

Initial experience with the Baska mask, a novel supraglottic airway device, in female patients undergoing gynaecologic laparoscopic surgery



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The Baska mask is a novel supraglottic airway device. We report its use in 19 low risk adult females undergoing gynaecologic laparoscopic procedures. The device had good airway seal demonstrated by leak pressure 40 cm H₂O. The overall use success rate was 95%, with first attempt success rate 68%. Size 4 Baska mask was successful in 74% cases. No major complications were noted. We conclude that the Baska mask shows promise, especially in terms of airway seal, and warrants further evaluation for use in laparoscopic surgery.

INTRODUCTION

- The use of supraglottic airway devices in laparoscopic surgery may reduce the incidence of upper airway complications (1).
- The Baska mask is a new supraglottic airway device, featuring non-inflatable cuff that may facilitate a better airway seal, novel pharyngeal drainage system that may reduce the risk of lung aspiration, and integrated bite block (2).
- We wished to evaluate the performance and safety of this device in patients undergoing gynaecologic laparoscopic surgery.

METHODS

- This is a case series report.
- Following IRB approval and informed consent, females aged 16 – 85 yrs, undergoing non-urgent gynaecologic laparoscopic surgery were recruited.
- Excluded were patients with BMI over 35, at increased risk of aspiration, neck pathology, predicted difficult airway, upper airway or GI problems or with live pregnancy.
- All device placements were performed by two investigators (V.A. or A.O.).
- Demographic and device performance data was collected, descriptive statistics were used.
- Airway leak test was performed while the patient was apnoeic. The airway leak pressure was defined as the plateau airway pressure reached with fresh gas flow 6 l/min, and pressure adjustment valve set to 70cm H₂O.
- Device stability was evaluated by monitoring the leak fractions at different head positions. Leak fraction was defined as (V_{insp}-V_{exp})/V_{insp} x 100.
- The patients were followed up for throat pain, dysphagia, dysphonia, nausea and vomiting.
- We report the results for the available at the time of submission of our abstract for Euroanaesthesia 2012 (9 patients) and updated dataset (19 patients).

RESULTS

Table 1: Demographic data

	First 9 patients	All 19 patients
Age (years)	43 (11)	39 (9)
Body Mass Index (kg/m ²)	29 (5)	27 (5)
Airway		
Thyromental distance (cm)	8.6 (2.3)	8.5 (2.3)
Mallampati score median [IQR]	1 [1,2]	1 [1,2]
ASA score median [IQR]	2 [2,2]	1 [1,2]
Duration of procedure (min)		
Anaesthesia	38.6 (17)	41 (25.8)
Surgery	34.2 (16.9)	36.8 (25.4)
Controlled ventilation	35.9 (14.2)	40.5 (24.7)

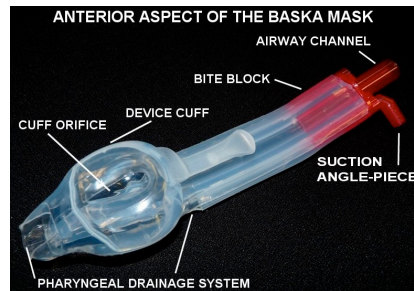


Figure 1: Anterior and posterior aspect of the Baska mask

Table 2: Data regarding Device insertion

	First 9 patients	All 19 patients
Overall insertion success rate	100%	95%
Insertion:		
On first attempt	67%	68%
On second attempt	22%	21%
On third attempt	11%	5%
Failed	0%	5%
Insertion time (sec) *	34 (51)	30 (42)
*excludes time between attempts		
Additional manoeuvres	56%	47%

Table 3: Device performance data

	First 9 patients	All 19 patients
Airway leak pressure (cm H ₂ O)	40 (11)	40 (10)
Leak fraction (% V _{insp})		
Head neutral	6.9 (7.8)	5.5 (6.3)
Head rotated	10 (7.6)	6.3 (6.7)
Head extended	11.9 (13.4)	6.6 (10.8)
No pillow	10.6 (9.1)	7.9 (7)
End-tidal CO ₂ (kPa)		
Mean (SD)	5.4 (0.7)	5.2 (0.7)
IQR [Range]	5-5.7 (4.4-7)	4.7-5.7 (3.9-7)

Table 4: Device safety data

	First 9 patients	All 19 patients
Intraoperative desaturation	0%	0%
Intraoperative device failure	0%	0%
Laryngospasm*	0%	5%
*1 episode on LMA removal (failed Baska)		
Blood staining on mask removal	0%	0%
Lip/teeth damage	0%	0%
Nausea (day 0 – day 3)	11%	16%
Vomiting (day 0-day 3)	11%	16%
Significant discomfort *		
Throat pain	0%	5%
Dysphagia	11%	11%
Dysphonia	0%	0%
* defined as VRS ≥3/10 on discharge from recovery or on 1 st postoperative day follow up		

Figure 2: Box plot depicting IQR and Range of Visual Rating Scale values

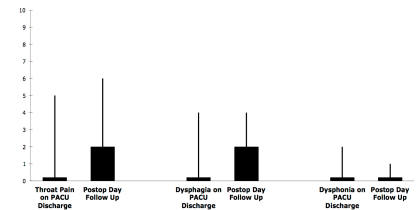


Figure 2: Box plot depicting IQR and Range of Visual Rating Scale values

DISCUSSION

Initially, we did not insert the mask to a sufficient depth, and then found we had to advance the device further, against some resistance, in order to get a good seal. Precise positioning against the glottis was necessary as the device has cuff opening smaller than the LMA one (see figure below). Helpful manoeuvres were: pushing the device in, pulling it out or rotation and we used those in half of our patients.

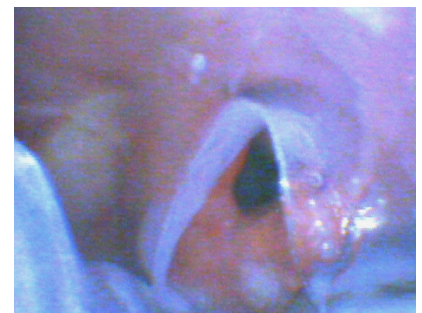


Figure 3: The cuff of the Baska mask folding around the glottis

The observed device leak pressure (40 cm H₂O) was higher than the leak pressures reported for other supraglottic airway devices (LMA, ProSeal, iGel). This suggests superior airway seal. The observed leak fractions and intraoperative etCO₂ values were reassuring. The overall success rate of 95% was encouraging, given the fact that this is a new device and the technique of sizing and insertion is evolving. We did not observe major complications and the patient comfort indices were reassuring. Incidence of PONV was low.

CONCLUSIONS

The Baska mask demonstrated high airway leak pressures suggesting excellent airway seal. Placement may be challenging.

No major adverse events were observed. Patient comfort indices were reassuring.

The Baska mask demonstrates promise as a potential alternative to the endotracheal tube for short duration laparoscopic surgery in low risk patients. These initial findings need to be verified in randomised controlled trials.

REFERENCES:

- Abdi W et al. Sparing the larynx during gynaecological laparoscopy: a randomized trial comparing the LMA Supreme and the ETT. Acta Anaesthesiol Scand 2010 Feb; 54(2):141-6
- <http://baskamask.net>

Disclosure: Dr.Kanag Baska, Australia and ProAct Medical, UK, supplied the Baska mask devices.

Conflict of interest: none

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