Laryngeal Mask Airway in Laryngoscopies:
A safer alternative for the difficult airway.

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Abstract

Objectives: To identify patients with potentially difficult airways, and to determine the benefits and risks of ventilating such patients during laryngeal or upper tracheal procedures using a Laryngeal Mask Airway (LMA). Methods: The computer records of the Otolaryngology and Anesthesia departments over a ten month period were used to identify all patients who had been ventilated using an LMA due to a difficult airway. This procedure was used for bronchoscopies, laryngoscopies, laser treatments and biopsies of laryngeal and upper tracheal lesions. The clinic charts and postoperative notes of these patients were used to record demographic data, body mass index, reason for classification as a difficult airway and postoperative morbidity due to LMA use. Results: We identified six cases with a “difficult airway” over a ten period. Laryngeal pathologies included leukoplakia, hemangioma and laryngeotracheal stenosis. Each patient underwent an elective LMA insertion because these patients were predicted to have a difficult airway. Laryngeal surgeries were performed uneventfully with good results. There were no intraoperative or postoperative complications in any patient. Conclusion: In patients with difficult airways, it is safer and easier to insert a Laryngeal Mask Airway compared to an endotracheal tube. The lesions are easy to visualize with a flexible bronchoscope, there is minimal vocal cord trauma and it serves as a wide conduit for bronchoscopies and laryngoscopies. We recommend preoperative identification of difficult airways and consideration for elective LMA and bronchoscopy during such procedures.

INTRODUCTION

The LMA is extensively used for ventilation in laryngeal and upper airway procedures. Its wide diameter serves as a conduit for a flexible laryngoscope and bronchoscope for purposes for visualization and therapeutic procedures.

The definition of a difficult airway situation is one in which a trained anesthesiologist experiences difficulty ventilating via a face mask, endotracheal intubation or both. The ease of insertion and effectiveness of the LMA has made it indispensable in the unanticipated difficult airway after induction of general anesthesia, and it has been incorporated in difficult airway algorithms.

MATERIALS AND METHODS

We conducted a retrospective chart review and accessed computerized records of the Department of Otorhinolaryngology and the Department of Anesthesiology at the University of Pennsylvania. The study was approved by the Institutional Review Board.

The inclusion criteria included age greater than 18 years, ventilation via the LMA during the procedure, and a documented difficult airway. Subjects were considered to have a difficult airway if there was a history of prior failed or difficult intubations. The presence of laryngeal and tracheal pathology and obesity on preoperative assessment were also considered a predictor of a difficult intubation.

A size 4 LMA Unique™ (LMA Unique ™, LMA North America, Inc., San Diego CA, USA) was placed in all patients. All patients underwent bronchoscopy using an Olympus™ T-160 fiberoptic bronchoscope (Olympus America Inc., Center Valley PA, USA), which was used for both laryngoscopy and bronchoscopy. All but one patient underwent laser therapy. The Potassium Titanyl Phosphate (KTP) laser fiber was passed through the biopsy channel of the bronchoscope and operated at 2 to 4 Watts. During the laser procedure, the anesthesiologist decreased the fraction of inspired Oxygen (FiO2 to 30% or less.

Oxymetazoline hydrochloride was sprayed over the vocal folds and other lasered or biopsied sites after the procedure for improved hemostasis.

RESULTS

We identified six patients with known difficult airways who underwent microdirect laryngoscopy, bronchoscopy and upper tracheal procedures using an LMA.

The diagnosis of a difficult airway was made pre-operatively due to laryngotracheal stenosis (in 2 patients), obesity and anterior larynx (1 patient), extensive oropharyngeal and laryngeal hemangiomas (1 patient), previous palatal surgery (1 patient) and previous difficult intubations (2 patients). None of the patients experienced any episodes of intraoperative oxygen desaturation or postoperative complications due to the LMA or the bronchoscopic procedures.

CONCLUSIONS

We recommend the use of LMA for ventilating patients undergoing laryngoscopy, bronchoscopy and laser procedures of the larynx and upper trachea in patients with a known difficult airway.

Our indications for using the LMA included a BMI greater than 30kg/m2, decreased neck mobility, increased neck circumference, a history of previous difficult intubation, and tumors of the upper aerodigestive tract.

We found the LMA to be safe even in patients with large base of tongue and supraglottic masses, subglottic stenosis and poor pulmonary reserve. It was well tolerated in these patients, possibly due to the short duration of the procedure.

Additionally, we recommend that a bronchoscope should be available in the operating room. It is very useful when microdirect laryngoscopy does not provide adequate visualization. Passing the fiberoptic laser through the bronchoscope further adds to patient safety during laser procedures, markedly reducing the risk of an airway fire and LMA combustion.

REFERENCES


