

Supraglottic Swelling: A Case Report

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Abstract: Supraglottic laryngeal cysts are benign lesions and uncommon. Few studies have reported that on rare occasions it has the potential to produce airway disturbances and thereby it can be life threatening. Therefore with proper assessment in the preoperative stage and good anesthetic as well as surgical management, all complications and morbidity can be prevented. In this case, a patient came to the casualty with an emergency tracheostomy in situ, done an hour back. It was done as the patient who had come to the OPD, suddenly developed severe stridor when direct laryngoscopy was attempted.

Keywords: Endoscopic excision, Pediatric, Supraglottic cyst, Surgical emphysema, Tracheostomy

INTRODUCTION

Laryngeal saccule is a tubular or conical membranous sac, placed between the ventricular fold and the inner surface of the thyroid. It is thought that the walls of these saccules contain many mucous glands that lubricate the vocal folds. Blockage of this secretion results in formation of cyst (retention cyst) [1]. About 25% of laryngeal cysts are saccular cysts. Few fluid filled dilatations of the laryngeal saccule are also present but they do not communicate with the laryngeal lumen. In contrast laryngoceles are uncommon congenital anomalies formed due to fluid or air filled dilatations of the laryngeal saccule that communicate with the laryngeal lumen.

Laryngoceles may be congenital or acquired; it is seen in glassblowers because of continuous forced expiration that increases pressure in the larynx that produces dilatations of the laryngeal saccule. Laryngocele is also present in people with chronic obstructive airway diseases.

CASE REPORT

A 6years old girl was referred with a tracheostomy done on an emergency basis for a case posted for direct laryngoscopy under anesthesia.

She had complains of change in voice for the last 2-3years, difficulty in breathing over the last 2 years which used to subside with medication at the local hospital. She was posted for direct laryngoscopy under anaesthesia. All the pre-operative workup was done.

The attending anaesthesiologist informed us that it was difficult to visualize the glottic opening and with difficulty a 2.5 size portex oral endotracheal tube was placed. With this, saturations were dropping to 35-40%. To avoid further deterioration an emergency tracheostomy was done and shifted to our centre for further care.

At our centre, within two hours of surgical intervention she presented with inadequate respiratory efforts. On examination, subcutaneous crepts were present involving the whole of thorax and the neck. She also had an episode of cardiac arrest and was successfully revived. Patient was put on ventilator on SIMV mode over next 16 -20hrs. Gradually patient was weaned over the next 24 -36 hours to T-piece with oxygen at 2L/min. The girl was conscious and hemodynamically stable.

A CT-Scan of head / neck and thorax revealed a "supraglottic cyst measuring 3x3cms almost occluding the glottic opening, just proximal to the vocal folds". Patient's relatives were counseled regarding the diagnosis, treatment options, mortality and morbidity (outcome) with respect to the supraglottic cyst. Consent was taken. Over the next 12 hours, patient was prepared for excision of cyst. She weighed 23Kgs. A pre-operative work up was done with the tracheostomy in situ. Evaluation for concurrent anomalies, syndrome or congenital heart defects was done. Chest X-ray was done to exclude the presence of residual emphysema or chest infection.

Patient was pre medicated with Inj Atropine 40µg/kg; Inj midaz 0.05 mg/kg; Inj fortwin 0.6mg/kg. Patient was induced with Thiopertone 3-5 mg/kg paralyzed with Atracurirm 0.5mg/kg. The patient in operation theatre was maintained with oxygen, Nitrous oxide and Isoflurane. Rose's position was given. The cyst was visualized but with difficulty requiring another assistant to use a longer blade (size3) laryngoscope to visualize it successfully. The cyst was marsupialised so that the glottic opening and vocal folds could now be visualized. (An endoscopy would have made the surgical approach easy). She was reversed with Inj Neostigmine 20µg/kg and Inj Glycopyrolate 20µg/kg. Post-operatively patient was shifted to ICU, weaned gradually to room air. The tracheostomy tube was removed on the 4th post operative day and patient was discharged on the 6th day



Fig. 1: Partial occlusion of larynx by cyst

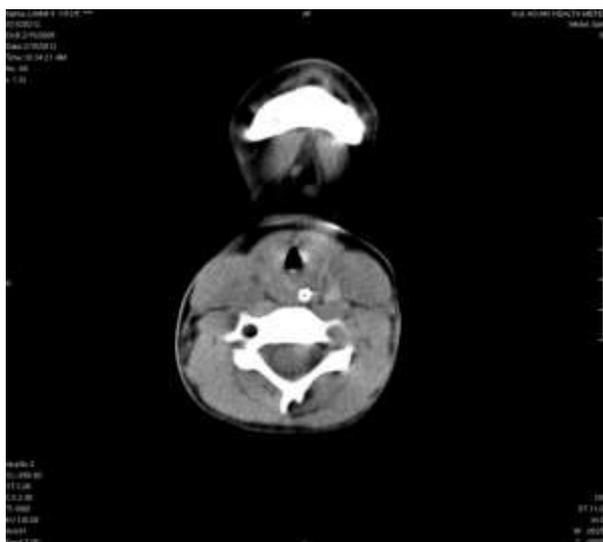


Fig. 2: Almost complete occlusion of supraglottic area by cyst



Fig. 3: Tracheal opening with tracheostomy tube cuff visible

DISCUSSION

Stridor is a high-pitched breath sound produced due to turbulent air flow in the larynx. It is an audible symptom caused by an obstructed or narrowed airway. It is of two types namely inspiratory and expiratory or biphasic stridor. Inspiratory stridor is either due to supraglottic or glottic obstruction but biphasic stridor represents sub-glottic obstruction. It indicates serious airway obstruction from severe conditions like epiglottitis, laryngeal tumour or a foreign body lodged in the airway. Stridor is considered as one of the most important symptom of airway obstruction in the pediatric age group patient [2].

Patient came to us in a debilitated state with an emergency tracheostomy in situ; unfortunately developing surgical emphysema, which was taken care of meticulously [3].

Consideration in patients with a supraglottic cyst

- Detailed history prior to any anaesthetic intervention was revealed to the anaesthetist so that the potential difficulties with respect to intubation as well as ventilation can be planned and managed especially after administration of muscle relaxants.
- CT scan and MRI are very useful in delineating the location of the lesion and its extent [4].

Direct laryngoscopy was done by fiberoptic (transnasal) laryngoscopy [5, 6], regarded as gold standard [7].

Information thus collected, served as guidance for the extra care required to avoid damage to neighbouring structures.

Preparation to be made based on history / imaging studies about requirements and management of difficult airway. Maintenance of oxygenation via cricothyrotomy, tracheostomy or even cardiopulmonary bypass may be required in extreme cases [8]. A case of "ball-valve" obstruction was reported in an anesthetized patient with supraglottic mass [9]. Another case of a total airway obstruction was also reported during local anaesthesia in a "non-sedated" patient with compromised airway [10], which was seen in our case in OPD only.

Management of laryngeal cyst include:

- Immediate securing of airways in patients especially with severe respiratory obstruction
- Cyst removal.

An option to either choice endoscopic removal (cyst excised or deroofed, marsupialized) or external approach (as laryngo-fissure or lateral cervical approach) exists. Endoscopic removal is considered as the treatment of choice, were as external approach is known for recurrence [6, 11]. Endoscopic de-roofing is a very simple procedure and results in effective cure without recurrence [6]. Cheng *et al.* reported that a big needle was used to aspirate the fluid content of the mass to facilitate in visualizing the vocal cords [10]. This is dangerous approach as it includes the risk of lung aspiration, increased recurrence rate and produces difficulty in locating the cyst margin during future surgery. The use of a laser de-bulking was reported by Paleri *et al.*, which demands the highest level of co-operation between surgeons and anaesthetists as a viable option to tracheostomy in patients suffering from malignant upper airway obstruction [12]. Carbon-dioxide laser serves as another substitute for excision of the cyst [5]. At the end of the operation, structures are usually better defined and extubation can be less eventful than intubation in maximum cases [8]. Post operative management is usually uneventful with clearance of the airway.

CONCLUSION

To conclude, the airway management of supraglottic mass was traditionally secured through tracheostomy. The Fiberoptic bronchoscopy serves as a safe technique to secure the airways. It also helps in the intubation of trachea that has an excellent outcome and limits hospital stay.

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