J Anesth (2009) 23:469–470
DOI 10.1007/s00540-009-0756-1

Journal of
Anesthesia

Letters to the editor

Cobra perilaryngeal airway for thyroid surgery in a hypertensive patient

Rakesh Garg and Sanjay Verma
Department of Anaesthesiology and Intensive Care, All India Institute of Medical Sciences, Ansari Nagar, New Delhi-110029, India

To the editor: The Cobra perilaryngeal airway (CobraPLA; Engineered Medical Systems, Indianapolis, IN, USA) is a cuffed, pharyngeal sealer and supraglottic airway device. The CobraPLA has been used to maintain the airway during spontaneous and controlled ventilation for short surgical procedures [1]. The laryngeal mask airway (LMA) has been used in thyroid surgery, with many advantages including decreased hemodynamic response to intubation and extubation [2]. To the best of our knowledge, no case has been reported in which the CobraPLA has been used for thyroid surgery.

Here we report such a case. The patient was a 50-year-old woman, 48 kg in weight, who presented at the surgery clinic and had been diagnosed with papillary carcinoma of the thyroid, and was scheduled for total thyroidectomy. She was a known hypertensive, for 9 years, and was managed with multiple antihypertensives. Abdominal Doppler ultrasonography examination was suggestive of right renal artery stenosis. The patient's clinical features and examination were suggestive of poorly controlled hypertension, but with no apparent history of cardiac ischemia.

In view of the rapidly increasing thyroid cancer mass, more time was not available for further optimization and the patient was accepted for the surgery with the risks explained. In the operation room, after attaching routine monitors and securing intravenous access, 1 mg of midazolam and 150 μg of fentanyl was administered intravenously. Anesthesia was induced with intravenous thiopentone 200 mg and the lungs were ventilated with isoflurane (1.2%) in oxygen and nitrous oxide (fresh gas flow 5 $l \cdot min^{-1}$; 50:50; minimum alveolar concentration [MAC] 1). After achieving neuromuscular blockade, a CobraPLA size 3 was inserted. The blood pressure (BP) and heart rate remained stable during insertion of the CobraPLA. The BP increased from 116/80 mmHg to 124/86 mmHg and the heart rate increased from 68 $\cdot min^{-1}$ to 76 $\cdot min^{-1}$ after the insertion of the CobraPLA. Subsequently, a bilateral superficial cervical plexus block was given. Intraoperatively, hemodynamics were stable (pulse rate, 70–85 beats$\cdot min^{-1}$, systolic BP 120–140 mmHg, and diastolic BP, 80–90 mmHg). After the completion of surgery, the residual neuromuscular blockade was reversed. The vocal cords were checked by performing fiberoptic bronchoscopy via the CobraPLA and were found to be mobile. The CobraPLA was removed and she was shifted to the post-anesthesia care unit and had an uneventful recovery.

In our patient, options for securing the airway included tracheal intubation or using a supraglottic airway device. We avoided tracheal intubation by direct laryngoscopy, as this may elicit a sympathetic response with an increase in BP and heart rate. These changes may be detrimental in patients with coexisting cardiac conditions [3]. During extubation also, laryngoscopy would have been required to examine the status of the vocal cords, and this again would have been stressful for our patient. The use of a supraglottic airway device was the other option available to us, as these devices prevent the stress response of laryngoscopy and intubation. Higher oropharyngeal sealing pressures have been reported with the CobraPLA compared with the LMA-Classic during controlled ventilation [4, 5]. But a concern for securing the airway with a tracheal tube in case of difficulty in ventilation during the course of surgery in our patient was present. CobraPLA-guided tracheal intubation (see Fig. 1; CobraPLA loaded with endotracheal tube) has been done successfully in a patient in whom tracheal intubation failed with an intubating LMA [6]. Lee et al. [7], in their study, suggested that the CobraPLA could be a useful airway device as a vehicle for fiberoptic-guided intubation. The classic LMA may also be used as a conduit for tracheal intubation in an emergency situation, but it has its limitations. A standard endotracheal tube, when fully inserted through an appropriately sized standard LMA, enters the trachea by only 1–2 cm, and this a concern in positioning for thyroid surgery, with the head extended; there is a possibil-

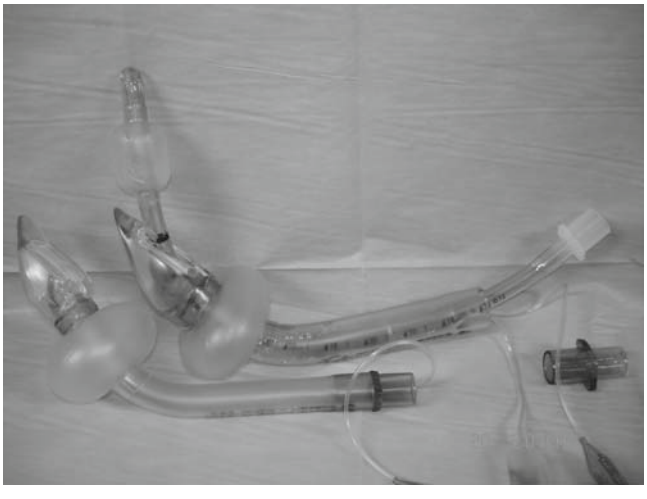

Fig. 1. Cobra PLA (Engineered Medical Systems, Indianapolis, IN, USA) loaded with endotracheal tube

ity of accidental extubation [7]. In addition, the LMA also restricts the size and type of endotracheal tube that can be placed through it. The CobraPLA has been reported to be more useful than the LMA-Classic as a conduit for blind or fiberoptic-guided intubation because of its structural differences, such as a shorter (22 vs 27 cm, respectively, for the no. 3 size) and wider-diameter stem [7]. The CobraPLA differs from the LMA-Classic in that it has a circumferential cuff that resides in the hypopharynx at the base of the tongue, as opposed to the LMA cuff, which lies immediately behind the cricoid cartilage and with which there is the possibility of cuff rupture during neck surgery [8].

Vocal cord movements have to be evaluated following thyroid surgery to detect any neural injury. The fiberoptic view of the vocal cords is better with the CobraPLA than with the LMA-Classic [5, 8]. In our patient also, the vocal cords were easily visualized on fiberoptic bronchoscopy via the CobraPLA.

In conclusion, we suggest that the CobraPLA may be a useful airway management tool for thyroid surgery in a hypertensive patient.

References

1. Hooshangi H, Wong DT. Brief review: the Cobra Perilaryngeal Airway (CobraPLA®) and the Streamlined Liner of Pharyngeal Airway (SLIPA™) supraglottic airways. Can J Anesth. 2008;55: 177–85.
2. Pott L, Swick JT, Stack BC. Assessment of recurrent laryngeal nerve during thyroid surgery with laryngeal mask airway. Arch Otolaryngol Head Neck Surg. 2007;133:266–9.
3. Montes FR, Giraldo JC, Betancur LA, Rincon JD, Rincon IE, Vanegas MV, Charris H. Endotracheal intubation with a lightwand or a laryngoscope results in similar hemodynamic variations in patients with coronary artery disease. Can J Anesth. 2003;50: 824–8.
4. Shah EF, Allen JG, Greatorex RA. Use of the laryngeal mask airway in thyroid and parathyroid surgery as an aid to the identification and preservation of the recurrent laryngeal nerves. Ann R Coll Surg Engl. 2001;83:315–8.
5. Gaitini l, Yanovski B, Somri M, Vaida S, Riad T, Alfery D. A comparison between the PLA Cobra™ and the Laryngeal Mask Airway Unique™ during spontaneous ventilation: a randomized prospective study. Anesth Analg. 2006;102:631–6.
6. Galvin EM, Doorn MV, Blazquez J, Ubben JF, Zijlstra FJ. A randomized prospective study comparing the Cobra Perilaryngeal Airway and Laryngeal Mask Airway-Classic during controlled ventilation for gynecological laparoscopy. Anesth Analg. 2007;104: 102–5.
7. Lee JJ, Kim JA, Gwak MS, Kim MH. Evaluation of the Cobra perilaryngeal airway (CPLA) as an airway conduit. Eur J Anaesthesiol. 2007;24:852–5.
8. Agro F, Carassiti, Magnani C, Alfery D. Airway control via the CobraPLA™ during percutaneous dilatational tracheotomy in five patients. Can J Anesth. 2005;52:418–20.

Address correspondence to: R. Garg
Received: November 6, 2008 / Accepted: February 26, 2009