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CORRESPONDENCE

# Prolonged use of the LMA Supreme™

**Maryem Kammah, MD · Cristóbal Añez, MD, PhD**

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**To the Editor,**

The LMA Supreme™ (The Laryngeal Mask Company Limited, Le Rocher, Victoria, Mahé, Seychelles) is a disposable extraglottic laryngeal mask airway that features high airway sealing pressures and a channel for gastric decompression.[1] We report the use of an LMA Supreme in an unexpected prolonged surgery. The patient gave written consent for the publication of this case report.

A 74-yr-old male (weight 68 kg, height 168 cm) with a history of allergic rhinitis was admitted for re-intervention of a mixed tumour of the parotid gland. The physical examination and laboratory tests were normal, and no criteria were found to predict difficult airway management. Expected duration of surgery was two hours. The neurophysiologist requested avoidance of neuromuscular blockade and halogenated anesthetics to allow monitoring of facial nerve branches. Standard hemodynamic variables, urine output, and bispectral index (BIS) were monitored.

Anesthesia was induced with propofol 2 $mg \cdot kg^{-1}$ and maintained with a continuous infusion of propofol (4-6 $mg \cdot kg^{-1} \cdot hr^{-1}$) and remifentanil (0.2-0.4 $\mu g \cdot kg^{-1} \cdot min^{-1}$), adjusted for a BIS target value $< 60$. Nitrous oxide was not used. A size-4 LMA Supreme was inserted and the cuff was inflated with 20 mL of air. Volume-controlled ventilation was initiated with the following parameters: tidal volume 6 $mL \cdot kg^{-1}$; inspiratory:expiratory ratio 1:2; and respiratory frequency 12 $breaths \cdot min^{-1}$. Peak inspiratory pressure was 16 cm $H_2O$ during the procedure and the capnographic wave was normal. Once the airway sealing was assessed, we placed a 16G orogastric drain tube, decompressed the patient's stomach, and connected the drain tube to a drainage bag on the floor.

Due to dissection difficulties, the surgery lasted for seven hours and 20 min, and we left the LMA Supreme in place during all this time. There was no air leakage throughout the surgery, and the drainage bag collected only a few millilitres of bilious fluid. We administered dexamethasone 4 mg, acetaminophen 1 g, and dexketoprofen 50 mg *iv* before the end of surgery. We removed the LMA Supreme with the patient awake and breathing spontaneously. History and physical examination of the patient in the recovery room immediately after surgery and before discharge ruled out any side effects relating to prolonged use of the LMA Supreme.

Most reported problems associated with the laryngeal mask airway (LMA™) are related to the misuse of the device. Complications, such as mucosal ischemic injury, gastric insufflation, regurgitation, and aspiration, appear to be time-dependent.[2] As a result, LMAs have been used chiefly for short surgical procedures. The risk of mucosal injury increases with cuff volume due to increased mucosal pressure. A well-placed LMA Supreme provides adequate airway sealing with minimal intracuff volume, which is important for prolonged use. A 20-mL volume of air for a size-4 LMA Classic™ does not produce elevated pressure on the pharyngeal mucosa, but we have a lack of corresponding data for the LMA Supreme.[3] As we had no possibility of measuring intracuff pressure, we used 20 mL of air with good sealing pressure ($> 25$ cm $H_2O$). Although data are lacking on mucosal pressure applied by the LMA Supreme, it appears that a 20-mL volume is safe for prolonged use without nitrous oxide. Incorporating a drain tube with the LMA Supreme minimizes the likelihood of gastric insufflation and allows a route to vent regurgitated gastric contents. Publications investigating a safe time limit

M. Kammah, MD (✉) · C. Añez, MD, PhD
Servicio de anestesiología y reanimación, Hospital Universitario Joan XXIII, Rambla President Lluis Company, Tarragona, Spain
e-mail: maryemane@gmail.com

for the LMA Supreme are lacking; however, we found a case report on rapid sequence induction where the LMA Supreme was used as a primary airway for nine hours in a multisystem trauma patient without complication.[4] In a pilot study in a porcine model, the authors concluded that only mild alterations in the laryngopharyngeal mucosa were seen with the LMA Proseal™ when used for up to nine hours, whereas mucosal injury occurs with more than 12 hr of use.[5]

Given the lengthy duration of this case using an LMA Supreme during elective surgery, we conclude that the LMA Supreme could be useful for prolonged surgery, especially if tracheal intubation should be avoided. Nevertheless, further investigations are needed.

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**Conflicts of interest** None declared.

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