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Use of the laryngeal tube after failed insertion of a laryngeal mask airway

The Laryngeal Tube (VBM, Medizin-technik, Germany) has a potential role during anaesthesia and cardiopulmonary resuscitation [1, 2]. It consists of an airway tube with a small balloon cuff attached at the tip and a larger balloon cuff at the middle part of the tube. We report successful use of the laryngeal tube in three patients in whom insertion of the laryngeal mask airway had failed. An 18-year-old fit and healthy woman (165 cm, 52 kg) was scheduled for left oophorectomy. After epidural catheterisation, general anaesthesia was induced with propofol 100 mg and deepened with sevoflurane. After no motor response to thrusting the jaw forward had been confirmed [3], the mouth was opened to insert a laryngeal mask airway. Enlarged tonsils were found. Because there was a gap between the tonsils (approximately 1.5 cm), we felt that it might be possible to insert the laryngeal mask, but failed to advance the device beyond the tonsils despite using the insertion technique described in the manufacturer's instruction manual. Insertion of a flexible laryngeal mask (which should be easier to insert in patients with enlarged tonsils) also failed. Before tracheal intubation, we tried a laryngeal tube, which was easily inserted. The lungs were ventilated through the laryngeal tube without complications during the 80 min operation.

A 46-year-old woman (159 cm, 55 kg), with a history of Basedow's disease at 20 years and tonsillectomy at 34 years, was scheduled for left oophorectomy. Preoperative examination indicated a goitre (with normal thyroid function) without deviation of the trachea or difficulty in breathing. After epidural catheterisation, general anaesthesia was induced with propofol

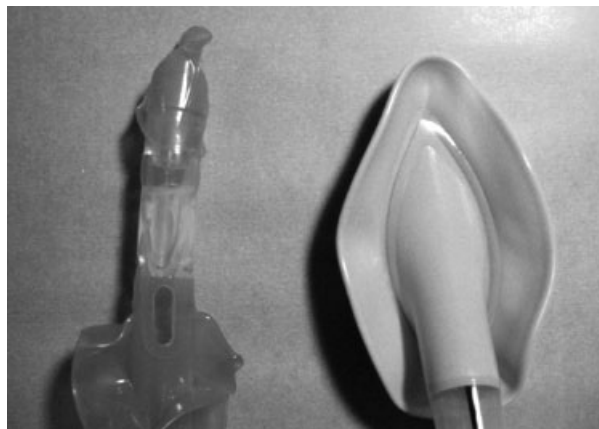


Figure 3 Distal part of the laryngeal tube (left) and the laryngeal mask airway (right).

100 mg and maintained with a target-controlled infusion. After no motor response to jaw thrusting had been confirmed, insertion of a laryngeal mask airway was attempted, but it was impossible to advance it beyond the back of the throat. In contrast, insertion of a laryngeal tube was easy. The operation (40 min) proceeded without complications.

A 72-year-old man (157 cm, 74 kg) was scheduled for right total hip arthroplasty. Preoperatively, difficult tracheal intubation was predicted, because the view of the oropharynx was limited (Mallampati score 3), the thyromental distance was 5 cm, there was a mild difficulty in thrusting the jaw forward and extending the neck, and snoring during sleep. After epidural catheterisation, anaesthesia was induced with propofol 150 mg. Insertion of a laryngeal mask failed twice. In contrast, a laryngeal tube was easily inserted and was used during anaesthesia of 140 min, without complications.

The exact reason for successful insertion of the laryngeal tube after failed insertion of the laryngeal mask airway in these cases is not known, but the success and failure might have been related to a difference in the width of these two devices. The pharyngeal space was narrowed by swollen tonsils in case 1, by a goitre in case 2, and possibly by redundant tissues in the pharynx (which produced the snoring) in case 3. Insertion of the laryngeal mask airway might not have been possible because the

distal part of the mask had wedged in the narrowed pharynx. The distal segment of the laryngeal tube is not tapered, and the width of the tube is narrower than that of the laryngeal mask airway (Fig. 3), and thus the laryngeal tube might have passed through the narrowed space. We suggest that, when insertion of the laryngeal mask airway is difficult or impossible due to a narrowed pharynx, insertion of the laryngeal tube may be attempted, before considering tracheal intubation.

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Conflict of interest

None of the authors has received any financial support from the manufacturers of the laryngeal mask airway or the laryngeal tube.

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Use of the laryngeal tube for difficult fiberoptic tracheal intubation

I have previously reported that ventilation can be controlled via the laryngeal tube (VBM, Medizintechnik, Sulz, Germany) during attempts at fiberoptic nasotracheal intubation and used this technique in a patient with multiple fractures of the jaw in whom thrusting the jaw forward (during mask ventilation) and tracheal intubation using a laryngoscope might worsen the damage to the jaw [1]. I now report successful use of this technique in a patient in whom laryngoscopy, conventional fiberoptic intubation and insertion of the laryngeal mask airway had failed.

A 71-year-old man with a history of partial resection of the tongue was scheduled for revision of the resection, due to recurrence of cancer. Because of radiotherapy, mouth opening was limited to 3 cm and extension of the neck was restricted. After induction of anaesthesia and confirmation of adequate mask ventilation, vecuronium was given. Attempted nasotracheal intubation using a Macintosh laryngoscope, followed by use of a fibroscope, failed because a large epiglottis reclining to posterior pharyngeal wall prevented visualisation of the glottis. Insertion of a size 4 followed by a size 3 laryngeal mask airway also failed, due mainly to inability to insert an index finger into the oropharynx to drive the mask into position. In contrast, insertion of a size 4 laryngeal tube was easy, and adequate ventilation was obtained. It was easy to advance the fibroscope and a reinforced tracheal tube through the nose into the oral cavity (without deflating the cuffs

of the laryngeal tube), and identify the distal cuff of the laryngeal tube in the hypopharynx, and anterior to that, the glottis through a narrow gap (< 1 cm) between the epiglottis and arytenoids. The laryngeal inlet was tilted to the right, due possibly to the radiotherapy. After 20 min and with considerable difficulty, the fibroscope was advanced into the trachea while the lungs were kept ventilated through the laryngeal tube. It was then relatively easy to advance the tracheal tube into the trachea. The laryngeal tube was then removed.

Fiberoptic intubation is useful in patients with a difficult airway, but it can be difficult to locate the glottis, to advance a tracheal tube over the fibroscope, and to ventilate the lungs during the procedure [2]. In the case reported, the laryngeal tube provided a clear airway and enabled delivery of oxygen and inhalational anaesthetics during the prolonged attempt at fiberoptic nasotracheal intubation. It also facilitated location of the glottis through a fibroscope: the glottis should be anterior to the distal cuff of the laryngeal tube in the hypopharynx.

Insertion of the laryngeal mask failed whereas insertion of the laryngeal tube was successful. Insertion of the laryngeal mask, or of the laryngeal tube, may be difficult in some circumstances [3, 4]. However, there have been reports in which the laryngeal tube provided adequate ventilation after failed insertion of the laryngeal mask [5, 6]. Elucidating the causes of difficult insertion of the laryngeal mask and of laryngeal tube would establish the role of these devices in patients with difficult airways.

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Loss of resistance syringes

I was interested to read about the problem with a false positive 'loss of resistance' syringe and the reply [1]. Having performed epidural analgesia for 42 years, I can state honestly that I have never found the need for a specific syringe to find the epidural space. For roughly the first 15 years of my career I used glass syringes, which would occasionally stick alarmingly. For the last 27 years I have used standard disposable syringes (from a variety of manufacturers) without finding any reason to change. The standard modern disposable syringes are quite sensitive enough to pick up subtle changes in resistance as the needle attached to a syringe of saline with constant pressure on the plunger, of course, passes through the ligaments. Regional anaesthesia will be even more widely practised if the techniques are kept simple and unnecessary special pieces of equipment are discouraged.

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