CASE REPORT

Emergency airway management with laryngeal mask airway

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Abstract

When used correctly, laryngeal mask airway is a life saver. We report two cases wherein it was used for rescue airway management and as a ventilatory device during anesthesia. It is concluded that an anesthetist should be familiar with the use of this device.

Key words: Laryngeal mask airway, unanticipated difficult intubation, emergency management

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Introduction

Laryngeal mask airway (LMA) was introduced by Archie Brain in 1983 as a supraglottic airway device. It consists of an inflatable mask and a silicone connecting tube [Figure 1]. It was initially designed for use in the operating room as a method of elective ventilation.

The LMA now has an established role in elective and rescue airway management.[1-3] When correctly inserted into the pharynx and its cuff inflated (provides a seal against the upper esophageal sphincter, aryepiglottic folds, and distal epiglottis), it directs air into the trachea and avoids insufflation of the stomach.[1,4] Unanticipated use of LMA in difficult airway situations makes it a life saver to the patient and provides a big relief to the anesthetist. It is therefore essential that every anesthetist be armed with the skill of safe use of this device. The cases reported brings to the fore the importance of LMA in airway management.

Case Reports

Case 1

O. N was a 19 year old female student with a 1year history of left jaw mass, which was gradually increasing in size. There was no associated pain or tooth ache. Examination revealed a mass that was 6 cm × 6cm in dimension and non tender. An X- ray view indicated a soft tissue lesion, and an ultrasound scan made a provisional diagnosis of submandibular adenoma. Other investigations carried out showed normal findings. She was then scheduled for tumor excision. Airway assessment revealed Mallampati class 1. She was graded ASA (American Society of Anesthesiologists) physical status 1.

Intraoperatively, a wide bore intravenous access was secured and 0.9% normal saline infusion was commenced. Omnicrom FT® multiparameter monitor was attached to the patient and the blood pressure (BP), electrocardiogram (ECG), heart rate (HR), and arterial oxygen saturation (SpO_2) were monitored.

She was preoxygenated with 100% oxygen for three minutes with a tight fitting face mask and a closed system; and 0.6 mg of atropine was administered as premedicant. Anesthesia was induced with 375 mg of intravenous (IV) 2.5% sodium thiopentone. Following loss of consciousness, IV suxamethonium 100 mg was then administered to facilitate laryngoscopy and tracheal intubation. Two attempts at tracheal intubation failed. A senior anesthetist made an attempt and failed as well (the mass was protruding into the laryngopharynx). A size 3 classic LMA [Figure 1]

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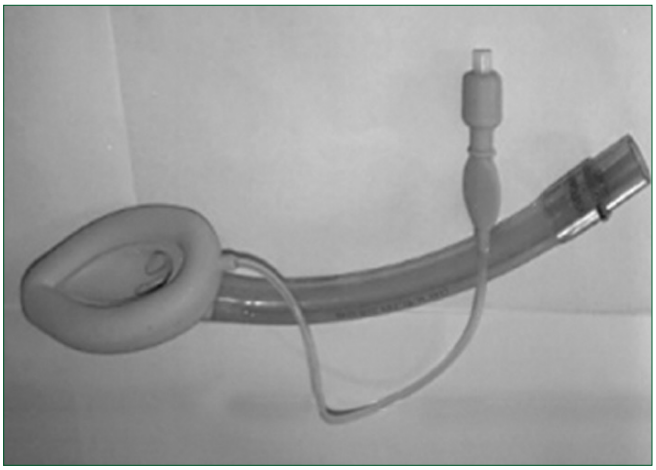

Figure 1: Laryngeal mask airway

was passed to maintain the airway. Patient was allowed to resume spontaneous respiration. Propofol (1%) infusion was started with fentanyl analgesia. Halothane 0.8% was also delivered in 50% oxygen-air mixture. Surgery was started and completed without any critical incidence.

Operative finding was submandibular adenoma at lower pole of the parotid gland.

Case 2

A 57-year-old morbidly obese woman (body mass index 40.2 Kg/m^2), diagnosed with carcinoma of the breast was booked for mastectomy. History was not significant. After examination and review of investigation she was graded ASA physical status II. Airway assessment revealed Mallampati class 3.

In the operating suite, intravenous access was secured and saline infusion was allowed to run. Pre-induction vital signs were SpO_2 of 98%, BP of 110/70 mmHg, HR of 74 per minute, sinus rhythm. Preoxygenation with 100% oxygen was carried out for 3 minutes using a closed system. Glycopyrrolate 0.4mg was administered and general anaesthesia was induced with 500mg of intravenous 2.5% sodium thiopentone. Laryngoscopy was facilitated with 150 mg of IV suxamethonium. Two attempts at tracheal intubation failed. At the third attempt the upper incisor tooth was knocked off leading to bleeding. The airway was suctioned and the tooth recovered. A size 3 classic LMA was inserted to maintain the airway. Manual ventilation with the closed system was started to maintain adequate oxygenation. Shortly afterwards LMA was dislodged and the arterial oxygen saturation began to drop (SpO_2 of 81% was recorded). Another attempt at endotracheal intubation failed. "Cannot ventilate, cannot intubate". A size 4 LMA was inserted and patient was adequately ventilated. Anesthesia was maintained with 1% propofol infusion, and 1% halothane in 50% oxygen-air mixture. Fentanyl 150 μg was administered intravenously. Surgery was commenced and concluded without any hitch and recovery from anesthesia was without incidence.

Discussion

The use of LMA to secure the airway and as a ventilatory device during anesthesia is a veritable tool. The management of anticipated difficult airway allows for adequate preoperative preparation. The use of LMA during unanticipated airway difficulty provides the anesthetist a sure alternative to airway management. The cases presented illustrate the use of LMA emergently as well as to secure the airway during anaesthesia. After LMA placement, effective ventilation and oxygenation were established and maintained in each case.

The second case presented with morbid obesity and a "cannot ventilate, cannot intubate" situation. Morbid obesity preclude the use of LMA because of "full stomach". But in a "cannot ventilate, cannot intubate" scenario, establishing and maintaining a patent airway, and effective ventilation with life sustaining oxygen saturations is paramount.[5] An alternative airway accessory in this case would be Blind Endotracheal Intubation using the Intubating LMA (ILMA+BETI).[6] Success rates for ILMA+BETI have been reported to be as high as 99.3%.[7]

The dislorgement of the LMA and subsequent drop in arterial oxygen saturation seen in the second case was due to the use of incorrect size of LMA. It is therefore important that different sizes are provided and a correct size is used. This was ensured in the first case. Even though it was a surgery in the head and neck region with the attendant manipulation around the airway, the LMA remained in place because appropriate size was used.

The use of LMA in treating unanticipated difficult endotracheal intubations and mask ventilation is well documented. Parmet *et al.* reported 94% success rate.[8] The ease of passage of LMA as compared to direct laryngoscopy and endotracheal intubation makes it an important device for rescue airway management.

Conclusion

When a situation of failed tracheal intubation occurs, a rescue airway device (LMA) must be immediately available and rapidly deployed to assist in managing the airway. Anesthetists should be familiar with the use of this device as it could be a life saver during airway crisis.

Reference

1. Brain AI. The laryngeal mask--a new concept in airway management. Br J

Anaesth 1983;55:801-5.
2. Embu HY, Yiltok SJ, Isamade ES. Anaesthetic Management of Mentosternal Contractures Where Resources Are Limited. Niger J Med 2008;17:143-5.
3. Kushimo OT, Oyeneyin JO, Oyeniyi PA. The Brain laryngeal mask airway and difficult intubation. Nig Postgrad Med J 1996;3:82-4.
4. Weiler N, Eberle B, Heinrichs W. The laryngeal mask airway: routine, risk or rescue? Intensive Care Med 1999;25:761-2.
5. Felbinger TW, Mallampati SR, Eltzschig HK. Airway management for postoperative respiratory failure: use of the laryngeal mask airway. Can J Anaesth 2005;52:445-6.
6. Combes X, Sauvat S, Leroux B, Dumerat M, Sherrer E, Motamed C, *et al*. Intubating laryngeal mask airway in morbidly obese and lean patients: a comparative study. Anesthesiology 2005;102:1106-9.
7. Brain AI, Verghese C, Addy EV, Kapila A, Brimacombe J. The intubating laryngeal mask. II: a preliminary clinical report of a new means of intubating the trachea. Br J Anaesth 1997;79:704-9.
8. Parmet JL, Colonna-Romano P, Horrow JC, Miller F, Gonzales J, Rosenberg H. The laryngeal mask airway reliably provides rescue ventilation in cases of unanticipated difficult tracheal intubation along with difficult mask ventilation. Anesth Analg 1998;87:661-5.

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