

CORRESPONDENCE

Awake insertion of the air-Q™ intubating laryngeal airway device that facilitates safer tracheal intubation in morbidly obese patients

Editor—Morbidly obese patients are at a higher risk of difficulties with mask ventilation and tracheal intubation.¹ The difficult airway management algorithm recommends awake intubation in patients anticipated to have difficult airways. Recently, supraglottic airway devices have been established as important tools for difficult airway management.² We present an observational study of airway management in obese patients by performing awake insertion with air-Q™ intubating laryngeal mask airway (ILMA) devices (Mercury Medical, USA) and subsequent tracheal intubation.

Twenty morbidly obese patients undergoing bariatric surgery with any three of the following risk factors for difficult airway management were included: Mallampati class III or IV, neck circumference ≥ 40 cm, thyromental distance < 6 cm, cervical mobility limitation, mouth opening limitation, receding mandible, missing teeth, beard, and history of snoring. Patients were placed in the recommended ramp position³ and after 3 min of

preoxygenation with 100% O₂, i.v. midazolam (20–40 $\mu\text{g kg}^{-1}$) and fentanyl (1–2 $\mu\text{g kg}^{-1}$) were administered to achieve light sedation (Fig. 1A). Patients were asked to open their mouth, and size 3.5 air-Q™ ILMA devices were inserted. The cuffs were inflated with air to 15 ml after insertion in all patients. After confirming a secure airway by sufficient spontaneous respiration [tidal volume (TV) > 5 ml kg^{-1} ideal body weight (IBW)], general anaesthesia (propofol 2 mg kg^{-1} IBW, fentanyl 0.1 mg, and rocuronium 0.6 mg kg^{-1} IBW) was induced and mechanical ventilation was initiated. When sufficient mechanical ventilation was confirmed by TV > 5 ml kg^{-1} IBW, the tracheal tube (Parker Flex-Tip™ 7.0 mm) was inserted under fiberoptic visualization using the air-Q™ as a conduit. Removal of the air-Q™ after tracheal intubation was facilitated by a removal stylet (Fig. 1B), which stabilized the tracheal tube. End-tidal carbon dioxide tracings were monitored to detect dislodgement of the tracheal tube.

The patients' BMI was 35–53 [mean 45.3 (9.2)] kg m^{-2} and age was 34–54 [mean 43.2 (8.8)] yr. The procedure was performed without difficulty in all patients except one whose vocal cords were not visible. Nine patients had minimal air leakage during mechanical ventilation but showed sufficient

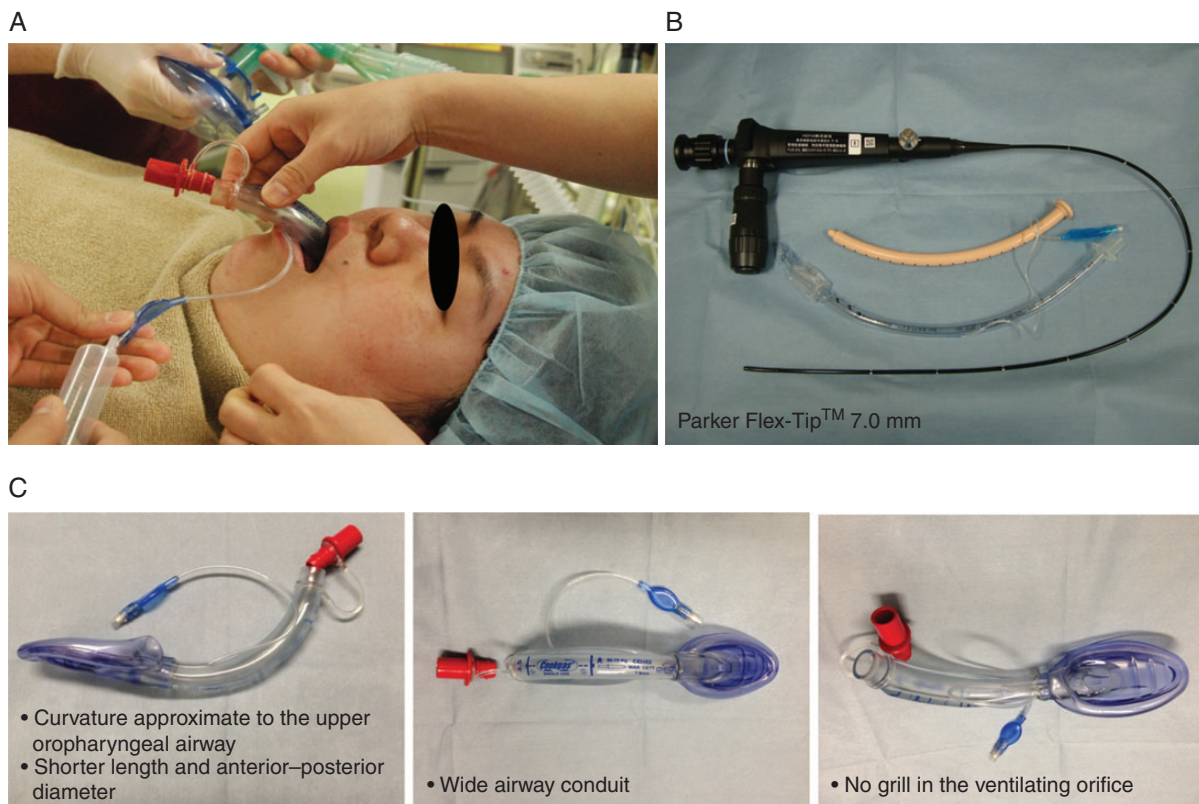


Fig 1 (A) Awake insertion of the air-Q™. (B) Fiberoptic, removal stylet, and tracheal tube. (C) Size 3.5 air-Q™ ILMA.

respiration, and no patient experienced oxygen desaturation to <92%. Adequate light sedation before awake insertion of the ILMA was achieved with total midazolam and fentanyl doses ranging from 3 to 6 [mean 4.4 (0.8)] and 0.1 to 0.3 [mean 0.16 (0.6)] mg, respectively. No patient recalled experiencing discomfort during the procedure when questioned after operation.

We obtained good results with awake insertion of a size 3.5 air-Q™ ILMA device followed by tracheal intubation using the device as a conduit in morbidly obese patients ($n=20$) undergoing bariatric surgery. This ILMA device is designed for easier insertion. It has a curvature approximate to that of the upper oropharyngeal airway and a wider (anterior–posterior diameter=15 mm) and shorter airway conduit than previous models.^{4,5} It has an easily removable airway adapter with no grill in the ventilating orifice, which may further facilitate insertion and placement (Fig. 1c).

In conclusion, the technique we describe may be a viable alternative to mask ventilation and direct laryngoscopy for safe airway management in morbidly obese patients. Further studies and detailed comparison with results of other techniques may be warranted.

Declaration of interest

None declared.

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- 1 Brodsky J, Lemmens H, Brock-Utne J, Vierra M, Saidman LJ. Morbid obesity and tracheal intubation. *Anesth Analg* 2002; **94**: 732–6
- 2 Ferson D, Rosenblatt W, Johnsen M, Osborn I, Ovassapian O. Use of the intubating LMA = Fastrach™ in 254 patients with difficult-to-manage airways. *Anesthesiology* 2001; **95**: 1175–81
- 3 Brodsky JB, Lemmens HJ, Brock-Utne JG, Saidman LJ, Levitan R. Anaesthetic considerations for bariatric surgery. Proper positioning is important for laryngoscopy. *Anaesth Analg* 2003; **96**: 1841–2
- 4 Product study: air-Q. *Neonatal Intensive Care* 2011; **24**: 39–40
- 5 Liu E, Goy R, Chen F. The LMA Ctrach™, a new laryngeal mask airway for endotracheal intubation under vision: evaluation in 100 patients. *Br J Anaesth* 2006; **96**: 396–400

doi:10.1093/bja/aet389

Bradycardia after dexamethasone for postoperative nausea and vomiting prophylaxis during induction of anaesthesia

Editor—We report a case of sinus bradycardia after a single dose of i.v. dexamethasone for postoperative nausea and vomiting (PONV) prophylaxis during anaesthesia induction.

A 51-yr-old woman, ASA II, undergoing elective spine surgery due to a protruding intervertebral disk was brought to the anaesthesia induction room. She had mild arterial hypertension and non-active rheumatoid arthritis for which she received no therapy. She reported allergies to nickel and formaldehyde. Her BMI was 35 and she was a non-smoker

with a history of PONV after discectomy in the past. Monitoring of the patient included ECG, non-invasive arterial pressure, and pulse oximetry. Her vital signs were: heart rate 80–85 beats min^{-1} , arterial pressure 170/90 mm Hg, SaO_2 95% on breathing room air. An i.v. line was inserted and infusion with Ringer's lactate 500 ml was initiated.

Owing to the high risk of PONV,¹ a prophylactic dose of i.v. dexamethasone 4 mg was given at anaesthesia induction. One minute later, the patient's heart rate decreased to 40 beats min^{-1} and she felt drowsy. No dose of benzodiazepine or opioid had been given at this point. I.V. atropine 0.5 mg resulted in no change in heart rate. A second dose of i.v. atropine 0.5 mg was given 5 min later. The heart rate slowly increased to 80–85 beats min^{-1} . Anaesthesia was induced with i.v. fentanyl 0.15 mg, propofol 2 mg kg^{-1} , and rocuronium 0.6 mg kg^{-1} and the trachea was intubated. Anaesthesia was maintained with a combination of the volatile anesthetic sevoflurane and intermittent doses of i.v. fentanyl 0.05–0.1 mg. No clinically relevant changes in heart rate or arterial pressure beyond the 20% range of the initial values were observed. The course of anaesthesia, operation, and the following recovery were uneventful. Echocardiography examination on the first postoperative day showed no cardiac abnormality. The patient was discharged in good general condition.

The present report might be the first case to draw attention to potentially serious side-effects of a single-dose of i.v. dexamethasone. Dexamethasone has been routinely used for prophylaxis and treatment of PONV² and the quantitative systematic review of Henzi and colleagues³ showed that a single application did not seem to provoke any of the known side-effects of corticoids. These include cardiac arrhythmias^{4–7} and even sudden death.^{8,9} The authors of the cited review point out, however, that they 'still do not know if a single bolus dose of dexamethasone 8 or 10 mg is safe in patients at risk of corticosteroid-related adverse effects'.³

As described in the literature, most of the patients experiencing complications after i.v. application of glucocorticoids were either adults with autoimmune and rheumatic diseases or premature infants. Our patient had a history of rheumatoid disease. Furthermore, some authors suggest that high-dose methylprednisolone may be contraindicated in patients with known heart disease.⁷ There are no data confirming whether this suggestion relates to the use of dexamethasone.

The preservatives used in the drug preparation might also be a contributing factor.¹⁰ Our patient reported allergic reaction to formaldehyde. Although cross-reactivity between formaldehyde and preservative substances cannot be excluded, our patient showed no symptoms of anaphylactic reaction.

Undoubtedly, serious side-effects of dexamethasone are rare. Our case shows, however, that the possibility of serious side-effects after a low dose of dexamethasone still exists and that these side-effects can occur in the anaesthetic practice. Avoiding rapid bolus application in patients with known risk factors and continuous monitoring can help with timely recognition and treatment of the adverse cardiovascular side-effects that may follow after i.v. application of dexamethasone.