AN INTERESTING CASE OF RESPIRATORY STRIDOR IN AN INFANT
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Abstract : Respiratory obstruction and stridor are not uncommon in infants and children. Laryngomalacia is the most common cause of stridor in the newborn, accounting for 75 of the cases where as congenital laryngeal anomalies are relatively rare. However, they may present with life-threatening respiratory problems in neonates and infants. we report a 5 month old infant who presented with respiratory distress at the pediatric casualty who required assisted ventilation as O2 saturation declined. On intubation a cystic mass was visualized in the larynx. CT neck revealed a mass diagnosed as vallecular cyst of the larynx. Cyst was removed by marsupialization. Post operative period was uneventful and the child had no breathing difficulty after laryngeal cyst removal. Laryngeal cysts are among the causes of laryngeal stridor in neonates and make up the differential diagnosis against laryngomalacia, vocal cord paralysis, congenital subglottic stenosis, laryngeal web, and laryngocele etc. Symptoms are often non-specific and are common to other causes of laryngeal obstruction. Prompt recognition and management of laryngeal cysts is important because of the high mortality associated with undiagnosed conditions. Cyst may lead to stridor and/or respiratory distress in neonates and young infants because of their relatively small airway and cause severe airway obstruction and even death. The symptoms may also include hoarseness, cyanosis and feeding problems, usually appear by first day, but may be delayed up to several weeks or even years. Laryngeal cyst have varied modes of presentation and can be fatal (40) if not diagnosed on time hence high degree of suspicion and early treatment is necessary. An accurate diagnosis of laryngeal cyst can be made by eliciting a good history, by endoscopic visualization of the lesion, and by computed tomography. Although surgical removal may be the treatment of choice, other modalities such as endoscopic marsupialization, excision, and deroofing of the cyst have been recently developed. Marsupialization under general anesthesia is a safe and definitive procedure, especially when performed by CO2 laser. Simple aspiration of the cyst is not advised because of its high recurrence rate.

Keyword : Stridor, Laryngeal cyst

CASE REPORT:
A 5-month-old male infant presented to the Pediatric emergency room with breathing difficulty. He had productive cough 1 week prior, accompanied by labored breathing, vomiting and poor appetite. He was admitted at the Pediatric ICU with a diagnosis of acute bronchiolitis. The infant’s saturation declined from 88% to 70% within 6 hours of admission necessitating ventilator support. On attempting intubation, a cystic mass partially obstructing the laryngeal inlet was noted.

The patient was successfully intubated on the third attempt and T piece ventilation was initiated and saturation improved. ENT surgeon’s opinion was sought regarding cystic mass obstructing the larynx. Emergency CT was advised. CT neck taken and was reported as either a mucous retention cyst or an abscess involving oro/hypopharynx. Subsequently the Child’s respiration was supported with mechanical ventilation and transferred to ENT ward for further management.
The patient underwent Lateral pharyngeal wall cyst aspiration with marsupialization under general anesthesia. A cyst arising from Left aryepiglottic fold was found & when it was aspirated by needle aspiration following which the cyst wall collapsed. Thereafter excision of the redundant cyst wall and marsupialization was performed. The infant was ventilated for 3 days postoperatively and extubated on the fourth postoperative day. He was treated with intravenous antibiotics and steroids and was discharged on the tenth postoperative day without further airway symptoms. Histopathology revealed that the cyst was lined with stratified squamous epithelium consistent with vallecular cyst (ductal cyst).

**DISCUSSION:**

The complex structures of the human airway vary in anatomy and physiology from birth to adulthood. The infant larynx and trachea are significantly smaller than that of an adult. At birth, the infant larynx is approximately one third the size of an adult7. The infant larynx is positioned higher in the neck than the adult larynx. The superior border of the larynx of the infant is located at about the level of the first cervical vertebrae with the cricoid positioned at about the fourth cervical vertebrae. In comparison, the adult cricoid rests about the level of the sixth cervical vertebrae. In comparison, the level of larynx) or biphasic stridor due to mid tracheal obstruction. Expiratory stridor occurs with lower airway obstruction (below the airway obstruction presents as inspiratory stridor in infants. The additional features of obstruction include hoarseness of voice, hypoaxia, brassy cough, tachypnea and dyspnea with inspiratory retractions of chest and use of accessory muscles of respiration.

About 60% of children with stridor have laryngeal stridor such as laryngomalacia, vocal cord paralysis, subglottic stenosis, hemangioma, laryngeal cysts; 25% have lesions in the upper airway including choanal atresia, macroglossia and facial anomaies; 15% often associated to respiratory tract disease, such as laryngomalacia, vocal cord paralysis, subglottic stenosis, duplication or diverticulum. Clinical manifestations consist of various degrees of upper airway obstruction such as inspiratory stridor, chest retraction, apnea, cyanosis and feeding difficulty10. Failure to thrive is a common manifestation11-12. Infants with vallecular cysts may present a secondary form of laryngomalacia. This phenomenon can be explained by that altered airway dynamics caused by a progressively enlarging cyst may elevate inspiratory negative pressures, contributing to supraglottic prolapse and a secondary form of laryngomalacia. Furthermore, GER is often associated to respiratory tract disease13. It may result from severe pressure imbalance between the thorax and the abdomen caused by increased respiratory efforts. Saccular cysts cause respiratory distress and inspiratory stridor most often at birth. The cry may be muffled, and dysphagia may occur14. The diagnosis is suggested by a soft tissue lateral radiograph that shows a mucus-filled sac. Both computed tomography and MRI may be helpful in delineating the exact location and extent of the mass15. Primary diagnostic approach to laryngeal or vallecular cysts should be a flexible nasopharyngeal laryngoscopy or bronchoscopy. CT and MR imaging often help narrow the differential diagnosis such as lingual thyroid, proximal cystic dilatation of the thyroglossal duct, lymphangioma or hemangioma, dermoid cyst, lipoma, fibroma, or carcinoma. A good airway must first be secured prior to definitive management16. The classical treatment for saccular cysts is endoscopic surgery. In 1978, Hölinger et al proposed that the cyst contents should be removed by suction. Given the high rates of cyst recurrence, some authors advocate cyst endoscopic marsupialization with or without stripping of the cyst lining17. Simple aspiration of the cyst is not advised without use of its high recurrence rates. Although surgical removal may be the treatment of choice, other modalities such as endoscopic marsupialization, excision, and deroofing of the cyst have been recently developed.
Marsupialization under general anesthesia is a safe and definitive procedure, especially when performed by CO2 laser. Large saccular cysts occasionally require an external approach. There are reports of using carbon dioxide laser for the marsupialisation of the cyst but the facility is not available widely. Vallecular cysts, such as in this case, can be a disease presenting with serious symptoms and resulting in death. Therefore, if upper-airway problems are suspected, it is necessary to examine with careful laryngoscopy.

References:
7. Gary D. Shakelford congenital laryngeal cyst 1976; 114 (2).