

Guedel's Airway for Awake LMA Extubation: An Innovative Technique

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Received date: July 19, 2018; Accepted date: August 16, 2018; Published date: August 20, 2018

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Letter to Editor

Laryngeal Mask Airway (LMA), the prototype of Supraglottic airway devices (SAD's) was conceptualized by Dr Archie Brain as early as 1981 [1]. The device is being commonly used to secure airway during elective surgical procedures, difficult airway and cardiopulmonary resuscitation [2]. The device offers innumerable advantages like reduced stress response, requirements of anaesthetic agents and postoperative complications [2]. However, using LMA has also been found to be associated with complications like air leakage, gastric distension, regurgitation, vomiting, pulmonary aspiration, hoarseness, sore throat, nerve injury and most troublesome respiratory adverse events including airway obstruction, laryngospasm, bronchospasm, severe coughing, breath holding, postoperative stridor, clenching or biting LMA and desaturation [2,3]. These complications have detrimental results if involves paediatric airway. Hence, we are reporting an innovative method using Guedel's airway to ensure smooth extubation and recovery.

Most of complications during intubation can be avoided by using correct technique to insert LMA while maintaining adequate anaesthetic depth. Biting or clenching of device during extubation can be catastrophic especially with laryngeal masks without in-built bite block i.e. Classic LMA [4], Flexible LMA and with in-built bite block i.e. Proseal LMA [5]. It can lead to loss of airway, desaturation, bradycardia and cardiac arrest. Due to airway obstruction, patient may generate more negative intrathoracic pressure which increases venous return, pulmonary blood volume, pulmonary arterial pressure and decreases pulmonary interstitial pressure. These physiological changes along with hypoxia induced sympathetic stimulation, pulmonary vasoconstriction and pulmonary capillary damage results in negative pressure pulmonary edema (NPPE) [4]. The incidence of NPPE in healthy population undergoing general anaesthesia is 0.05% to 0.1%. However, it is uncommon and under-reported with the use of LMA [4]. The Cochrane review by Mathew et al. concluded that best available evidence comparing early versus late removal of the LMA in participants undergoing general anaesthesia does not demonstrate superiority of either intervention. Though, risk of laryngospasm and desaturation was similar in both groups but, coughing was less frequent and airway obstruction was more frequent with early removal of LMA [6]. Another randomized trial done by Ramgolam et al. comparing Deep or Awake removal of laryngeal mask airway in children at risk of respiratory adverse events undergoing tonsillectomy concluded that there was no evidence for difference in the timing of LMA removal on incidence of respiratory adverse events over whole emergence and post-anaesthesia care unit (PACU) phases. But, considering PACU alone, awake removal was associated with significantly more respiratory adverse events than deep removal [3]. As quality of evidence was very low, the question of correct timing of

removal of LMA still remained unanswered. The clinical practice related to timing of LMA removal varies in different institutions and depends on preference of anesthesiologist in charge of case. Moreover, in centers where cases are done in high volume, resulting in fast turnover from operation theatre and recovery room, awake extubation is preferred. Simultaneously, patients are exposed to risks of respiratory adverse events associated with awake intubation. Some of these events like airway obstruction and negative pressure pulmonary edema due to biting or clenching of LMA can be avoided by concurrent insertion of Guedel's airway after doing oral suctioning when the patient is stills in deeper plane of anaesthesia (Figure 1). This is followed by administration of 100% oxygen to allow washout of inhalational anaesthetic agents. With return of adequate spontaneous respiratory efforts and muscle tone, both the LMA and airway are removed simultaneously. The presence of airway prevents biting of airway device and subsequent loss of airway.



Figure 1: Concurrent insertion of Guedel's airway with LMA.

The management of NPPE including removal of airway obstruction, diuretics and mechanical ventilation has been widely described in literature earlier. But, till date no technique for prevention of NPPE has been mentioned. As a result, we would like to suggest this technique of placement of Guedel's airway along with the LMA while attempting awake extubation to facilitate smooth emergence and postoperative recovery. Furthermore, other supraglottic airway devices like I-gel may also be used as an alternative to classic LMA with Guedel's airway.

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