

RETROGRADE INTUBATION IN THE PATIENT WITH CYSTIC TUMOR LOCATED AT THE BASE OF TONGUE

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Abstract

Retrograde intubation is one of the methods used to maintain an airway in the event of a difficult intubation. Retrograde intubation has been successfully carried out on patient for whom intubation was not possible with a direct laryngoscope and fiber optic bronchoscope. The central venous catheter needle and guide wire are the materials that are the most practical to prepare and access for the retrograde intubation. To conclude, In conclusion, retrograde intubation may be good alternative to invasive airway management such as surgical tracheostomy for difficult or impossible intubations because it can be performed easily, quickly, and successfully.

Key words: retrograde intubation, difficult intubation

Introduction

The retrograde intubation (RI) method is one of the alternative techniques that are resorted to in situations where it is difficult to maintain a clear airway¹. Water first defined this technique in 1963². RI is mentioned in the American Anesthesiologists Association (ASA) guidelines as an invasive intubation technique that achieves an airway through the cricothyroid membrane or the cricotracheal ligament. This technique is recommended in situations where the vocal chords are not visible because of blood, secretions or anatomic deformities and when intubation attempts with a direct laryngoscope and fiber optic bronchoscope are unsuccessful³.

Retrograde intubation is a complex, unfamiliar technique that requires practice. The part of entry for this technique is through the cricothyroid membrane or the cricotracheal ligament⁴. Previous studies on cadavers showed that the cricotracheal ligament technique results in less damage to the vocal chords and has a higher rate of success^{5,6}.

In this report, we present the case of a patient with a severe oropharyngeal obstruction secondary to a cystic mass who successfully underwent retrograde intubation following failed intubations with flexible fiber optic bronchoscope.

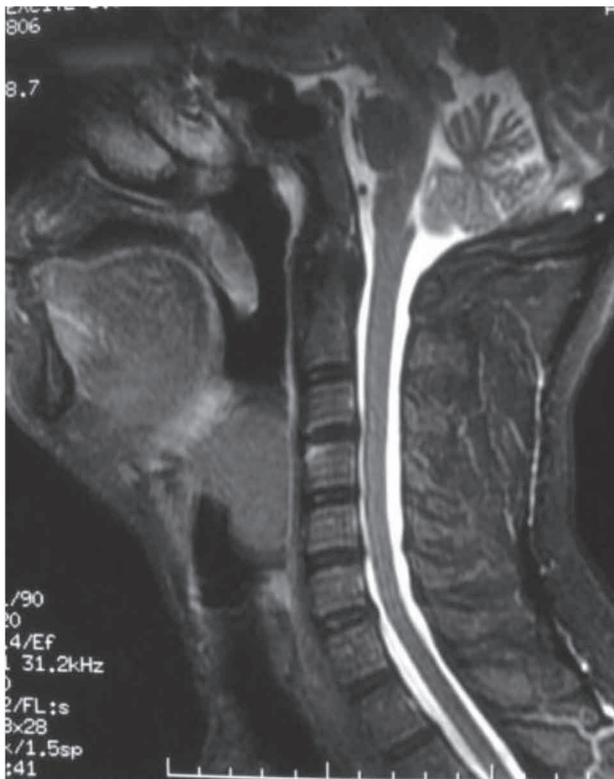
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Case Presentation

A 43 year old male patient presented to our hospital's Ear, Nose and Throat clinic with difficulties in breathing and swallowing. A computerized cervical tomography revealed the presence of a cystic mass (Fig. 1) of approximately 3×5 cm at the base of his tongue that completely filled the oropharynx. The patient was scheduled for surgery to excise the cystic mass. The patient was informed that there might be difficulties for maintaining the airway and a written informed consent was obtained for the use of anesthesia. Before induction of anesthesia, preparations were made for intubation with flexible fiber optic bronchoscope (FOB). Topical anesthesia was done by spraying Xylocaine® on the nasal and oral passages. The nasal passage was dilated with the proper sized airways and after sedating the patient, an expert senior anesthesiologist tried intubation both nasally and orally by FOB. However, because of the large mass extending into the glottis region, the FOB could not be guided to the trachea after passing the mass. As such, retrograde intubation was deemed necessary.

Fig. 1

The cervical computerized tomography image of a cystic mass on the base of the tongue.



Technic; A small folded towel was placed beneath the shoulders and the cricothyroid area was identified and cleaned. A short mid-line skin incision was made and an 18-gauge needle passed into the trachea in a slightly cephalad direction until a distinct 'pop' was elicited. The position was confirmed by easy aspiration of gas. The needle was angled to 45°, the position again confirmed and introducing wire was passed through the needle until tip was visualized into the oral cavity. The guide wire was hold and put out from the oral cavity by the Magill forceps. An endotracheal tube was passed over the introducing wire. The guide wire was held taut at both the distal end and the proximal end and the tube was advanced towards the trachea. After it was be certain that endotracheal tube tip was in trachea, then guide wire was withdrawn completely from tube. The correct position of the tracheal tube was confirmed via capnographie and it was secured⁷. No complications was encountered at any other stage of this procedure.

Discussion

One of the main responsibilities of anesthesiologists is to predict difficulties in intubation and ensure a safe airway. Difficult intubation is described in the ASA guide as a situation that requires more than 3 attempts to place an endotracheal tube with a conventional laryngoscopy or if this procedure takes more than 10 minutes to complete⁸.

According to the ASA algorithm, intubation with FOB is recommended as the first choice on conscious patients in difficult intubation scenarios³. However its use is not widespread due to the cost of equipment and trained staff may not be readily available in many clinics. Also, supraglottic airway tools cannot be used because they might compromise on the field of surgery. Therefore, it should be considered that RI may be used in cases where endotracheal intubation is difficult but necessary.

In our patient, intubation was tried initially using FOB. However, due to the large mass at the base of the tongue blocking the oropharynx completely and the risk of rupturing the cyst the FOB manipulation was limited. Also since the distance to the glottis was short after the mass has been passed, the FOB was

moving towards the esophagus even though it was being guided to the trachea. Thus it was decided that RI would be more appropriate.

RI is an invasive technique that uses the seldinger technique by way of the cricothyroid membrane or cricotracheal ligament to achieve intubation. This technique is recommended not as a priority choice but as an alternative in situations where the visibility of the trachea is obstructed by blood, secretions or anatomical deformities and direct laryngoscopy and fiberoptic intubation attempts are unsuccessful³. We used the CV catheter because it is cheaper and provided easily. Of course, all anesthesiologists are familiar to using CV catheter and its guide wire.

When the cricothyroid membrane is selected as the entry point during RI the proximity to the vocal chords can cause unwanted situations such as vocal cord damage⁵. In a study where entries at the cricothyroid membrane and cricotracheal ligament were compared, vocal cord damage was more encountered in cricotracheal ligament entries⁹. When the cricothyroid membrane is selected as the entry point into the trachea, since the area is relatively close to the vocal cords, unwanted situations in which the tube is shifted from its position while the guide wire is being removed from the endotracheal tube can happen⁵.

Complications like emphysema, laryngeal oedema, intratracheal bleeding and subglottic stenosis are associated with retrograde intubation and are caused by the use of hard guiding devices¹⁰. In order to avoid the damage caused to tissue by the hard guiding devices, softer devices like silk suture and epidural catheters can be used for guidance into the trachea. However, since these devices are not hard enough they often result in several unsuccessful attempts the need to retry and therefore lead to loss of valuable time unsuccessful attempts⁶. In our patient whose oropharynx was completely blocked, we used the guide wire of a CV catheter.

In conclusion, as in our case, retrograde intubation may be good alternative to invasive airway management such as surgical tracheostomy for difficult or impossible intubations because it can be performed easily, quickly, and successfully.

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