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IMAGES IN ANESTHESIA

Video imaging of arytenoid prolapse

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A 13-yr-old ex-26-week premature male with a history of severe obstructive sleep apnea, acquired subglottic stenosis, and prior laryngotracheoplasty presented for a magnetic resonance imaging (MRI) sleep study to evaluate his airway. Anesthesia was induced by inhalation of O_2 with N_2O plus sevoflurane. During induction of anesthesia, difficulty in maintaining an adequate airway was almost immediately encountered, and the oxygen saturation (SpO_2) decreased to 78% despite having the patient breathe 100% oxygen, placing an oral airway, and applying continuous positive airway pressure. The SpO_2 eventually increased with the use of a much exaggerated jaw-thrust maneuver. Typically, MRI sleep studies are performed without airway manipulation (e.g., jaw thrust, chin lift) or an artificial airway in order to allow complete imaging of the native airway. In this case, however, airway patency was maintained by taping the patient's chin to the MRI coil along with placing an oral airway. The imaging study precluded placing a supraglottic airway or an endotracheal tube. A subsequent endoscopic evaluation (Figure) which supplemented the MRI findings revealed significant bilateral arytenoid prolapse completely obstructing the glottis. This condition produced the unusual clinical picture of desaturation on induction that was resistant to usual airway maneuvers (videos of sleep MRI and endoscopy available as Electronic Supplementary Material).

Laryngotracheoplasty is recognized as a significant risk factor for postoperative arytenoid prolapse with a reported incidence of 5.7%.[1] Laryngotracheoplasy can be associated with postoperative complications such as tracheal edema,

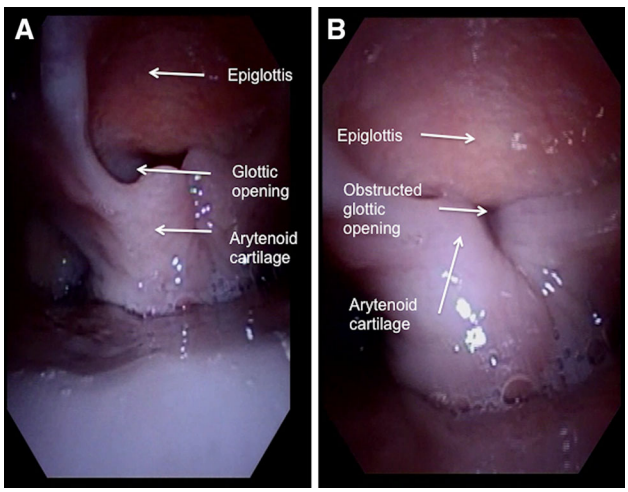

FIGURE A) Flexible endoscopic view of the airway showing the lateralized supraglottic tissues and minimal arytenoid prolapse with an opening to the glottis. B) Flexible endoscopic view of the same airway showing dynamic collapse with prolapse of both the supraglottic tissues and the arytenoids resulting in closure of the supraglottic tissues

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recurrent subglottic stenosis, or arytenoid prolapse leading to difficult mask ventilation. A high degree of airway obstruction may require a team approach for evaluation and management. If the obstruction persists, airway intervention with rigid bronchoscopy and/or endotracheal intubation can open the obstructed airway.

Conflicts of interest None declared.

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Reference

1. *Hart CK*, *Richter GT*, *Cotton RT*, *Rutter MJ*. Arytenoid prolapse: a source of obstruction following laryngotracheoplasty. Otolaryngol Head Neck Surg 2009; 140: 752-6.