

The Use of the Laryngeal Mask Airway in Post-Tonsillectomy Haemorrhage—A Case Report

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Abstract

Introduction: The use of the laryngeal mask airway in elective adenotonsillectomy has been well described. However, there is no literature to support its use in post-tonsillectomy haemorrhage. **Clinical Picture:** We report a case of a patient who presented with primary post-tonsillectomy haemorrhage, which required general anaesthesia for haemostasis after undergoing bilateral functional endoscopic sinus surgery, uvulopalatopharyngoplasty and tonsillectomy. **Treatment and Outcome:** The laryngeal mask airway was used successfully after an initial attempt at endotracheal intubation had failed. There were no complications. **Conclusions:** The laryngeal mask airway can be used to secure the airway for haemostasis for post-tonsillectomy haemorrhage if intubation is not possible.

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Key words: Anaesthesia, Difficult airway, Laryngeal mask airway, Primary post-tonsillectomy haemorrhage, Risk factors

Case Report

A 53-year-old man with a history of hypertension and asymptomatic Wolff-Parkinson-White syndrome was admitted to the hospital for an elective uvulopalatopharyngoplasty, tonsillectomy and bilateral functional endoscopic sinus surgery for mild obstructive sleep apnoea and chronic sinusitis respectively. He weighed 109 kg, all his four upper incisors were missing and neck movements were normal. His airway was classified as Mallampati II with a normal thyromental distance and blood investigations were normal. An electrocardiogram demonstrated features of Wolff-Parkinson-White syndrome while the chest X-ray was unremarkable.

No premedication was given and a rapid sequence induction was performed for the elective surgery. The trachea was intubated on the second attempt with a long curved laryngoscopic blade and the aid of a gum elastic bougie. The laryngoscopic view was Cormack & Lehane grade II. The surgery lasted 1 hour and 40 minutes after which muscle relaxation was reversed uneventfully. He was then monitored for 45 minutes in the post-anaesthesia care unit and subsequently transferred to the high-dependency unit for overnight observation.

Approximately 9 hours later, the patient vomited a large amount of fresh blood with clots. He was conscious, tachycardiac at 110 beats per minute and hypotensive at 102 mmHg systolic blood pressure. He was seen by the ear,

nose and throat (ENT) medical officer-on-call. Examination then did not reveal any bleeding in the oropharynx. He was fluid resuscitated and a check haemoglobin level taken. A half-hour later, he was noted to have vomited a copious amount of fresh blood again. The ENT registrar noted active bleeding from the right tonsillar fossa. A decision was then made to secure haemostasis under general anaesthesia in the operating theatre.

A rapid sequence induction with cricoid pressure and tracheal intubation was the initial anaesthetic plan. Equipment for difficult intubation and tracheostomy was on stand-by, bearing in mind the laryngoscopic findings during the previous anaesthetic. The ENT surgeon was present in the operating theatre. On laryngoscopy, a grade II Cormack & Lehane view of the larynx was noted. However, in spite of the use of suction equipment, it was difficult to insert either the bougie or the endotracheal tube due to the constant welling of blood and the awkward dentition of the patient. Subsequently, the patient desaturated to 85%. Laryngoscopy was abandoned and a size 4 ordinary laryngeal mask airway was successfully inserted. Anaesthesia was then maintained with an air/oxygen/sevoflurane mixture under gentle assisted ventilation. No further muscle relaxants were administered. The oxygen saturation improved thereafter and was maintained at 95% with an inspired oxygen concentration of 60%. Examination under anaesthesia revealed a bleeding point in the inferior

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pole of the right tonsillar fossa as well as blood oozing from the left tonsillar fossa. Haemostasis was secured and the laryngeal mask was subsequently removed in the operating theatre when the patient was fully awake. The duration of surgery was 30 minutes.

Postoperatively, there was no clinical or radiological evidence of pulmonary aspiration and arterial blood gas was satisfactory on 50% oxygen administered via a Venturi mask. The patient was monitored in the high dependency unit for 24 hours and discharged from hospital a day later. He was well when seen in the outpatient clinic a week later.

Discussion

In post-tonsillectomy haemorrhage, bleeding occurs above the level of the laryngeal mask and pooling of blood and secretions occurs on the bowl of the mask. When correctly positioned, the laryngeal mask attains a gas-tight seal of up to 30 mmHg and has been shown to protect the larynx from dye placed in the pharynx.^{1,2} However, this data may not be applicable to patients who have undergone upper airway surgery as there may be considerable alterations in airway anatomy postoperatively. In addition, there has been a report of pulmonary aspiration of blood following traumatic laryngeal mask airway insertion.³

Haemorrhage is the most frequent complication of tonsillectomy and its incidence has been reported to range from 2.5% to 7.7%.^{4,5} Risk factors associated with the occurrence of post-tonsillectomy haemorrhage include older age, a history of chronic tonsillitis, excessive intraoperative blood loss, elevated postoperative mean arterial pressures⁶ and abnormal preoperative clotting studies.⁷ In view of the above factors, this patient was at high risk of developing post-tonsillectomy haemorrhage.

We were limited in our choices of methods of securing the airway in that both nostrils could not be used because a bilateral functional endoscopic sinus surgery had been done earlier and as such, a blind nasal intubation was not an option. The available options for anaesthesia were:

1. a rapid sequence induction with cricoid pressure and tracheal intubation;
2. inhalational induction followed by laryngoscopy to assess the airway;
3. intravenous induction followed by insertion of a laryngeal mask airway;
4. fiberoptic intubation under topical anaesthesia.

Option 2 was rejected as the patient was actively bleeding and uncooperative, although conscious and haemodynamically stable. The advantage of this technique would

be maintenance of the airway as the patient is less likely to develop apnoea.

Option 3 was not considered as the laryngeal mask airway does not protect against aspiration of gastric contents. Despite this, a meta-analysis of published literature showed that pulmonary aspiration with the laryngeal mask airway is uncommon and comparable to that for outpatient anaesthesia with the face mask and tracheal tube.⁸

Option 4 was rejected as it is extremely difficult to visualise the airway anatomy clearly with active bleeding in the oropharynx.

The decision was made to perform a rapid sequence induction with cricoid pressure and tracheal intubation. It was felt that endotracheal intubation could be achieved in this patient with use of a long laryngoscopic blade and a stylet inserted in the endotracheal tube. However, when the first attempt at intubation failed, no time was wasted in inserting the laryngeal mask airway. In the event of that failing to secure the airway, a tracheostomy would have to be done.

We conclude that while endotracheal intubation would have been the gold standard in terms of establishing an airway, the laryngeal mask airway is indeed a viable option in such a situation. However, it is not the first choice of airway and should be considered only if intubation is not possible.

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