Acute Stridor in a 19 year old from an Acquired Laryngocele after a Complex Airway Reconstruction for severe subglottic stenosis.

Susan T. Verghese M.D, Marjorie P. Brennan M.D
Division of Anesthesiology and Pain Medicine, Children’s National Medical Center, The George Washington University School of Medicine and Health Sciences

Case Report: An otherwise healthy 19 year old girl who had complex open airway reconstruction for subglottic stenosis as an infant was admitted with new onset of hoarseness and stridor. She was trached all her life after 3 failed laryngeal repairs in her first 2 years of life 17 years ago. She had a t-tube after the open reconstruction for 3 months postop and was eventually decannulated. She presented shortly after decannulation with increasing stridor due to a complex air cyst in her left larynx. Fig. 1

She was afebrile with stable vital signs and despite her voice changes not in any acute distress. She was scheduled for direct laryngoscopy and bronchoscopy under general anesthesia after admission. An intravenous line was established after placement of a local anesthetic skin patch (Synera) and after a smooth mask induction of anesthesia with oxygen, nitrous oxide and sevoflurane, a dose of propofol was given to enable direct laryngoscopy and bronchoscopy while supplemental infusion propofol was provided. On examination it was evident that the hoarseness was due to a cyst like mass on the left side of the supraglottis pushing forward and narrowing the airway. Aspiration of the bulging mass revealed a small amount of thick mucoid appearing fluid and air and follow up CT was consistent with the diagnosis of an acquired laryngocele due to multiple surgeries of her airway. Since there was no further narrowing of the glottic area after the removal of the fluid from the cyst the plan was to extubate her and observe her with post –operative nebulization with racemic epinephrine and dexamethasone. She was extubated when awake lying on her side and breathing comfortably and discharged home the following day.

Unfortunately the cyst recurred 2 weeks later and she required re-tracheotomy along with multiple staged laser excisions of the cyst. She is currently awaiting decannulation.

Discussion: Mild post extubation stridor in children is often treated with racemic epinephrine and humidified air. Persistent and worsening stridor in a patient following extubation after a reportedly traumatic intubation as in our patient history after discharge from the hospital requires readmission and reevaluation. The differential diagnosis for acutely worsening airway obstruction could be from tracheal mucosal tear secondary to trauma during intubation (1) a tracheal mucosal flap causing major obstruction of the subglottic trachea (2) from a tracheal pseudomembrane caused by high intra-cuff pressure during endotracheal intubation. Damage of the tracheal mucosa at the site of the endotracheal cuff may trigger the formation of an obstructive fibrinous tracheal pseudomembrane (OFTP) This ring made of fibrin, leucocytes, and necrotic epithelium, can adhere to the tracheal wall and obstruct the airway. (3,4) If the narrowing is from actual scarring and subglottic stenosis (SGS) then the treatment is to dilate the segment with balloon laryngoplasty (BLP) which is an endoscopic procedure which have shown to be very effective from studies in children (5,6) Parenteral administration of corticosteroids, epinephrine nebulization and inhalation of a helium/oxygen mixture may be effective in these patients (7) Our use of intravenous Dexmedetomidine and low dose ketamine without using any narcotic was ideal because of her underlying history of ADHD, anxiety, and behavioral disorder with an acutely worsening airway distress and allowed us to have her breathe spontaneously without depressing her respiratory effort.

References: