

# Upper Airway Obstruction Associated with Laryngeal Mask Airway Breaking During Emerging from General Anesthesia



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## Introduction

Using laryngeal mask airway (LMA) as an airway management device in general anesthesia was more frequently in recent decades. LMA has been used in nearly every hospital in Taiwan for elective inpatient or outpatient surgery. However, LMA could cause severe complications such as pulmonary edema, laryngospasm, gastric content aspiration or other post-operative respiratory adverse events. In this article, we reported a case of acute upper airway obstruction associated of LMA breaking during emerging from general anesthesia.

## Case Presentation

The 26-year-old man with ASA Class I physical status was admitted for left leg debridement surgery. His body weight was 75 kg and height was 175cm. The LMA Classic™ size 5 was checked routinely before induction. There was no tube laceration, and the cuff function was normal. General anesthesia was induced by fentanyl 100 mcg, propofol 150mg and rocuronium 50mg intravenous injection, and then LMA was inserted easily for intraoperative airway management. Sevoflurane with 50% oxygen was used for maintenance of general anesthesia. The anesthesia and surgery course was smooth until emergence from general anesthesia. During emerging from anesthesia, sevoflurane was washed out by 100% oxygen. While the concentration of sevoflurane dropped to 0.4%, and the patient regained spontaneous breathing with tidal volume 500~600 ml. When we were considering removing the LMA from his mouth, the patient bit the LMA conduit vigorously. Upper airway obstruction was developed in consequence of the broken part of LMA in his mouth. Loud stridor was noticed, and the patient was in anxiety state. We could not remove the remaining part of LMA from his mouth because of he could not obey our order to open his mouth. Mask ventilation could not be performed because the LMA obstructed the upper airway. At this moment we decided to deepen the anesthesia level with hypnotics. Propofol 100mg was administered intravenously, and the patient finally calmed down. The remaining LMA was removed from his mouth at ease. The patient regained spontaneously breathing after we assisted ventilation for 15 minutes. He was then transferred to post-anesthesia care unit (PACU) with clear consciousness. He was discharged from PACU with SpO<sub>2</sub> 98% under room air and clear breath sound upon auscultation.

When the patient was observed at PACU, we checked the LMA and reconstructed the broken two pieces (Figure 1 and 2). The LMA could be reconstructed completely and nothing was missing. There were lots of small cracks on the surface of the tube, which revealed that the LMA had been used for many times. This may be the reason why the reusable LMA was broken when the patient bit LMA conduit vigorously.

## Discussion

The LMA Classic™ was first introduced in the U.K. in 1988 and in the U.S. in 1992 as an alternative device to the facemask. With proper cleaning, sterilization and handling, the reusable LMA™ airways can be used a maximum of 40 times. The timing of removal of the LMA is controversial. The instruction manual states that the LMA can safely be left in place until the patient regained consciousness. In one study, the incidence of complications during or after removal of the LMA was significantly greater in the anesthetized group than that in the awakening group [2]. Oral bite placement can be used as a method to prevent biting the LMA. It could be dangerous to open the mouth violently when the patient is biting the LMA. Re-anesthetization with propofol could be a choice means to facilitate the removal of the remaining part of LMA inside the mouth [1]. Administration of a rapid onset and short acting muscle relaxant such as succinylcholine is considered if difficult removal or laryngospasm is encountered after administering a single hypnotic drug [1]. After removal of LMA, it is important to exam all the parts of LMA to rule out the possibility of aspirating the remaining part of LMA. Biting the LMA when patient is emerging from general anesthesia can cause a critical condition such as airway obstruction, pulmonary edema or laryngospasm. Therefore, adequate decision and airway management are important to decrease the incidence of adverse events.

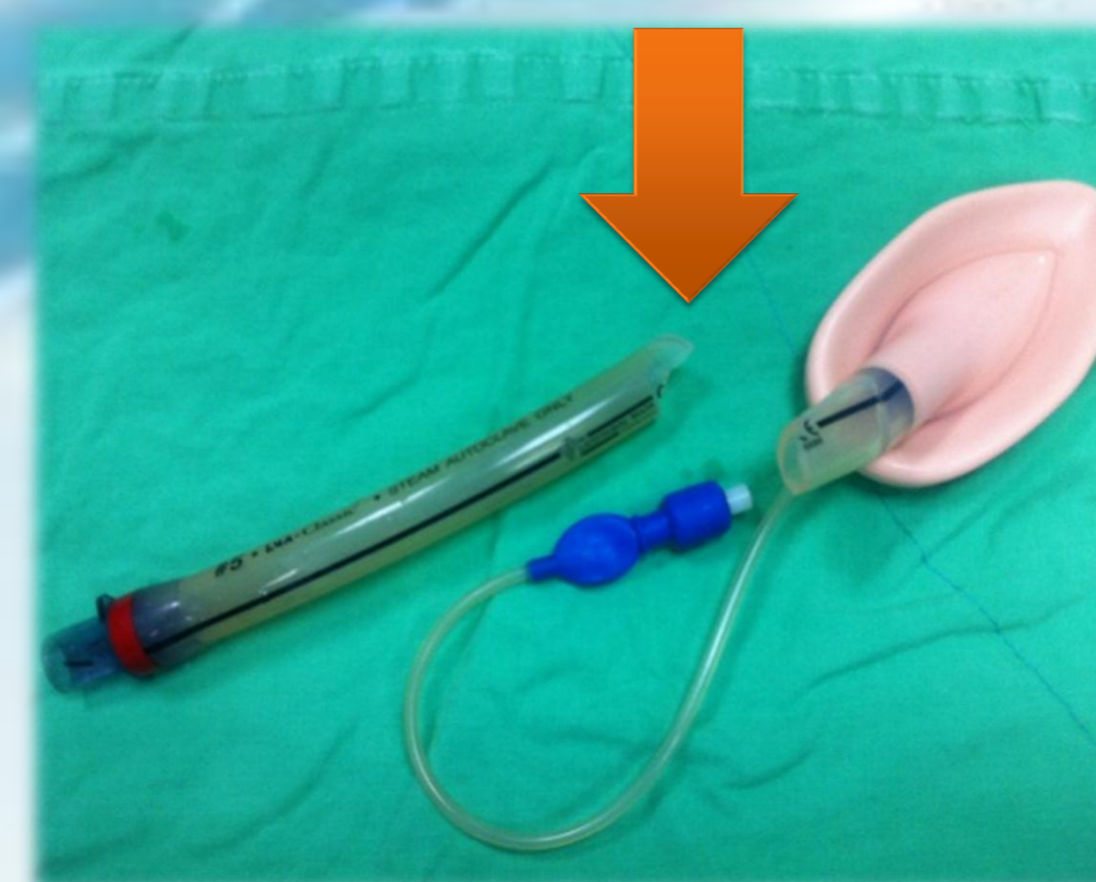


Figure 1

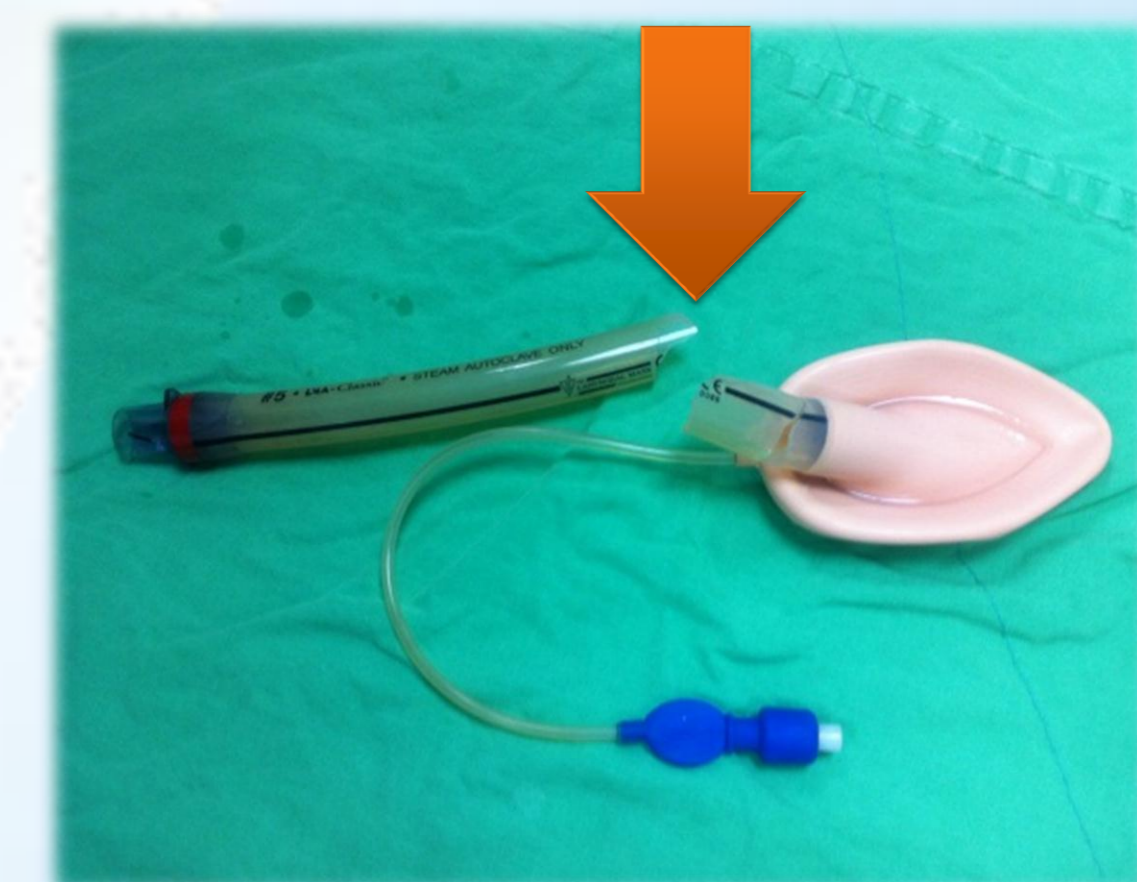


Figure 2

## Reference:

1. WL Chang, et al. Successful Management of Severe Upper Airway Obstruction During Emergence of Anesthesia in Consequence of Fracture of Deflated Laryngeal Mask Airway Due to Biting — A Case Report. *Acta Anaes Taiwan* 45:39-42, 2007
2. J Nunez, et al. Timing of removal of the laryngeal mask airway. *Anaesthesia* 53:126-130, 1998
3. Miller's Anesthesia 7th edition