*Case Report*

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# Anaesthetic Challenges in a Child Presenting with A Large Epiglottic Cyst for Excision

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**Abstract**

Laryngeal cysts are relatively rare benign lesions that represent approximately 5% of benign laryngeal lesions.1 Though benign, they can present with severe respiratory obstruction. We present one such rare case in a child aged 6yrs presenting with a large epiglottic cyst highlighting the anaesthetic challenges related to management of the airway in this age group. Fiberoptic intubation was planned in our case keeping all the necessary equipments in case of airway crisis.

**Keywords:** Dysphagia; Loss of appetite; Large epiglotic cyst; Fiberoptic bronchoscopy.

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## Introduction

Epiglottic cysts are benign lesions in the larynx. Although benign its size and location may result in airway complications.[1] These cysts are often located on the lingual surface of the epiglottis. The diameter of the respiratory tract is smaller in infants and children, hence an epiglottic cyst may easily obstruct the airway in this age group, and sufficiently large cysts may present with stridor, inability to feed, respiratory distress, and have the potential to be life threatening. We report the anaesthetic management of one such case of a child presenting with a large epiglottic cyst which was planned for surgical removal.

## Case Discussion

A 6yr old child weighing 15kgs presented to us with history of odynophagia and dysphagia, resulting in loss of appetite since almost a month child had no other comorbidities parents gave history of occasional snoring when asleep, however there was no history of disturbed sleep for the child due to snoring. There was no history of change of voice or noisy breathing.

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On clinical examination – child was around 15 kgs, there was no pallor, icterus, edema, clubbing, lymphadenopathy, cyanosis. Vitals were stable, room air saturation was normal. On examination of oral cavity the tonsils were enlarged and there was a cystic lesion behind the posterior part of the tongue,uvula and faucial pillars could not be visualized. Blood investigations were within normal limits. CT scan showed a well defined smoothly marginated non-enhancing cystic area in the region of the tongue extending as follows-

1. anteriorly,seen in close relation to the base of the tongue and bulging towards the bilateral vallecular regions(L>R)
2. laterally,in contact with the lateral wall of the pharynx on the left side,with no parapharyngeal extension appreciated.
3. Posteroinferiorly, indenting the epiglottis and reaching till the posterior wall of the oropharynx, with narrowing of the pharyngeal lumen.

Concerns in the above case was airway collapse following anaesthetic induction and chances of rupture of cyst during conventional laryngoscopy and thereby aspiration of the contents of the cyst. Hence fiberoptic intubation was planned. Also an emergency tracheostomy kit was kept standby as a part of difficult airway cart.

22g iv cannula was secured after applying prilocaine local anaesthetic 45 min prior and anaesthetizing the area of iv cannulation. Ringer lactate was started at 50 ml per hour.

Preoperatively child's airway was anaesthetised with lignocaine (2%) 3ml by giving nebulization of the same 15 mins prior to shifting the child to operating room.

Child was premedicated with inj glycopyrolate 0.15mg iv since fiberoptic bronchoscopy was planned.Regarding sedative premedication, care was taken to avoid deep sedation because of anticipated difficult airway. Inj midazolam 0.05mg/kg was given. child was then shifted to operating room.monitors inclusive of pulse oximeter, ECG, NIBP were attached. Oxygen via nasal prongs was started at 2 lts/min. Dexmeditomidine infusion was started at 1 mcg/kg and child was slowly induced with propofol aliquots of 5 mg, maintaining spontaneous breathing. Fiberoptic intubation was performed gently making sure cyst doesn't rupture. The scope was passed beside the cyst gently and the cords were visible, once inside the cords, after confirming the tracheal rings, a 4.5 size flexomettalic endotracheal tube was gently threaded and secured in position after confirming correct placement. Just prior to entering into the cords, a bolus of 15 mg propofol was given intravenously to avoid coughing on the tube. Child was now relaxed with inj atracurium at the dose of 0.1 mg /kg. Sevoflurane was started keeping a MAC of 1,with oxygen and air (1:1). Dexmeditomidine infusion was tapered and stopped. Throat was packed. Warming blanket was put over the child .inj paracetomol at 15mg/kg was given and inj fentanyl at 1mcg/kg aliquots as per the response to incision was given.inj dexamethasone was given in the dose of 0.1mg/kg. Ringer lactate intravenous fluid was continued according to holiday segars formula. The epiglottic cyst was removed in toto,haemostasis was achieved. At the end of the surgery thorough suctioning was done and throat pack was removed, child was reversed after adequate efforts and extubated. Child was put in lateral position and shifted to recovery room where oxygen was started at 5 lts per min and SPO2, ECG, NIBP was attached. The entire procedure went on uneventfully.

## Discussion

The challenges encountered in this case was the age of the patient, preparedness for management of airway obstruction on induction of anaesthesia, and the risk of cyst rupture during intubation and soiling of the airway. Hence atmost care was taken taking into consideration the following above aspects. Since the cyst was a huge one obscuring the view of larynx and posterior pharyngeal wall, possibility of passing the fiberoptic bronchoscope across the cyst without rupturing the cyst and visualization of the vocal cords was the biggest challenge. Unlike adults, children donot cooperate for an awake fiberoptic intubation, this was another challenge in this case because induction of anaesthesia would further collapse the already obstructed airway.

There has been a case report of congenital vallecular cyst presenting in a 3 mth old baby in which the airway could not be secured by conventional techniques, thus necessitating tacheostomy.[2]

Laryngeal cysts are relatively rare,benign lesions of the larynx that represent approximately 5% of the benign laryngeal lesions.[1]

Laryngeal cysts are most often located on the lingual surface of the epiglottis and true vocal folds,but also found in the vallecula.[1,3] They are classified as congenital and acquired. Congenital

cysts cause airway obstruction at birth. Acquired cysts can occur at any age but most likely in the 6th decade.[1]

Most of the epiglottic or vallecular cysts are assymptomatic, but common symptoms include globus sensation, voice change and dysphagia.[3]

Cysts of vallecula (space between the base of the tongue and epiglottis) are frequent, often asymptomatic and mostly donot require particular treatment. In contrast epiglottic cyst harvest a bigger risk of impairing the airway, particularly when they are infected and removal is advised.[4]

Large, symptomatic cysts are often treated surgically via direct laryngoscopy or endoscopic visualization and excision with cold instruments, cautery, microdebrider or $CO_2$ laser.[5] Epiglottic cysts can present from severe airway obstruction in newborns to completely assymptomatic cysts that are incidentally found during induction of anaesthesia causing difficulty to ventilate and intubate. Awareness of structural airway abnormalities (ie, cysts or masses) and prompt direct visualization with prepared anaesthetic and surgical plan is important in treating airway anomalies.

## Conclusion

Epiglottic cysts presenting in the paediatric age group is a challenge to the anaesthetist in terms of airway management. Risk increases with increase in size of the cyst, smaller age group and with acute presentation as in the case of an infected cyst. A thorough preoperative evaluation and meticulous planning of anaesthetic management with backup plan for airway crisis management is essential for the success of these cases.

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