

Case report

A rescue technique for LMA Classic insertion in unanticipated limitation of mouth opening

Krishna HM*, Laxmi Shenoy

Email: hmkrishna20032002@yahoo.com

Abstract

Sudden unanticipated limitation in mouth opening can cause serious problems in airway management. We report a case in which mouth opening became restricted after induction of anaesthesia resulting in inability to insert LMA Classic by standard insertion technique. An alternative technique consisting of LMA insertion without intraoral manipulation was used in this case as a rescue technique and LMA could be inserted successfully.

Keywords: Insertion technique, LMA Classic™ Supraglottic device, Difficult airway

Introduction

LMA Classic is widely used for airway management during anaesthesia and resuscitation. The recommended technique of insertion of LMA Classic is the 'index finger insertion technique'.¹ Several other techniques of insertion of LMA Classic have also been described which include rotational insertion technique, insertion with special devices and a technique which does not require the insertion of index finger into patient's mouth for LMA insertion. We report a case where the classical recommended technique for LMA insertion failed but the alternate technique came to rescue.

Case report

A 40 year old male patient, weighing 60 kg was scheduled for right ureteric stenting under general anaesthesia. The patient had no other comorbid illnesses. His airway assessment revealed adequate mouth opening (about 3 finger breadths), adequate neck movements, thyromental distance of 7 cm and one finger was insinuable in the temporomandibular

joint. There was no history of prior exposure to anaesthesia. On the day of the procedure, after confirming adequate fasting status, the patient was shifted into the operating room.

Standard monitoring was initiated and intravenous (IV) access was secured. Anaesthesia was induced with IV fentanyl 100 µg and propofol 200 mg. Anaesthesia was deepened with 2% isoflurane in 100% oxygen for 2 min. The head and neck was positioned in the 'sniffing the morning air' position with a pillow. While attempting to insert a size 4 LMA Classic by the index finger insertion technique, it was observed that the mouth opening had become restricted and did not permit the insertion of the LMA by standard technique. Anaesthesia was further deepened with IV bolus of propofol 50 mg but the mouth opening was still restricted to about one and a half to two finger breadth which was not adequate for LMA insertion. Ventilation with 2% isoflurane in 100% oxygen was continued for another 2 minutes and another attempt to insert the LMA was made. However, this attempt also failed due to locked jaw. We decided to try an alternative technique as described by Brimacombe *et al.*² The technique involves LMA insertion without digital intraoral manipulation. In this technique, the patient is positioned supine with head and neck in sniffing

Krishna HM, MD

Professor of Anaesthesiology, Kasturba Medical College, Manipal University, Manipal, 576104

Laxmi Shenoy, MD

Assistant Professor of Anaesthesiology, Kasturba Medical College, Manipal University, Manipal, 576104

How to cite this article: Krishna HM, Shenoy L. A rescue technique for LMA Classic insertion in unanticipated limitation of mouth opening. *Ind J Resp Care* 2014; 3(2):497-9.

position. After opening the mouth, LMA Classic™ is held at the junction of the proximal one third and distal two thirds of the shaft, between the index finger and the thumb of the dominant hand. LMA Classic™ is introduced into the mouth flattening the cuff against the hard palate and pushing it down into the pharynx until resistance is encountered. When the index finger and the thumb reach the mouth of the patient as the LMA is introduced, these fingers are readjusted to the proximal end of the LMA. No undue force is exerted on the LMA during these steps.

With this technique LMA could be inserted successfully in the first attempt. Subsequently anaesthesia and the procedure were uneventful. In the postoperative period, when the patient was fully awake, it was observed that mouth opening was adequate and similar to that in the preoperative period.

Discussion

This report highlights (a) unanticipated difficulty in airway management in the form of limitation of mouth opening following induction of anaesthesia and (b) successful use of the technique without digital intraoral manipulation as a rescue technique when the standard recommended technique of LMA Classic insertion failed due to restricted mouth opening.

Dysfunction of temporomandibular joint can cause difficulty in airway management. The mandible moves like a hinge with rotational and translational (slide forwards) movements. These movements at the temporomandibular joint are important for opening of the mouth and subluxational movement of the jaw during airway management. The function of the temporomandibular joint is routinely evaluated during airway assessment by testing the ability to insinuate one finger in the temporomandibular joint. Ability to subluxate the lower jaw against the upper jaw completes the assessment of temporomandibular joint. Upper lip bite test and Wilson scoring system also evaluate this function.

In the case reported here, preoperatively the mouth opening was 3 finger breadths and one finger could be insinuated in the temporomandibular joint. Ability to subluxate the lower jaw was not assessed. The mouth opening was found to be unexpectedly restricted following induction of anaesthesia at the time of insertion of LMA. Inadequate depth of anaesthesia is a common cause for inadequate jaw relaxation resulting in limitation of mouth opening. Accordingly, in this case, anaesthesia was deepened with propofol bolus and subsequently by ventilation with isoflurane in oxygen. However, the mouth opening did not increase despite deepening of anaesthesia.

Masseter spasm can restrict the mouth opening.³ The exact cause for masseter spasm during anaesthesia is not known but is seen usually with the use of succinyl choline as a muscle relaxant. In this case, no muscle relaxant was used. Dysfunction of the ligaments of the temporomandibular joint (joint capsule, lateral ligament, sphenomandibular ligament, and stylomandibular ligament) can also result in problem similar to that encountered by us.³ Due to loss of tone of the muscles following induction of anaesthesia, dysfunction of these ligaments manifests and may be seen as limitation of mouth opening and inability to thrust the lower jaw forwards. This could have been the possible cause for limitation of mouth opening in this case. However, the mouth could easily be closed in this case unlike in cases of mandibular dislocation reported in the literature where the mouth does not close till the temporomandibular joint dislocation is reduced.⁴⁻⁷ There was no history of injury to the temporomandibular joint in the past.

Mouth opening of at least 2 cm is required for insertion of LMA Classic into the mouth.¹ In this case, since the mouth opening was limited to less than 2 cm, LMA could not be inserted into the oral cavity by the standard index finger technique. When two attempts at LMA insertion with standard technique failed we contemplated using the alternate technique described by Brimacombe *et al*.² The utility of this technique has been subsequently demonstrated in the studies conducted by Kuvaki B *et al*, Brimacombe J *et*

al, Koay CK *et al* and Krishna HM *et al*.⁸⁻¹¹ Since this technique does not require insertion of index finger along with the LMA, the amount of mouth opening required for LMA insertion with this technique is less than that required for standard technique.

We conclude that the technique of insertion of LMA Classic without digital intraoral manipulation can be useful as an alternative rescue technique to standard technique when mouth opening becomes restricted to an extent allowing only LMA to pass into the mouth.

References

1. Dorsch JA, Dorsch SE. Supraglottic Airway devices. In: Dorsch JA, Dorsch SE, editors. *Understanding Anaesthesia Equipment*. 5thed. Philadelphia: Lippincott Williams and Wilkins; 2008.p. 461-519.
2. Brimacombe J, Keller C. Insertion of the LMA-UNIQUE™ with and without digital intraoral manipulation by inexperienced personnel after manikin-only training. *J Emerg Med* 2004;**26**:1-5.
3. Baraka A. Succinylcholine-triggerred masseter spasm - may be a variant normal response. *Middle East J Anaesthesiol* 2013; **22**:7-9.
4. Schwartz AJ. Dislocation of the mandible: a case report. *AANA Journal* 2000; **68**:507-13
5. S Bhandari, B Swain, M Sarkar, L Dewoolkar. Temporomandibularjoint (TMJ) dislocation after LMA insertion. *The Internet Journal of Anesthesiology* 2007; **16**: Number 1.
6. Unnikrishnan KP, Sinha PK, Rao S. Mandibular dislocation from yawning during induction of anesthesia. *Can J Anaesth* 2006;**53**:1164-5.
7. Bellman MH, Babu KVR. Jaw dislocation during anaesthesia. *Anaesthesia*1978; **33**: 844
8. Kuvaki B, Kucukguclu S, Iyilikci L, Tuncali BE, Cinar O. The soft seal disposable laryngeal mask airway in adults: comparison of two insertion techniques without intra-oral manipulation. *Anaesthesia* 2008;**63**:1131-4.
9. Brimacombe J, Berry A. Insertion of the laryngeal mask airway - A prospective study of four techniques. *Anaesth Intensive Care* 1993;**21**:89-92.
10. Koay CK, Yoong CS, Kok P. A randomized trial comparing two laryngeal mask airway insertion techniques. *Anaesth Intensive Care* 2001;**29**:613-5.
11. Krishna HM, Kamath S, Shenoy L. Insertion of LMA Classic™ with and without digital intraoral manipulation in anesthetized unparalyzed patients. *J Anaesth Clin Pharmacol* 2012; **28**:481-5.