MANAGEMENT OF DIFFICULT AIRWAY
USEFUL STEPS
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Abstract

Over the years management of difficult tracheal intubation has been facilitated by different techniques which include the use of stylets, introducers, boogies, intubating laryngeal mask airway, special laryngoscope blades, fiber optic laryngoscopes, and over the past fifteen years by the introduction of several video-assisted laryngoscopes.

The management of difficult tracheal intubation by video-assisted laryngoscopy can be further facilitated by using suspension video-laryngoscopy, which frees the hands of the anesthesiologist to handle the insertion of the endotracheal tube, with the aid of Muallem Endo-Tracheal Tube Introducer METTI, and Muallem Curved Pipe Stylet MPS, under an umbrella of pharyngeal oxygen insufflation.

Background

With the introduction of muscle relaxants by Harold Griffith in the forties, failure to ventilate and/or intubate became a major concern and a nightmare to anesthesiologists because of the serious morbidity and mortality that may follow1.

During the past years different guidelines and algorithms have been developed and recommended by the ASA and other societies for the difficult airway management. These guidelines have been very useful and have reduced the incidence of complications since their introduction2,3.

Following the introduction of the video-assisted laryngoscopes many of the steps of the guidelines could be omitted, and if the proper training and equipments are available, we can go directly to the most recently recommended technique4,5,6.

Introduction

Management of a difficult airway should not come as a surprise.

Each anesthesiologist should formulate a plan of action before-hand, rehearse it under normal conditions, and be prepared by training and equipments.

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Successful intubation depends on the:
1. Skill and training of the operator,
2. Equipment and intubation aids available,
3. Type of the anatomical difficulty present.

Faced with difficult tracheal intubation, we should avoid repeated trials, and aim for maintaining adequate ventilation and oxygenation, by laryngeal mask airway (LMA) if needed, keeping the patient alive until a proper plan of action is developed7.

In spite of the advance in videoscopes, we still find some airways difficult to intubate. Providing a good view of the glottis with the videoscope does not always correlate with successful tracheal intubation.

Intubation technique recommended

After preoxygenation, induction of anesthesia is made by a sleeping agent and muscle relaxant. Visualization of the glottis is made by the videoscope. The endo-tracheal tube introducer (METTI) is inserted into the trachea by the help of the pipe stylet (MPS), and the endotracheal tube is railroaded over the introducer into the trachea8,9, Fig. 1.

The assembly of introducer (METTI) and pipe stylet (MPS) makes one device with two components, where each component can be maneuvered independently. The pipe stylet is used to curve the introducer and the ET tube, and METTI to guide the tube into the trachea10,11 Fig. 2,3.

During the railroading of the endotracheal tube over the introducer (METTI), the tube may get stuck at the level of the arytenoids, turning the bevel of the tube posteriorly will allow the tube to pass to the larynx.

The tube may also get stuck at the anterior commissure, turning the bevel of the tube anteriorly will allow the tube to pass to the trachea.

The presence of an introducer in the trachea will allow rotation of the tube bevel under vision to overcome the obstacles met on the way during railroading13, Fig. 5.
By using the above mentioned technique; a Videoscope, Muallem introducer (METTI), and Muallem Pipe Stylet (MPS), it was found that a third hand by an assistant was required to manipulate all these intubation aids.

A hook has been added on the handle of the Videoscope for its suspension on a Bi-pod to free the two hands of the anesthesiologist who performs the intubation. Fig. 6, 7.

Conclusion

The most recent advances in the management of difficult intubation is the introduction of the video-assisted laryngoscopes.

The technique described above; of suspension video-assisted laryngoscopy, combined with an assembly of Muallem introducer and Muallem pipe stylet, under an umbrella of pharyngeal oxygen insufflation is recommended by the author for the management of difficult intubation.

This technique consists of the following steps;
1. Preoxygenation of the awake patient by a face mask.
2. Induction of anesthesia by a sleeping agent and muscle relaxant.
3. Pharyngeal oxygen insufflation for apneic oxygenation.
4. Viewing of the larynx by a video-assisted laryngoscope.
5. Suspension of the videoscope on a bipod to free operator hands.
6. Insertion of Muallem introducer METTI into the trachea by the aid of Muallem Pipe Stylet MBS (VBM).
7. Railroading the endotracheal tube over the introducer into the trachea under full vision, and rotating the tube over the introducer as required.
References


