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**Title:** A case Report of Tongue Edema due to Laryngeal Mask with Introducer

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## **A case report of tongue edema due to laryngeal mask with introducer**

### **Abstract**

Airway management with laryngeal mask is an especially preferred noninvasive technique with its achievement of haemodynamic stability and ease of application in surgeries that has short operation time and do not require specific positions like prone position.<sup>1</sup> Although it is easily performed rarely serious complications might be seen due to lack of experience and inappropriate instrumentation choice. In this case report clinical management and treatment options of tongue edema that developed due to the forgotten introducer in laryngeal mask application is presented.

**Keywords:** Laryngeal mask airway, tongue edema, introducer

### **Introduction**

Laryngeal mask (LM) is a preferable method in short time surgeries planned to be performed under general anesthesia since it is easily and readily performed.<sup>1</sup> The success in standard laryngeal mask administration is closely related to appropriate patient and laryngeal mask size selection and the skill and experience of the clinician. Introducer is an apparatus to facilitate the application of LM and must be extracted after the administration. If not extracted the pressure that it causes to the tongue, a highly vascularized organ, might result in hematoma.<sup>2</sup> The elongation of the surgery time might also increase the complications. In this case we will try to present a case of tongue edema related to the forgotten introducer apparatus in laryngeal mask technique which was not reported previously in the literature.

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## Case report

A 53 year old and 80 kg male patient diagnosed as benign prostatic hypertrophy with no known history of systemic diseases consulted for general anesthesia. No physical or laboratory abnormality was observed. The patient did not want local anesthesia. So general anesthesia with LM technique was planned considering the relatively short duration of the surgery.

After anesthesia induction was performed with 2 mg midazolam, 2 mg propofol and 1 µg.kg-1 fentanyl, LM appropriate to patient weight was chosen. Laryngeal Mask Airway (LM®) with “Introducer®” was inserted and cuff was ventilated with 25 ml air. The surgery was started after the airway control was performed. The tongue was checked after the insertion and it was seen in place and free.

At the end of 35 min of surgery LMA® was extracted after the patient was seen to have spontaneous respiration effort and can open mouth with verbal input. Afterwards the tongue of the patient was noticed as edematous and patient got difficulty in swallowing [Figure 2]. The patient was monitored in postoperative care unit (PCU) with emergency airway management equipment due to the thought that he might have a respiratory problem. The PCU entrance values were oxygen saturation (SpO<sub>2</sub>): 94, peak heart rate (PHR): 85/min, blood pressure (BP): 135/85 mmHg. Dexamethasone 8 mg and atropine 1mg was administered and followed-up with 2lt/min O<sub>2</sub> given with nasal mask in spontaneous respiration. SpO<sub>2</sub> was 94-97% in patients follow-up in POCU. Physical examination revealed no hematoma and trauma sign and posterior pharynx was patent. After 1.5 hour follow-up patients difficulty in swallowing regressed and SpO<sub>2</sub> level was 96-97%, patient was sent to clinic. We have seen that swallowing difficulty and tongue edema was completely resolved after 24 hour period. There was no sequel in patients' 1, 2, 3 and 7<sup>th</sup> day visits.

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## Discussion

LMA<sup>®</sup> was a ring shaped low pressure cushion like apparatus that sits to glottis where gastrointestinal system and respiratory system converge. If fitted right and its cuff is inflated, lower end of LMA<sup>®</sup> resides at the level of upper esophageal sphincter with its sides pressing piriform fossas and upper end reaching to base of the tongue. In this position epiglottis lies in LM facing upwards which secures the airway open.<sup>3</sup> In standard LMA<sup>®</sup> technique, low oral volume, inexperienced clinician and the flexible nature of the instrument reduces the success rates.<sup>4</sup> Flexometallic Laryngeal Mask Airway'' [FLMA<sup>®</sup>] having ''Introducer'' which is rigid, in proper curvature with airway and easily extracted from LM after the insertion increases the success rates.<sup>5-6</sup> In this presented case FLMA<sup>®</sup> was used.

Tongue edema due to LM is a rarely seen complication. Literature search revealed that complications occurred due to the inappropriate LM size selection and lengthened use.<sup>2</sup> In this case LM was chosen appropriately according to patients weight and specialties. To our knowledge there was no case report about lingual edema due to the forgotten introducer.

External pressure applied to the vessels of the tongue may cause edema at the end of the surgery.<sup>7</sup> If placed anatomically and used in tolerable time limits, the fleksible nature of LMA<sup>™</sup> do not cause problem in tongue vascularization.<sup>8</sup> Although FLMA<sup>™</sup> is analogous to standard LMA<sup>™</sup> it is more easily inserted with its ''Introducer<sup>™</sup>'' (Figure 3). The tough plastic and metal combination nature of the ''Introducer<sup>™</sup>'' if not extracted after the insertion of LM may exert pressure to the base of the tongue. In the presented case ''Introducer<sup>®</sup>'' was forgotten to be extracted and tongue edema was noticed at the end of the surgery after the removal of the LM. In the patient Stillman presented, the operation lasted 5 hour and the tongue edema was associated with long surgery time and larger size LMA<sup>®</sup>.<sup>2</sup> In our case the operation was finalized in a short time like 35 minutes and the size of the LMA<sup>®</sup> was chosen appropriately according to patients characteristics. Since surgery time was short, appropriate size LMA<sup>™</sup> was used and the cuff was inflated with relatively low 25 ml volume, the tongue edema in the case is attributable to ''Introducer<sup>®</sup>'' . In the Twig et al's presentation the operation lasted 90 minutes and no:5 LMA<sup>®</sup> cuff was inflated with 30 ml air. They mentioned that the edema and cyanosis

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in the tongue was related to nitrous oxide gas used in anesthesia leading to the increased cuff pressure. We did not use nitrous oxide and the cuff pressure was in normal limits.

## Conclusion

If FLMA™ is planned to be used in LM administration, the “Introducer™” should be extracted after LM is inserted. Otherwise, a spectrum of complications ranging from tongue edema to life-threatening complications may develop. We recommend routine examination of the tongue during the follow-up.

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**Figure Legends****Figure 1:** Flexometallic Laryngeal Mask Airway**Figure 2:** Photograph showing edema of the tongue.**Figure 3:** Introducer**Figure 1****Figure 2****Figure 3**

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