and we call for help.

Nasal intubation is attempted with a blind 6.5 al armed probe and ends in failure.

A last attempt with an Eschmann mandrel by nasal route figure 1 , slipped behind the epiglottis, on which the intubation tube is lowered (by twisting it to pass the vocal cords) while maintaining exposure with the laryngoscope, finally leads us to tracheal intubation, induction supplemented by rocuronium.

The patient who has never desaturated is ventilated with large volumes, aspiration in the intubation tube brings nothing back figure 2**.**

A dose of corticosteroids received to reduce post-extubation laryngeal edema.

Informed Consent

The patient was informed about this article, its purpose and why her case was special. She voluntarily gave her informed consent to allow the authors to use this data for this case report.

Figure 1: Eschmann guide used for intubation

Figure 2: patient with retrognatism before and after nasotracheal intubation

DISCUSSION

Nasotracheal intubation is a common method of airway management used for anesthesia. Since the airway tube is inserted into the trachea through the nasal cavity, it is easier to secure and stabilize through the small diameter of the nasal passage in relation to the oral cavity.

It is the preferred method not only for anesthesiologists but also for surgeons who perform surgeries in the head and neck region, especially oropharyngeal, dental and maxillofacial surgeries, as it helps improve vision and access for surgery [2, 3].

In the process and management of nasotracheal intubation, additional instruments, medications, and skilled maneuvers are required, and with recent developments in techniques and methods, potential problems or complications resulting from blind introduction of the endotracheal tube into the nasal cavity can be avoided [4, 5].

The nasotracheal intubation procedure can be explained by dividing it into three phases:

1) Passage through the nose into the pharynx,
2) Laryngoscope-guided passage through the glottic inlet and,
3) Laryngoscope-guided passage through the trachea.

Magill's forceps are usually needed to facilitate insertion of the endotracheal tube into the glottis. However, they can cause rupture of the balloon or mucosal injury, or even infection [6].

Moreover, this instrument is never a disposable and sterilized medical device and requires strict aseptic techniques after the procedure. The percentage of conventional techniques requiring the use of Magill forceps is close to 70%, if not the use of nasotracheal intubation using an Eschmann chuck is possible which could completely replace the use of Magill forceps and significantly reduce the duration of intubation [6].

This method makes nasotracheal intubation more convenient and easier; furthermore, it can avoid complications caused by Magill forceps.

There are three classic signs of successful tracheal placement of the stylet: (I) the sensation of clicking as the stylet passes along the tracheal rings; (II) rotation of the mandrel as it enters a main bronchus; (III) a distal "hold-up sign" when the chuck reaches the small bronchi **[7].**

It has been suggested that if clicks are present, the clinician should proceed with intubation: if they are not, then the stylet should be advanced a maximum distance of ≈ 45 cm. In case of distal blockage, the Clinician should proceed with intubation: if not, the stylet should be removed and a second attempt should be undertaken **[7]** .

The advantages of using the nasopharyngeal airway in this manner are: it can usually be placed blind with minimal tissue trauma; it can act as a conduit so that stiffer catheters do not contact the nasal mucosa; and when they enter the pharynx in the upward concave orientation they tend to be aligned with the glottis. The performance of various airway candles has been reported **[**8] and the benefits of the pediatric candle for this use are related to their relative firmness and angled tip. Their semi-rigid nature allows easy handling of the candle, but limits the pressure on the tissues in contact. This is why the authors no longer use the more rigid adult candles for this purpose. The angled tip has the advantage of allowing easy intrapharyngeal guidance, by rotation of the candle, if the glottis is not immediately brought together **[**9].

CONCLUSION

The difficult nasotracheal intubation technique is increasingly common in maxillofacial surgery using an Eschmann stylet to guide the intubation; it is likely to be as effective as fiber optic assisted intubation and less trauma complications in relation to the use of a Magill forceps. Therefore, it is reasonable to make more than one intubation attempt with the *multi-use* device.

DECLARATIONS

CONFLICTS OF INTEREST

The authors have declared no potential conflict of interest with respect to the research, writing and/or publication of this article.

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AUTHOR CONTRIBUTIONS

All authors have contributed to this work from the conception, reading and approval of the final version of the manuscript.

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