Anesthetic Management for Laser Vocal Cord Surgery
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Goals of anesthesia during laser vocal cord surgery

• Attain short interval of deep plane anesthesia
• Ensure motionless surgical field
• Oxygenate/ventilate yet minimize interruption to procedure
• Proper positioning during suspension laryngoscopy
• Follow laser surgery safety precautions

Anesthetic technique

Pre-existing tracheostomy
• Intermittent intubations & extubations w/laser-resistant ETT
• High-frequency jet ventilation (HFJV)
• Manual low-frequency supralaryngeal jet ventilation

Lindholm operating laryngoscope

How: use of Lindholm operating laryngoscope
Pros: allow for both spontaneous ventilation and manual ventilation without introducing flammable material into airway or obstructing field
Cons: possibly force papillomas into tracheobronchial tree, barotrauma/PTX, gastric distension, difficulties avoiding hypoxia/hypercarbia, unable to determine applied volume, unable to determine distal airway pressures

Options for intraoperative ventilation

Inhalation induction with N2O and O2, IV access obtained
Maintenance with TIVA (propofol infusion + fentanyl bolus PRN)
Patient safety: patient’s eyes protected w/moist gauze, minimize surgical drapes to avoid tenting O2

We present a case series of three pediatric patients with vocal cord papillomas who had presented for 13 procedures involving laser treatment to vocal cords over a period of nine months. Our objective was to provide anesthesia without intubation or the use of jet ventilation allowing for spontaneous ventilation, a quiet surgical field, ability to provide supplemental oxygen as required, and most importantly, to monitor end tidal carbon dioxide. To achieve these aims, a Lindholm laryngoscope and Benjamin suspension system was used for management of the airway. Anesthetic technique was TIVA with fentanyl and propofol and topical lidocaine applied to the cords. Spontaneous ventilation was maintained air/oxygen mix FiO2 less than 0.3. The procedures were accomplished as planned without need to intubate and without interruption.

Case series abstract

We present a case series of three pediatric patients with vocal cord papillomas who had presented for 13 procedures involving laser treatment to vocal cords over a period of nine months. Our objective was to provide anesthesia without intubation or the use of jet ventilation allowing for spontaneous ventilation, a quiet surgical field, ability to provide supplemental oxygen as required, and most importantly, to monitor end tidal carbon dioxide. To achieve these aims, a Lindholm laryngoscope and Benjamin suspension system was used for management of the airway. Anesthetic technique was TIVA with fentanyl and propofol and topical lidocaine applied to the cords. Spontaneous ventilation was maintained air/oxygen mix FiO2 less than 0.3. The procedures were accomplished as planned without need to intubate and without interruption.

Example of anesthetic management using Lindholm laryngoscope

1. OR personnel safety: protective eyewear, masks to minimize viral transmission
2. Inhalation induction with N2O and O2, IV access obtained
3. Maintenance with TIVA (propofol infusion + fentanyl bolus PRN)

Positioning: table turned 90 degrees, shoulder roll placed to facilitate neck extension

References