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Case Report
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A Rare Complication: Case Report of Palatal Laceration Associated with Flexible Laryngeal Mask Airway Insertion

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Abstract

We present a case of soft palate and uvula laceration associated with the insertion of a flexible laryngeal mask airway (FLMA) during elective maxillofacial surgery. A 51-year-old male underwent anterior mandible alveoplasty and tooth removal under general anaesthesia. Resistance during FLMA insertion led to mucosal tears at the right palatoglossal fold and uvula base, requiring suturing of the former. Despite initial post-operative sore throat and odynophagia, the patient recovered without further complications. This case highlights the potential for traumatic injury during FLMA insertion and emphasizes the importance of proper technique, lubrication, and clinician experience in preventing such adverse outcomes.

Introduction

Supraglottic airway devices (SGAs) are commonly used for elective general anaesthesia where the risk of pulmonary aspiration is low. The flexible laryngeal mask airway (FLMA) is a type of 1st generation (i.e. lacking an inbuilt gastric port) supraglottic airway that has been used in shared airway procedures since its introduction in 1990 [1]. The airway tubing can be moved out of the surgical field, while maintaining a cuff seal against the larynx [2]. Additionally, the wire-reinforced tubing resists surgical compression and the device itself acts as a barrier to prevent the soiling of the airway with blood and secretions. While SGAs have an excellent safety profile, there are still risks associated with their use [3].

The complications associated with the use of SGAs can be divided into two categories: respiratory events and mechanical injury. Respiratory events include failed insertion, displacement, laryngospasm, and regurgitation/aspiration events. The incidence of pulmonary aspiration with the use of 1st generation "classic" laryngeal mask airways has been reported in the range of approximately 1-2 per 10,000 cases [4]. Mechanical injuries are those caused by the device itself, such as nerve injury from compression [5], and trauma sustained during insertion and placement. Minor trauma as indicated by the presence of blood on removal of the SGA is relatively common but is not associated with clinically significant adverse outcomes. Significant trauma to the airway is infrequent. The literature describes significant tissue damage in isolated case studies only [6]. Aspiration of blood resulting from a pharyngeal laceration has been described in a single case report [7].

We describe here a case of soft palate and uvula laceration associated with the insertion of a flexible LMA during an elective anterior mandible alveoplasty and removal of teeth. Written informed consent was obtained from the patient for the publication of this case report, and ethics approval was obtained through Central Adelaide Local Health Network (CALHN) Human Research Ethics Committee (HREC).

Case Presentation

A 51-year-old male (114 kg, 187 cm) presented for elective maxillofacial surgery involving an anterior mandible alveoplasty and removal of teeth. His past medical history was significant for ischaemic heart disease with previous coronary stenting on dual antiplatelet therapy, hypertension, depression, chronic back pain requiring methadone, and active smoking of five to ten cigarettes per day. Of note was a history of snoring, with no formal diagnosis of obstructive sleep apnoea and no use of nocturnal continuous positive airway pressure (CPAP). He had undergone a laparoscopic cholecystectomy several months prior uneventfully.

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Figure 1: Mucosal tear to the right palatoglossal fold.

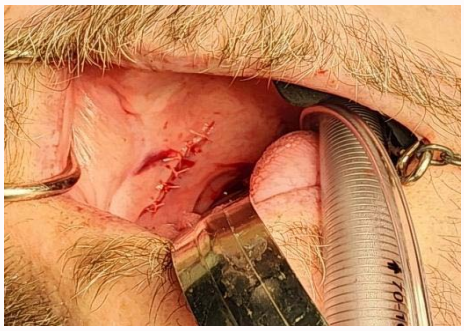

Figure 2: Right palatoglossal fold laceration after repair with suture.

After discussion between the anaesthesia and surgical teams, the flexible LMA was decided as the airway of choice for the procedure. Total intravenous anaesthesia was utilized for this case. Anaesthesia was induced with 100 micrograms of fentanyl and propofol. The target-controlled infusion was initially set for 4.0 mcg/mL. Using the recommended technique, an attempt to insert a size five flexible LMA was made. Resistance to passage of the LMA was encountered by the initial operator. The cuff was deflated, and a second unsuccessful attempt was made to place the LMA. A third attempt was made by a more experienced clinician, and the FLMA was successfully sited. Surgery proceeded uneventfully.

At the end of the procedure, the surgeon noted mucosal tears to the right palatoglossal fold and uvula base (Figure 1). After irrigation with saline and achieving haemostasis, the right palatoglossal fold laceration was sutured with 4.0 vicryl rapide suture (Figure 2). The uvula base laceration was very superficial and did not require formal repair. After resuming spontaneous ventilation, the patient was transferred to the post anaesthesia recovery unit. The flexible LMA was removed in recovery when the patient was awake.

In recovery the patient reported a significant sore throat and odynophagia. This was managed with viscous topical lignocaine and the patient was deemed fit for discharge the same day. The patient was reviewed by the surgeon post-operatively and recovered without further complication.

Discussion

The flexible LMA is a useful tool in the airway armament of anaesthetists, especially in head and neck or shared airway cases. A strategy for airway management should be developed in consultation with the surgical team. This plan should consider patient, surgical, and anaesthetic factors. Thought should be given to the individual patient's airway, surgical positioning and access, the risk of airway soiling, the risk of airway device dislodgement or occlusion, and the consequences of airway irritability on induction of, and emergence from anaesthesia.

A peculiarity of the FLMA is the tubing's lack of rigidity compared to other supraglottic airway devices. The device manufacturer's recommended insertion technique requires the operator to use a finger against the junction of the cuff and tube, guiding the cuff along the palate until it has passed the tongue and proximal pharynx. This greater directional force has been implicated in the higher incidence of sore throat compared to other SGAs [1], and was the likely cause of trauma in this case. This unique insertion technique means that clinician experience and familiarity with the technique are important factors in successful insertion [8]. A randomised controlled trial compared the standard recommended insertion technique with a laryngoscopy-guided technique [9]. This alternate technique showed improved final LMA position as verified by fibreoptic assessment, as well as a reduced incidence of post-operative sore throat, likely due to the increased ease of insertion.

While the tonsillar laceration we describe was not associated with significant bleeding, it did require suturing by the surgeon. The traumatic insertion may have been due to excessive directional force applied at the junction of the tube and the mask. An additional contributing factor may have been inadequate lubrication of the LMA, the importance of which is stressed in the manufacturer's instructions. Clinicians should be cognisant of the possibility of traumatic insertion of SGAs, and if resistance to insertion is met, consider an alternative insertion method, such as laryngoscope guidance in the case of a flexible or other 1st generation LMA, or a different airway device.

Conclusion

This case highlights a rare but important complication associated with the use of the flexible laryngeal mask airway (FLMA) during routine anaesthesia. While supraglottic airway devices are generally safe and widely used, their insertion is not without risk. The flexible LMA, while advantageous in head and neck surgeries due to its pliability and positioning, may pose a higher risk of trauma due to the increased force required during insertion and the technique-dependent nature of its placement.

This case underscores the need for appropriate device selection, careful technique, and clinician experience when using the FLMA. It also suggests that consideration should be given to alternative insertion methods, such as laryngoscope-guided placement, especially in cases where resistance is encountered. In addition, thorough lubrication and prompt recognition of complications are essential to minimise the risk of airway trauma.

While the injury in this case was managed successfully with no long-term sequelae, it serves as a reminder that even minor airway trauma can impact patient comfort and recovery. Incorporating lessons from such incidents into training and clinical protocols can help enhance patient safety and improve outcomes in airway management.

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