

---

## Clinical Reports

---

# Intubating LMA guided awake fiberoptic intubation in severe maxillo-facial injury

---

Santhanagopalan Kannan MD FRCA,  
Norman Chestnutt FFARCSI,  
Greg McBride FRCS\*

**Purpose:** To describe control of the airway in a patient with severe maxillo-facial injury using intubating laryngeal mask guided awake fiberoptic intubation.

**Clinical features:** A 110 kg man presented with a severe facial injury due to a horse kick. Local examination showed a large transverse gaping laceration just beneath the nose, exposing the lower nasal cavities through to the posterior nasopharynx. It was planned to perform a surgical tracheostomy before surgical fixation of the maxilla and nasal bones. Considering the patient's weight, short neck and difficulty in lying flat, surgical tracheostomy under general anesthesia was considered the best option. Under topical anesthesia, an intubating laryngeal mask was introduced followed by a fiberoptic bronchoscope. The endotracheal tube was threaded over the bronchoscope and airway control achieved.

**Conclusions:** The use of an intubating laryngeal mask avoids the need for manipulation of the head and neck and acts as a 'shield' for the fiberoptic bronchoscope from surrounding blood in patients with maxillo-facial injury. The use of the fiberoptic bronchoscope ensures intubation under vision.

**Objectif :** Décrire la maîtrise des voies aériennes, dans le cas d'une lésion maxillo-faciale sévère, en utilisant le masque laryngé d'intubation comme guide d'intubation fibroscopique vigile.

**Éléments cliniques :** Un homme de 110 kg présentait une lésion faciale sévère causée par un coup de sabot de cheval. L'examen a montré une importante lacération transverse béante, juste sous le nez, ouvrant les fosses nasales inférieures sur le nasopharynx postérieur. On a planifié une trachéotomie avant la fixation chirurgicale des os du maxillaire et du nez. Dans les circonstances, la trachéotomie sous anesthésie générale a été considérée comme le meilleur choix, vu le poids du patient, le cou court et la difficulté de s'allonger. Sous anesthésie topique, un masque laryngé d'intubation a été introduit, suivi d'un fibroscope bronchique. Le tube endotrachéal a été enfilé sur le bronchoscope pour ainsi réaliser le contrôle des voies aériennes.

**Conclusion :** L'utilisation du masque laryngé d'intubation élimine la nécessité de manipuler la tête et le cou. Ce masque sert de «bouclier» au fibroscope bronchique au moment de contenir le sang chez des patients qui présentent des lésions maxillo-faciales. Le fibroscope bronchique assure une bonne vision pendant l'intubation.

From the Department of Anaesthetics and ENT,\* Altnagelvin Hospital, Glenshane Road, Londonderry BT 47 1 SB, United Kingdom.

*Address correspondence to:* Dr. S. Kannan, Department of Anaesthetics, Queen Elizabeth Hospital, Edgbaston, Birmingham B 15 2 TH, United Kingdom. Phone: 44-121-6272395; Fax: 44-121-6978340; E-mail: achalu@btinternet.com

*Accepted for publication July 3, 2000.*

**T**HE intubating laryngeal mask airway (ILMA) is a recent addition to airway devices designed to facilitate blind intubation.<sup>1</sup> The principle advantages over the standard laryngeal mask airway are that it can be inserted with the head and neck in a neutral position and that it also avoids the need for introducing fingers into the oral cavity.<sup>2</sup> We describe a case where the use of the ILMA in a patient with maxillofacial injuries made the intubation considerably easier in an otherwise potentially difficult airway.

#### Case report

A 42-yr-old healthy man was referred four hours after sustaining a severe facial injury due to a horse kick. He was conscious and co-operative having been given 10 mg morphine *im* for pain relief. He was most comfortable in the sitting position: breathing was difficult when supine. He was obese, weighed about 110 kg, and had no history of any other illness. He was hemodynamically stable and the chest was clear to auscultation. There was no evidence of other injury. Local examination showed a large transverse gaping laceration just beneath the nose, exposing the lower nasal cavities through to the posterior nasopharynx (Figure 1). Mouth opening was reduced to 2.5 cm, his upper lip and hard palate



FIGURE 1 Photograph showing the extent of injuries. The upper lip has been retracted downwards.



FIGURE 2 The endotracheal tube and the intubating laryngeal mask *in situ*.

having been displaced downwards. There was no loss of teeth although the palate was free floating. The cut surfaces were covered in blood with some limited ongoing ooze at recently disturbed sites, attempts at examination precipitated further bleeding. X-Rays of the face revealed a severely comminuted Le Fort I and III fracture. It was planned to perform a surgical tracheostomy before fixation of the maxilla and nasal bones using a mixture of internal mini plates and external cranio-mandibular fixation with a box frame. Considering the patient's weight, short neck and difficulty in lying flat, it was decided that surgical tracheostomy under general anesthesia was the best option. Awake intubation in the sitting position was planned. Premedication consisted of 50 mg ranitidine, 10 mg metoclopramide and 0.2 mg glycopyrrolate *iv*. In the operating theatre, the oral cavity was sprayed with lidocaine 4%. After pre-oxygenation, 2 mg midazolam in slow increments and 0.5 mg alfentanil *iv* were given and insertion of the

ILMA attempted. Insertion was not difficult (Figure 2). A lubricated 7.5-mm cuffed, reinforced straight silicone tracheal tube was threaded over a 4 mm fiberoptic bronchoscope (FOB) and the FOB was then introduced through the ILMA to visualise the cords. The larynx and the trachea were sprayed with lidocaine 4% through the FOB. The tracheal tube was quickly advanced thereafter, and the FOB removed. Anesthesia was then induced with 120 mg propofol, and 50 mg rocuronium were given. General anesthesia was maintained with oxygen, nitrous oxide and sevoflurane under controlled ventilation. Surgical tracheostomy was then performed and the orotracheal tube was removed followed by the ILMA. The subsequent anesthetic course was uneventful.

#### Discussion

Airway control in patients with maxillo-facial trauma is made difficult by the nature of the injury, hemorrhage, edema, potential full stomach and altered airway anatomy. In this instance, obesity and inability to lie flat complicated the scenario. The latter two factors were also likely to make awake surgical tracheostomy technically difficult. General anesthesia before airway control had the potential risk of loss of airway patency. The use of a facemask, standard laryngoscopy, blind oral or nasal intubation was fraught with danger. Retrograde intubation or the use of the Combitube would have been difficult. Awake intubation under vision was considered the best option, but the presence of blood in the oral cavity was likely to hinder fiberoptic intubation. The ILMA ensured that the FOB was 'shielded' from the surrounding blood and, hence, visualisation of the larynx became easier. The insertion of a standard laryngeal mask airway might have been difficult without manipulation of the head and neck.<sup>3,4</sup> The use of ILMA guided fiberoptic intubation in a patient with maxillo-facial trauma has not been reported before. There has been one report on the use of ILMA in a 50 kg woman who presented for reconstructive surgery four days after maxillo-facial trauma.<sup>2</sup> The authors introduced the ILMA under general anesthesia and intubation was done without the use of a FOB. Although rare, fatal esophageal perforation due to blind insertion of a tracheal tube through an ILMA has been reported.<sup>5</sup> This 'hybrid' technique using the FOB through the ILMA for direct visualisation of the glottis prior to intubation allowed greater control, precision and safety than a blind technique using the ILMA alone. It facilitated close presentation of the FOB to the glottis in a blood free environment and was therefore technically easier than using the FOB through other airway support devices. The benefits of an awake intubation in the sit-

ting position in this case were felt to outweigh the small risk of aspiration in the presence of an anesthetised upper airway. This report describes the successful use of the FOB through an ILMA for airway control in an obese patient with severe maxillo-facial trauma.

#### Acknowledgment

We would like to thank the patient for permitting us to publish the photographs.

#### References

- 1 *Brain AIJ, Verghese C, Addy EV, Kapila A.* The intubating laryngeal mask. I: development of a new device for intubation of the trachea. *Br J Anaesth* 1997; 79: 699–703.
- 2 *Agrò F, Brimacombe J, Brain AIJ, Marchionni L, Cataldo R.* The intubating laryngeal mask for maxillo-facial trauma. *Eur J Anaesth* 1999; 16: 263–4.
- 3 *Brimacombe J, Berry A.* Laryngeal mask airway insertion. A comparison of the standard versus neutral position in normal patients with a view to its use in cervical spine instability. *Anaesthesia* 1993; 48: 670–1.
- 4 *Lim SL, Tay DHB, Thomas E.* A comparison of three types of tracheal tube for use in laryngeal mask assisted blind orotracheal intubation. *Anaesthesia* 1994; 49: 255–7.
- 5 *Branthwaite MA.* An unexpected complication of the intubating laryngeal mask. *Anaesthesia* 1999; 54: 166–7.