

[NM-262] Dexmedetomidine in the management of worsening respiratory distress in a child with critical subglottic obstruction.

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A 11-year-old female presented with respiratory distress from an acquired severe subglottic narrowing after a traumatic intubation elsewhere. She was admitted to an ER in an outside hospital in diabetic ketoacidotic coma earlier where she was intubated with difficulty and remained intubated for 2 days. She was diagnosed to have IDDM and started on 30 units of Lantus daily. Her past medical history included obesity (68Kg) ADHD, asthma, possible Asperger's syndrome, anxiety behavioral disorders. After discharge she was readmitted multiple times because of increasing stridor, difficulty breathing and treated with Azithromycin, Amoxicillin, oral steroids, albuterol, ipratropium bromide, Pulmicort, Atrovent and racemic epinephrine and Dexamethasone nebs with minimal relief of symptoms. She had neck pain, hoarseness, and odynophagia but denied fever/chills. CT scan at that time revealed tracheal narrowing with minimal diameter of 4.1mm. She was brought to the operating room for a DLB and tracheal dilatation. She was induced with oxygen, nitrous oxide and sevoflurane until a deep plane of anesthesia was obtained with the patient breathing spontaneously in a semi-sitting position. As the head end of the bed was lowered it was clear that she needed considerable amount of support to get air into her lungs with a mask and oral airway and that her spontaneous breathing was very strained due to a small airway. We then gave her dexmedetomidine 30 microgram and 30 mg of ketamine and turned the airway over to the surgeon for direct laryngoscopy. The ENT surgeon sprayed lidocaine into her larynx prior to detailed laryngoscopy which showed critical narrowing, swollen red subglottic area and a tight band of tissue causing severe narrowing. The endotracheal tube that could be inserted with difficulty was an uncuffed 3.5 ETTube which fitted snugly without any leak. The tight band was surgically removed by the surgeon and her airway underwent several esophageal dilatations using a tracheal balloon until an uncuffed 6.0 ETTube could be placed in her trachea with a small leak. The anesthetic during the dilatations included intermittent doses of intravenous ketamine to a maximum dose of 60 mgs and dexmedetomidine boluses to a maximum dose of 100 micrograms. She was then awakened and extubated awake and sent to the ICU for monitoring overnight where she continued to breathe well spontaneously lying on the lateral side maintaining her saturation well with room air. The differential diagnosis in her could be from tracheal mucosal tear secondary to trauma during intubation from endotracheal cuff triggering the formation of an obstructive fibrinous tracheal pseudomembrane. If the narrowing is from actual scarring and subglottic stenosis then the treatment is to dilate the segment with balloon laryngoplasty. Parenteral administration of corticosteroids, epinephrine nebulization and inhalation of a helium/oxygen mixture may be effective in these patients. 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.
