

Title	Complete Airway Obstruction in a Child with Vocal Cord Papilloma
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INTRODUCTION

Unexpected inability to ventilate an anesthetized, apneic patient presents a serious problem to the anesthesiologist. I report a case of a child with vocal cord papilloma, who easily ventilated spontaneously, yet completely obstructed after induction of anesthesia.

CASE REPORT

An 11 year old, 65 kg boy was scheduled to undergo direct laryngoscopy for laser excision of a vocal cord papilloma. The patient was born at term, and had a past medical history of asthma and vocal cord papilloma. He had several GA's in the past for a persistent vocal cord papilloma, beginning at 2 yrs of age. The prior surgeries occurred at an outside hospital and records were not readily available. The patient's mother recalled the child experiencing post-op nausea, vomiting and combativeness during prior anesthesia exposures. She also noted episodes of wheezing post-op (treated with albuterol nebulizer) and one incidence of prolonged post-op intubation. Physical exam was remarkable for a diminished and hoarse voice. Mouth opening graded MP II, normal thyromental distance, and full range of cervical motion.

After insertion of a peripheral IV, the patient was taken to the OR, where a continuous infusion of Propofol and Remifentanyl was started. Pre-induction, the anxious child could not tolerate a tight sealing facemask, so it was held as close to his mouth as he would allow. After a 30 mg bolus of propofol, mixed with 30 mcg of remifentanyl, the patient became apneic, and immediately began to desaturate. Despite a good seal around the face, mask ventilation with one, then two hands could not be accomplished. When the pulse oximeter fell below 80%, a #4 LMA was easily placed into the mouth. Despite apparently adequate placement, ventilation could not be accomplished. An audible leak around the LMA occurred at airway pressures of 20 cm H₂O.

With the pulse oximeter at 60%, the child was emergently, yet relatively easily, intubated with a MAC 3 blade and 6-0 cuffed ETT. During laryngoscopy, a large papilloma was noted on the left cord. Once intubated, adequate ventilation was quickly established. The sat monitor reached a nadir of 45%, and rapidly recovered to 98%. Auscultation revealed bilateral wheezing, which responded to aerosolized albuterol. Anesthesia was maintained with a Propofol/Remi infusion, augmented by ketamine 1.5 mg/kg.

Once spontaneous ventilation was established, the surgery proceeded without incident. A large portion of the papilloma was excised. The child was extubated and taken to recovery. He was discharged home the next day.

DISCUSSION

Induction for otolaryngologic procedures in which a potential for airway obstruction exists poses unique challenges to the anesthesiologist. A safe induction typically involves slowly deepening the spontaneously breathing child. Adequacy of assisted ventilation should be established prior to making the patient apneic. Furthermore, the anesthetist must always be prepared for emergent intubation should the airway suddenly obstruct.

Evaluation of the patient pre-operatively involves taking a careful history and examining the airway for potential intraoperative problems. Premedication is best avoided if potential for airway obstruction exists.

Laryngoscopy procedures are often performed with the anesthetized patient spontaneously breathing. Propofol/Remifentanyl infusions can provide effective anesthetic maintenance during surgery. However, due to its intense respiratory depression, and potential for severe O₂ desaturation, remifentanyl may not be a good choice for induction, especially in a bolus mode of delivery. Induction with an appropriate inhalational agent, or propofol alone, provides a more titratable depth of anesthesia and reduces the likelihood of producing prolonged periods of apnea, when compared to remifentanyl. After an adequate depth of anesthesia is reached, the ability to gently assist the spontaneously ventilating patient can establish the potential for airway obstruction under positive pressure. This practice may help reduce the incidence of unexpected airway obstruction in the apneic patient.

REFERENCES

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