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VALLECULAR CYST: NAVIGATING THE LARNGYEAL LANDSCAPE

Paediatric Surgery

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ABSTRACT

The vallecular cyst is a rare cause of stridor, respiratory distress, and failure to thrive in pediatric age group.. Complications such as life-threatening airway obstruction can be due to large vallecular cysts. This report is of a patient who presented with stridor and failure to thrive. The patient's condition was diagnosed using flexible laryngoscopy. Transoral laser assisted surgery was done. This case report serves as a reminder for clinicians to consider vallecular cysts as a differential diagnosis of stridor and failure to thrive in infants. Early diagnosis and management lead to favorable clinical outcomes.

KEYWORDS

Vallecular cyst, Stridor, Failure to thrive

INTRODUCTION:

A vallecular cyst is a mucous retention cyst that forms between the tongue base and the lingual surface of the epiglottis. It constitutes 5-10% of benign laryngeal cyst. Although benign, it possess challenge to parents, patient and clinician. The vallecula is a depression between the pharynx and larynx and can cause life-threatening airway obstruction especially in the paediatrics age group. This critical anatomical location makes the surgical access for excision a difficult task. Trans-Oral Laser-Assisted Surgery (TOLS) is one of the surgical modalities for the treatment of vallecular cyst.

Case Presentation:

A 1 year and 2-month-old male child was referred with complaints of noisy breathing and failure to thrive with multiple admissions for Lower Respiratory Tract Infection. On examination, vitals were stable and there were no dysmorphic features. He had inspiratory stridor while the child is asleep with suprasternal and subcostal recession and tachypnoea. A provisional diagnosis of laryngomalacia was made. The child was optimised before surgery for gross malnutrition by starting on nasogastric feeds for 2 weeks. Antibiotics and nebulisation was initiated. A flexible fiberoptic bronchoscopy was done which revealed a cystic mass at the base of the tongue which was obstructing the laryngeal inlet and was pushing the epiglottis.

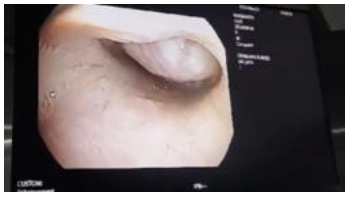


Fig.1 – Flexible endoscopy suggestive of cyst in vallecular fossa

99 m technetium (Tc) pertechnetate scan was performed. Both lobes of thyroid gland were normally placed. No abnormal tracer uptake was seen in the swelling at the base of the tongue.

Fig. 2- 99M- TC – thyroid scan

T3, T4, and TSH levels were also found to be within normal limits.

Excision of cyst done using transoral endoscopic access. Nd Yag laser was used for dissection of cyst from surrounding.

Fig 2- Intraoperative photo with 30 degree scope insertion with tongue retraction

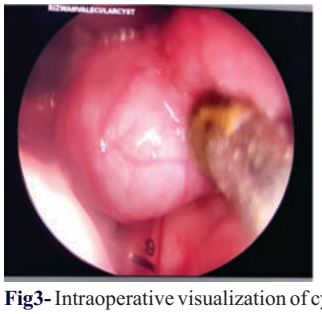
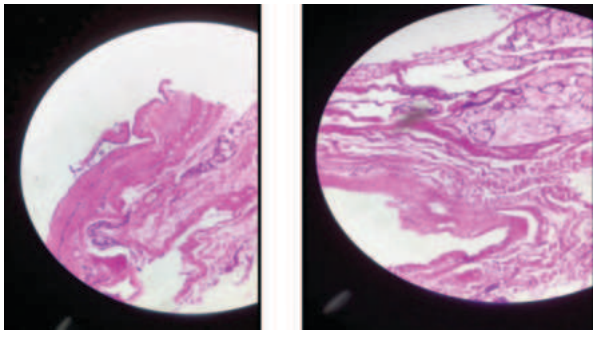


Fig3- Intraoperative visualization of cyst
Fig4- Intraoperative post excision of cyst

Fig 5 Specimen of cyst post resection

Postoperative care was uneventful.

Histopathology report was suggestive of cystic structure lined by flattened cuboidal epithelium which is stratified. Wall of cyst shows fibrocollagenous tissue with lobules of skeletal muscle fibres and few scattered blood vessels. Tiny focus of stratified squamous epithelium is also noted. One of the bit shows mucus gland intermingled with skeletal muscle fibres. Features consistent with Vallecular cyst.



DISCUSSION:

Vallecular cyst is a benign cyst of larynx which lies between the base of tongue and lingual surface of epiglottis. It is a rare entity with incidence ranging from 1.82 to 3.49 per 100 000 live births.[8] It constitutes 5-10% of benign laryngeal cyst. Vallecular cyst is also labelled as mucus retention cyst, epiglottic cyst, base of the tongue cyst, congenital cyst, and more recently ductal cyst[4].

Although a rare entity can cause sudden airway obstruction. It commonly presents with inspiratory stridor, chest retractions, apnea, cyanosis, and feeding difficulty. Also these patients have secondary laryngomalacia due to altered airway dynamics caused by progressively enlarging cyst which cause increased inspiratory negative pressures, contributing to supraglottic prolapse. Complications can occur with superadded infections.[6]

It is usually a unilocular cyst arising from the lingual surface of epiglottis containing clear and noninfected fluid. Two major acceptable theories for its pathogenesis include ductal obstruction of mucus glands or embryological origin.

Histopathologically it is lined by respiratory epithelium. It is the gold standard diagnostic tool for vallecular cyst. Newman histological classification of intralaryngeal cysts classifies the cysts into three types: epithelial/ductal, tonsillar/lymph-epithelial and oncocytic[5]. This classification reflects the pathogenesis of cysts. While the epithelial and tonsillar are the commonest with good local control, the oncocytic type of intralaryngeal cysts is associated with a high recurrence rate and hence laryngoscope surveillance is recommended for detection of recurrence.

Flexible endoscopy serves as diagnostic and treatment modality. Differential diagnosis includes vallecular cyst, thyroglossal remnant, lingual thyroid and Thyroglossal duct cyst, Lymphangioma. Thyroid scan to be performed to rule out thyroid tissue.

Access to the cyst is surgically challenging due to its anatomic location and relation. The anaesthetic concerns are difficult airway due to distorted anatomy, difficulty in maintaining the depth of anaesthesia, risk of rupture of cysts during intubation leading to aspiration and hypoxia and postoperative laryngomalacia.[7] It is a surgical entity with local excision as primary treatment. However marsupialisation is also an option. Aspiration if attempted should be followed by excision as there are high chances of recurrence.

Haemangioma, cystic hygroma, teratoma, hamartoma, dermoid cyst, lymphangioma, thyroglossal duct cyst, and thyroid remnant cyst should be considered in the differential diagnosis of vallecular cyst. A Ganglioglioma[1] in the nasopharynx should be differentiated from nasopharyngeal cephaloceles, Rathkes pouch cyst[2] and branchial cleft cyst[3], Tornwaldt's cyst, adenoid mucous retention cyst, juvenile nasopharyngeal angiofibroma, rhabdomyosarcoma, and nasopharyngeal carcinoma, although these diseases are rare in the neonatal nasopharynx. The first four are the most common benign tumours of the nasopharynx in children, while rhabdomyosarcoma and nasopharyngeal carcinoma are the most common malignancies

CONCLUSION:

Vallecular cysts can cause feeding difficulties due to upper airway obstruction and pressure at the laryngeal inlet. Diagnostic work-up for vallecular cysts should include a detailed medical history, complete head and neck examination including endoscopic examination, and appropriate imaging, as each of these components complements the diagnosis. Surgery is the treatment of choice for symptomatic patients;

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