

Reflection: on the use of the ILMA in an entrapped patient

Nick Castle,^{1,2} Sageshin Naguran²

¹Emergency Department, Frimley Park Hospital, Camberley, UK
²Department of Emergency Care and Rescue, Durban University of Technology, Durban, KwaZulu Natal, Republic of South Africa

Correspondence to

Nick Castle, Department of Emergency Care and Rescue, Durban University of Technology, Ritson Road, Durban, KwaZulu Natal 4000, Republic of South Africa; Castle.nicholas@googlemail.com, Nicholas.castle@fph-tr.nhs.uk

Received 11 January 2013
 Accepted 12 August 2013
 Published Online First
 30 August 2013

On our arrival at a motor vehicle collision we were presented with an entrapped driver. Patient access was restricted to the patient's head, upper chest and right arm due to door intrusion and patient position.

- A. Obstructed
- B. Respiratory rate 6 min⁻¹ (despite jaw thrust) and SpO₂ 70%
- C. Pulse 120
- D. Unconscious
- E. Suspected head and chest injuries due to bull's eye damage to windscreen and collapsed steering wheel

The airway was cleared by suction, an oral airway inserted and high-flow oxygen was administered. A low respiratory rate and a nasal cannula EtCO₂ reading of 57 mm Hg confirmed hypoventilation. While rescue personnel prepared for rapid extrication, we elected to improve oxygenation and ventilation by inserting an intubating laryngeal mask airway (ILMA) as opposed to the more common South African practise of intubating the patient using an 'ice pick' approach, which involves intubating the patient while standing in front of the patient.¹

The ILMA was easily inserted and by using the ILMA initially as a supraglottic airway, ventilation was instigated. We elected not to immediately intubate the patient as extrication was imminent, and the patient's low SpO₂ required concentration on improving oxygenation. Following extrication, our patient's SpO₂ had improved to 92% with an EtCO₂ of 40 mm Hg, and at this point, we elected to intubate via the ILMA. Intubation was successful on our second attempt with no intubation attempt lasting longer than 30 s with SpO₂ remaining above 90%. Following intubation, we instigated controlled ventilation via a mechanical ventilator. We elected to leave the ILMA in place securing the endotracheal tube (ET-tube) to the ILMA.

The ILMA is carried out as part of our failed Rapid Sequence Intubation drill, as it is a unique supraglottic airway providing effective ventilation and oxygenation with improved protection from aspiration compared with the classic LMA,² while also facilitating endotracheal intubation. In manikin-based studies, the ease and speed of ILMA insertion has been demonstrated with the ILMA being noted to be faster to insert than the classic LMA (p<0.05; CI 1.5 to 6s), resulting in 76% of the participants electing to use the ILMA in an emergency.³ Ease of use has further been confirmed over traditional intubation with 92% of paramedics stating that the ILMA was easier to use compared with traditional laryngoscopy. The ILMA also demonstrated a higher first-attempt intubation success rate.⁴

In a paramedic manikin-based difficult airway study, the first-time insertion success rate of the ILMA, as a supraglottic airway, was 100% with a mean time to first breath (as a supraglottic airway) of 34s (24–116 range SD and CI not reported) with intubation occurring within a mean of 75s (53–254 range SD and CI not reported).⁵ Of note, no paramedic was able to intubate the same difficult airway manikin using traditional intubation techniques.⁵

Our first intubation attempt via the ILMA was unsuccessful, as on inserting the ET-tube we felt resistance at the point where the ET-tube should have entered the larynx. We repositioned the ILMA and applied forward traction, resulting in a successful second intubation attempt. This technique has previously been described.^{6,7}

Once the ET-tube had been successfully inserted, we elected to leave the ILMA in situ as we have found during familiarisation training that the removal of the ILMA over the ET-tube results in significant ET-tube movement regardless of using the stabilising rod supplied with the ILMA. This issue has previously been reported to include incidences of accidental extubation.⁸ We therefore secured the ET-tube within the ILMA while securing the ILMA to the patient's face to reduce the risk of extubation.

This was our first use of the ILMA in an entrapped patient, and we found it to be an effective airway adjunct. Once the ILMA was inserted, we were able to improve the patient's ventilation/oxygenation parameters and successfully intubate the patient with minimal interruption in ventilation and without delaying transfer to hospital. We believe that using the ILMA in an entrapped patient is preferable to adopting the ice-pick intubation technique, and the availability of a single-use variant of the ILMA may facilitate its wider prehospital use (LMA Company, Jersey, Channel Isle, UK). Furthermore, leaving the ILMA in situ after successful intubation is an important consideration in the prehospital arena as attempts at removing the ILMA can result in ET-tube movement while potentially distracting the attending paramedic from his/her primary role of oxygenation and ventilation.

Competing interests None.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Birkinshaw R, McKinnon KA, Kitching G, *et al.* Intubation in difficult positions. *Pre-hospital Immediate Care* 1998;2:59–62.
- 2 Bercker S, Schmidbauer W, Volk T, *et al.* A comparison of seals in seven supraglottic airway devices using a cadaver model of elevated esophageal pressure. *Anesth Analg* 2008;106:445–8.



CrossMark

To cite: Castle N, Naguran S. *Emerg Med J* 2014;**31**:1014–1015.



- 3 Choyce A, Avidan MS, Patel C, *et al.* Comparison of laryngeal mask and intubating laryngeal mask insertion by the naïve intubator. *Br J Anaesth* 2000;84:103–5.
- 4 McCall MJ, Reeves M, Skinner M, *et al.* Paramedic tracheal intubation using the intubating laryngeal mask airway. *Prehosp Emerg Care* 2008;12:30–4.
- 5 Menkenzies R, Manji H. The intubating laryngeal mask: is there a role for paramedics. *Emerg Med J* 2007;24:198–9.
- 6 Chan YU, Kong CF, Kong CS, *et al.* The intubating laryngeal mask airway (ILMA): initial experience in Singapore. *BJA* 1998;81:610–11.
- 7 Baskett PJF, Parr MJA, Nolan JP. The intubating laryngeal mask. Results of a multicentre trial with experience of 500 cases. *Anaesthesia* 1998;53:1174–9.
- 8 Tentillier E, Heydenreich C, Cros A, *et al.* Use of the intubating laryngeal mask airway in emergency prehospital difficult intubation. *Resuscitation* 2008;77:30–4.