[NM-184] Near Obstructing Mass as the Cause of Stridor in a Pediatric Airway

[1]Miketic R, [2]Spitznagel R, [2]Shukry M

[1]University of Nebraska Medical Center , Omaha , NE, USA; [2]Children's Hospital and Medical Center , Omaha , NE, USA

In this case, we discuss the anesthetic management of a near obstructing mass that presented as stridor in a pediatric patient. A 2 year old, 16.2 kg male, was brought to the OR for microlaryngoscopy and bronchoscopy for removal of a laryngeal papilloma. His past medical history was uneventful except for a recent diagnosis of stridor. During the initial anesthetic evaluation, it was noted that the patient's voice was very hoarse and that he was almost aphonic. Without any sedating premedication, the patient was brought to the OR and connected to standard ASA monitors. A mask induction was performed with a 50% mixture of nitrous oxide and oxygen. The nitrous was stopped and 100% oxygen and 8% sevoflurane were used to ensure anesthesia with spontaneous respirations. A 22G IV was inserted and 4 mg of dexamethasone and 2mg of odansetron were administered. A 4.0 ETT was placed in the patient's mouth to ensure delivery of gases. Upon direct laryngoscopy, a large near obstructing papilloma was seen in the patient's larynx. After removal by micro-debridement, the sevoflurane was discontinued and oxygen flows were increased. The patient regained consciousness and was taken to PACU.

Our patient's stridor was initially attributed to croup. While croup is not life threatening, other causes of stridor, such as epiglottitis can be. The need to differentiate between the two is crucial. A near obstructing laryngeal papilloma was the actual cause of stridor in our patient. When dealing with airway obstruction, one must carefully prepare an anesthetic plan to ensure patient safety. By avoiding sedating premedication, one can avoid respiratory depression. Maintaining airway patency is critical and can be achieved by preserving spontaneous ventilation. Spontaneous ventilation maintains the necessary tone to prevent airway collapse. By acknowledging the differences in airway and respiratory physiology, one can provide safe anesthesia for a child with an upper airway obstruction. A larger tongue, a floppy epiglottis, angulation of the vocal cords and a slight narrowing of the sub-glottic region are all important principals to consider when approaching the pediatric airway. Children are sensitive to changes in oxygenation and ventilation secondary to a reduced functional residual capacity. Inadequacy of either can quickly result in desaturation, bradycardia and even cardiac arrest. Increased airway compliance in children can lead to dynamic airway compression by an escalation of increasing negative inspiratory force, airway collapse, and subglottic obstruction. While awake, pharyngeal muscle tone helps to protect airway patency by keeping the pharynx open opposing the negative pressure forces of the diaphragm. Pharyngeal muscle tone loss during light anesthesia while the diaphragm is strong can predispose a more compliant narrow airway to obstruction. Thus, full understanding of mechanisms of respiration is essential to providing safe anesthetics to children.

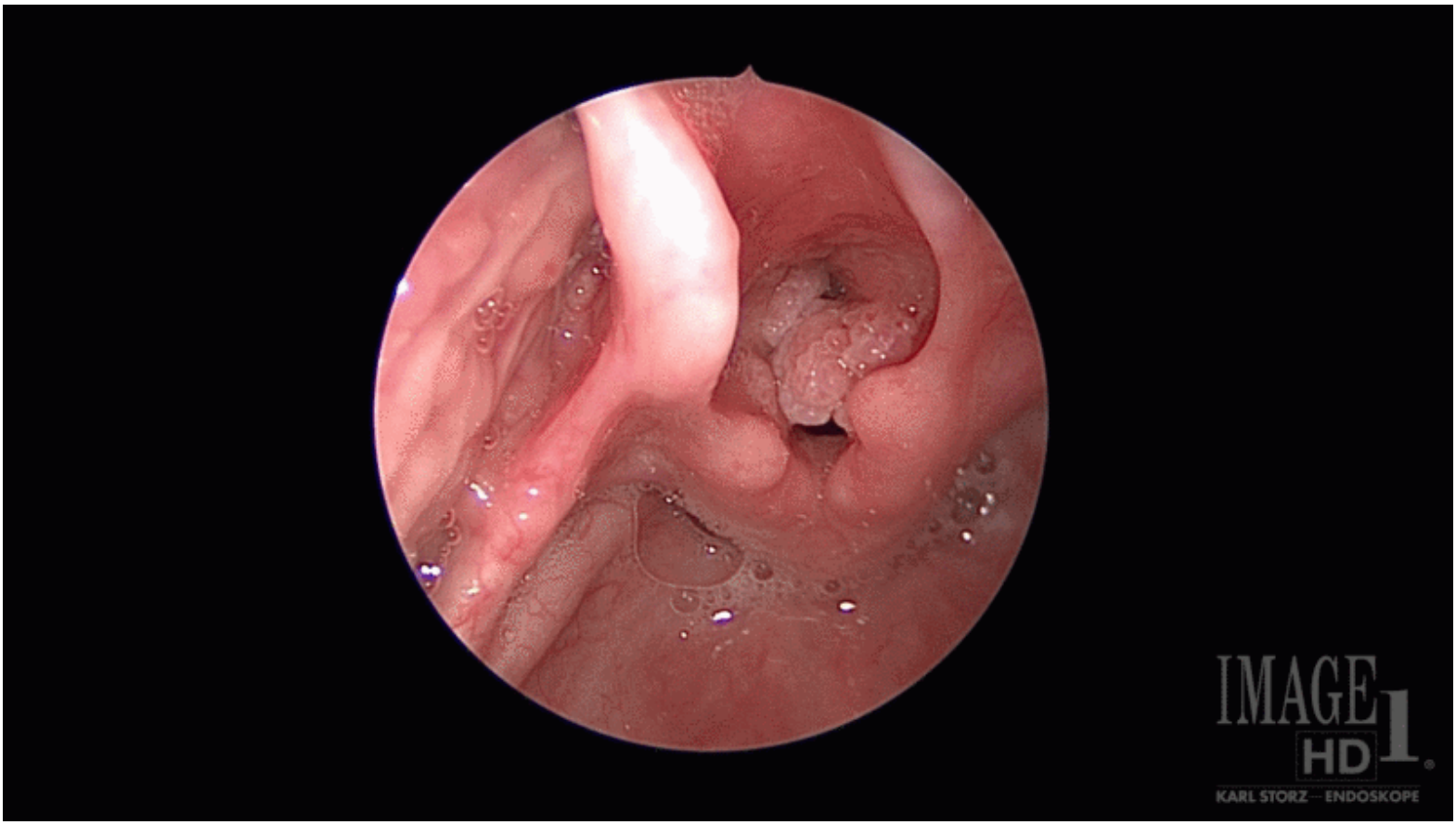
IMAGE1
HD
KARL STORZ — ENDOSKOPE