

## The use of the CTrach™ Laryngeal Mask Airway in pediatric patients: a retrospective review of 25 cases

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### To the Editor,

The CTrach™ Laryngeal Mask Airway (LMA CTrach) (LMA North America, San Diego, CA, USA) was developed by Dr. Archie Brain as an improvement on the LMA Fastrach™ to facilitate tracheal intubation through better visualization of the vocal cords.<sup>1,2</sup> The LMA CTrach can serve as a rescue airway or it can be used electively for routine airway management. Several adult retrospective studies report its efficacy for lung ventilation and tracheal intubation. Timmermann *et al.* reported lung ventilation in all patients and successful tracheal intubation in 98.3% of patients,<sup>1</sup> and Liu *et al.* reported successful insertion in 100% of patients and successful tracheal intubation in 96% of patients.<sup>3</sup> Currently, there is a lack of literature regarding the use of the LMA CTrach in pediatric patients.

We present herein the cumulative experience with elective use of the LMA CTrach at our institution. We sought to assess the clinical efficacy of the LMA CTrach by focusing on the reported achievement of successful ventilation and intubation and by identifying the difficulties encountered by clinicians. This retrospective review was approved by the Cleveland Clinic Institutional Review Board. A database search limited to ages 0 mth to 18 yr yielded 25 pediatric patients who underwent surgical procedures and whose tracheas were intubated electively using the LMA CTrach. In all cases, the clinicians who used the LMA CTrach were experienced anesthesiologists who performed tracheal intubations on a regular basis. Data were collected during a 24-mth period from June 2006 to June 2008.

Patient age, biometric data (weight and height), and American Society of Anesthesiologists physical status classification were obtained from the anesthesia record. The body mass index (BMI) was calculated (BMI = weight/height.<sup>2</sup> The Mallampati score, thyromental distance, and cervical spine range of motion physiological data were obtained from the pre-anesthesia clinical record. When documented, the LMA CTrach efficacy in airway management is reported as statistical percentages based on successful lung ventilation, tracheal intubation attempts, and tracheal intubation outcomes.

The LMA CTrach was used electively in 25 pediatric patients with diverse demographic profiles (see Table). All patients had normal cervical spine range of motion and a thyromental distance > 6 cm. Two patients (8%) were recorded as having short necks. The majority of patients (72%) had normal BMIs, 24% were overweight, and 4% were obese.

No failures to insert the LMA CTrach were recorded. Furthermore, all pediatric patients' lungs were ventilated successfully. Tracheal intubation was successful in all 25 patients and was performed without difficulty in 23 (92%). One intubation required a second intubation attempt because of an initial blurry image in the LMA CTrach screen. During another tracheal intubation, the endotracheal tube had to be rotated 180°, as the tip advanced beyond the epiglottic lever; a second attempt was not required. Mallampati score did not affect the intubation success rate. The tracheas of patients with Mallampati scores of 1 (17 patients), 2 (six patients), 3 (one patient), and 4 (one patient) were all intubated successfully.

This retrospective review shows that successful lung ventilation and tracheal intubation procedures were achieved in all 25 pediatric patients where the LMA CTrach was used. Two initial difficulties with tracheal

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**Table** Demographic and anesthetic characteristics

Characteristics	No. of Patients ( <i>n</i> = 25)	Percent of Total
Sex		
Male	15	60%
Female	10	40%
Mean age (range)	13.3 yr (9 to 17 yr)	
Median weight (range)	52.4 kg (26 to 88 kg)	
Median height (range)	1.56 m (1.3 to 1.8 m)	
Median BMI (range)	21.3 kg·m <sup>-2</sup> (11.6 to 30.4 kg·m <sup>-2</sup> )	
Normal	18	72%
Overweight	6	24%
Obese	1	4%
ASA physical status		
I	12	48%
II	9	36%
III	3	12%
IV	0	0%
Unrecorded	1	4%
Mallampati score		
1	17	68%
2	6	24%
3	1	4%
4	1	4%

BMI body mass index, ASA American Society of Anesthesiologists

intubation were resolved rapidly without requiring the use of another device. Despite the limitations of this review, its retrospective nature, and the limited number of cases, we

consider the LMA CTrach to be a useful airway device for tracheal intubation in pediatric patients in elective situations.

We believe the development of the LMA CTrach in pediatric sizes is worth pursuing. The device is uniquely capable of achieving lung ventilation during airway visualization and, therefore, potentially capable of decreasing the incidence of low oxygen saturation.

**Conflicts of interest** None declared.

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