Brief Clinical Reports

The intubating laryngeal mask airway in failed fiberoptic intubation

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Purpose: Prediction of difficult tracheal intubation is not always reliable and management with fiberoptic intubation is not always successful. We describe two cases in which blind intubation through the intubating laryngeal mask airway (ILMA FasTrach™) succeeded after fiberoptic intubation failed.

Clinical features: The first patient, a 50 yr old man, was scheduled for elective craniotomy for intracerebral tumour. Difficulty with intubation was not anticipated. Manual ventilation was easily performed following induction of general anesthesia, but direct laryngoscopy revealed only the tip of the epiglottis. Intubation attempts with a styletted 8.0 mm endotracheal tube and with the fiberoptic bronchoscope were unsuccessful. A # 5 FasTrach™ was inserted through which a flexible armored cuffed 8.0 mm silicone tube passed into the trachea at the first attempt. The second patient, a 43 yr old man, presented with limited mouth opening, swelling of the right sub-mandibular gland that extended into the retropharynx and tracheal deviation to the left. He was scheduled for urgent tracheostomy. Attempted awake fiberoptic orotracheal intubation under topical anesthesia showed gross swelling of the pharyngeal tissues and only fleeting views of the vocal cords. A # 4 FasTrach™ was easily inserted, a clear airway obtained and a cuffed 8.0 mm silicone tube passed into the trachea at the first attempt.

Conclusion: The FasTrach may facilitate blind tracheal intubation when fiberoptic intubation is unsuccessful.

Objectif : La prédiction d'une difficulté à l'intubation endotrachéale n'est pas toujours sûre, et l'intubation fibroscopique n'est pas toujours réussie. Nous décrivons deux cas où l'intubation à l'aveugle au travers du masque laryngé (ML FasTrach) a été couronnée de succès à la suite de l'échec de l'intubation fibroscopique.

Éléments cliniques : Le premier patient, un homme de 50 ans, devait subir une craniotomie élective pour une tumeur cérébrale. Des difficultés d'intubation n'étaient pas prévues. La ventilation manuelle était facile après l'induction de l'anesthésie générale, mais la laryngoscopie directe n'a révélé que la pointe de l'épiglotte. L'intubation tentée avec un tube endotrachéal de 8,0 mm muni d'un stylet et avec le fibroscope bronchique n'a pas réussi. On a inséré un FasTrach n° 5 au travers duquel on a passé dans la trachée, au premier essai, un tube flexible de silicone armé avec ballonnet de 8,0 mm. Le second patient, un homme de 43 ans, présentait une ouverture limitée de la bouche, une enflure des glandes sous-maxillaires droites qui s'étendait dans le rétropharynx, et une déviation de la trachée vers la gauche. Il a été admis pour une trachéotomie d'urgence. L'intubation vigile tentée avec le fibroscope orotrachéal sous anesthésie locale a montré un gonflement des tissus pharyngiens et n'a permis que d'entrevoir les cordes vocales. Un FasTrach n° 4 a été facilement inséré, permettant de dégager les voies aériennes et de passer dans la trachée, au premier essai, un tube de silicone à ballonnet de 8,0 mm.

Conclusion : Le FasTrach peut faciliter l'intubation endotrachéale à l'aveugle quand l'intubation fibroscopique n'a pas réussie.

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THE standard laryngeal mask airway (LMA) has been in clinical use for ten years as an alternative to the face mask and as a rescue device in cases of failed intubation. It may also be used as a conduit for blind tracheal intubation¹ and as an aid to fiberoptic intubation with a 6.0 cuffed endotracheal.

The intubating laryngeal mask airway (ILMA FasTrach™, Laryngeal Mask Company Ltd., Henley on Thames, UK) allows easy passage of a well-lubricated 8.0 mm cuffed endotracheal tube. A 99% success rate has been achieved in 150 patients of whom 13 had known or suspected difficult intubation.² Its stainless steel tubular portion is shorter, of wider bore and more tightly curved than the silicone tube of the standard LMA (see Figure). A guiding handle at the proximal end of the tube facilitates alignment of the mask aperture with the glottic opening, while an epiglottic elevator 'tongue' replaces the aperture bars of the standard LMA. The accompanying armoured silicone endotracheal tube (Euromedical Industries, Kuala Lumpur, Malaysia) is flexible and has a Tuohy shaped tip and has a natural tendency to slide medially from either vocal cord and drop through the glottic opening. A fixed curvature PVC tube tends to catch on the vocal cords or the anterior commissure unless inserted with its curve opposite to that of the FasTrach™.³ A second tube is then used to exert counter pressure on the proximal end of the endotracheal tube as the FasTrach™ is removed over it.

Preoperative airway assessment in some patients may fail to alert the anesthesiologist to difficult intubation, while in others the problem may be easily foreseen. We present one case in each category, both of which were managed with blind intubation through the FasTrach™ when fiberoptic intubation was unsuccessful.

Case reports

Case #1

A 75 kg, 66 yr old man was scheduled for a craniotomy for tumour removal. He had no symptoms or signs of increased intracranial pressure and was otherwise healthy. He had normal dentition with adequate mouth opening, full neck movement, a small chin with normal thyromental distance and Mallampati⁴ score II. Following preoxygenation, anesthesia was induced with 1.25 mg droperidol, 400 mg thiopental, 35 µg sufentanil and 50 mg rocuronium. Mask hyperventilation with oxygen 100% was easily achieved. Laryngoscopy with Macintosh #3 and #4 blades revealed only the tip of the epiglottis. After repositioning of the head and application of BURP, a stylet-
ted 8.0 mm endotracheal tube was twice passed

FIGURE Armoured silicone endotracheal tube passing through the FasTrach™ intubating laryngeal mask airway

posterior to the epiglottis but did not enter the trachea. Sevoflurane was added to the inhaled gas and oral fiberoptic intubation was attempted through a Williams Airway Intubator™ (Anesthesia Associates Inc., San Marcos CA). Despite extensive experience with difficult fiberoptic intubation the anesthesiologist could not manoeuvre the fiberoptic bronchoscope past the epiglottis.

A #5 FasTrach™ was inserted and its cuff inflated. Through this a prelubricated 8.0 mm cuffed armoured silicone endotracheal tube was passed blindly into the trachea on the first attempt and placement confirmed by capnography. After deflation of its cuff, the FasTrach™ was easily removed over the endotracheal tube. No hypoxemia, hypercapnia, hypertension or hypotension occurred at any time. The patient was transferred, with trachea intubated and lungs ventilated, to the intensive care unit where he responded to simple commands. His trachea was extubated uneventfully the next day and he was discharged to the ward for palliative care.

Case #2

A previously healthy 80 kg, 170 cm, 43 yr old man, presented with a four day history of fever, increasing difficulty in opening his mouth, inability to swallow because of pain, and intermittent shortness of breath. On examination, swelling of the right submandibular

gland extended into the retropharyngeal region and his trachea was deviated to the left. He was scheduled for urgent tracheostomy under general anesthesia.

Awake oral fibreoptic intubation was planned. Following 0.2 mg glycopyrrolate *iv*, topical anesthesia was achieved with 5 mL Zap™ (benzocaine 18%, tetracaine 2%) and 2 mL lidocaine 4%. Fibreoptic intubation was abandoned after several attempts because swelling of the hypopharyngeal tissues permitted only fleeting views of the vocal cords. Then, a #4 FasTrach™ was easily inserted at the first attempt and a clear airway was evident following 10 sec of breath holding. A prelubricated 8.0 mm cuffed armoured silicone tracheal tube passed through the FasTrach™ into the trachea at the first attempt. Lung ventilation was satisfactory, general anesthesia was induced and tracheostomy was performed. The surgery and postoperative course were uneventful.

Discussion

We have described two difficult intubation patients in whom blind intubation through the FasTrach™ was successful when fibreoptic intubation by experienced staff anesthesiologists failed.

The surgical procedures for our patients were among those for which tracheal intubation is considered essential, as were those reported by Parr *et al.* whose tracheas were intubated through the FasTrach™ under general anesthesia.⁵ Shung *et al.* described successful awake blind intubation through the FasTrach™ using topical lidocaine, superior laryngeal nerve and transtracheal block in 15 patients with known difficult intubation.⁶ The surgical procedures included cervical spine injury for stabilization, morbid obesity for Cesarean section, and drainage of buccal and submandibular abscess. It is for situations such as these that blind intubation through the FasTrach™ with general or local anesthesia represents a further alternative in airway management. However, for patients in whom intubation is difficult, but whose surgery or risk of pulmonary aspiration does not mandate tracheal intubation, the standard or flexible LMA would be equally appropriate.

Many anesthesiologists accept awake fibreoptic intubation as the gold standard for management of difficult airways.¹³ Some patients are less enthusiastic. Phrases like 'adamantly refused,' 'had developed an aversion to',^{3,14} and similar euphemisms provide eloquent testimony to their distaste for a repeat awake fibreoptic intubation. We conclude that the FasTrach™ with either general or topical anesthesia may provide another alternative in some cases of difficult intubation, particularly if the fibreoptic bronchoscope cannot be manipulated past the epiglottis or the view of the glottis is obscured by blood, secretions or tissue edema.

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