

# UNRECOGNIZED EPIGLOTTIC CYST WITH DIFFICULT INTUBATION: A RARE CASE.

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## Abstract:

Non diagnosed intraoropharyngeal abnormalities or pathologies such as epiglottic cystic mass may result in unanticipated difficulty in mask ventilation (MV) and endotracheal intubation. Epiglottic cyst is a benign cyst with unknown etiology. It is a rare presentation in adults and may mask the view for airway intubation. We report a case of 54 years male with an epiglottic cyst, planned for open cholecystectomy with difficult mask ventilation and intubation. We detail the methods and strategies for successful endotracheal tube insertion. We also discuss Airway management options in adult patients with epiglottic cysts discussed after following a review of the current literature.

**Keywords:** Epiglottic Cyst, Endotracheal Tube, mask ventilation

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## Introduction:

Epiglottic cyst is a benign cyst with unknown etiology. It is a rare presentation in adult and may obscure view for airway intubation. . They may be accompanied by acute airway obstruction by nature of their location. Laryngeal cysts have been previously reported in the anesthesia literature.<sup>1</sup> Laryngeal cysts have been studied and classified by site, size, contents, and relation to the laryngeal mucosa. Ductal cysts - or mucous retention cysts - are the most common type of laryngeal cysts, comprising 75% of cases. They may cause respiratory symptoms by enlarging the aryepiglottic fold.<sup>2,3</sup> Ductal cysts are usually small, approximately 1-5 mm in diameter and they are often asymptomatic.<sup>2</sup> They are usually only discovered incidentally at the time of routine otolaryngologic examination or at postmortem examination.<sup>1</sup>

The exact incidence of laryngeal cysts is unknown but it is estimated to be low.<sup>3</sup> there is no gender predominance and may occur at any age but a greater prevalence in the fifth and sixth decades has been observed. The most common location of ductal cysts is on the true vocal cords. The second most common site is in the vicinity of the epiglottis - on its lingual surface or in the vallecula itself.<sup>2,3</sup> Although they are usually asymptomatic, they may occasionally cause symptoms of stridor and failure to thrive, cough, dysphonia, foreign body sensation and dysphagia.<sup>4</sup> Prompt anticipation of difficult airway is important to reduce morbidity and mortality. Following the guidelines for unanticipated

difficult airway helps us to overcome these stressful situations. The feasibility and applicability of American Society of Anesthesiologists guidelines for difficult airway in case of unidentified epiglottic cyst are discussed.

### Case Report:

A 54-year-old male was posted for open cholecystectomy under general anesthesia. Our patient was not known case of diabetes mellitus, hypertension, COPD, and no history suggestive of obstructive sleep apnea. On preanaesthetic examination, the patient had normal built, with body mass index of 25.8. Airway was adequate with mallampati score was 2. B.P 126/82 mmhg. Spo<sub>2</sub> 98% at room air, ECG and chest x- rays were WNL. Base line investigation like complete haemogram, RFT And LFT all were normal. His height was 170 cm and weight was 83 kg. Air way assessment viz METS>4, TMD>6, MO>3FB, NM- Adequate. He had both normal mouth opening and neck extension. We did not observe any masses or distortion of the tongue or neck. A chest auscultation revealed normal sounds. He was partly edentulous and was an anticipated case of difficult MV and difficult airway equipment was kept ready. After premedication with injection glycopyrrolate 0.1 mg and injection fentanyl 100 µg, anesthesia was induced with titrated doses of propofol (100+20 mg) until the loss of eyelash reflex. MV was possible with two-handed technique and after insertion of the oral airway and injection scholine 80 mg given and there is gradual decrease in end-tidal CO<sub>2</sub> (EtCO<sub>2</sub>). and saturation spo<sub>2</sub> starting to drop but with jaw thrust maneuver, there was an improvement in the EtCO<sub>2</sub> and improvement of spo<sub>2</sub> and Laryngoscopy with McCoy size 3 showed a soft cystic sessile swelling approximately 1.25 cm × 1.25 cm arising from the lingual surface of epiglottis, causing the epiglottis to hang over the glottic aperture .It covered most of the epiglottis causing it to prolapse and partially obstruct the laryngeal inlet. During laryngoscopy it was difficult to visualize the glottis but after retracting the cystic mass away from glottis and BURP and external laryngeal maneuver the visualization of glottis was Cormack-Lehane Grade III. Intubation was done with a styletted 7 mm size endotracheal tube without rupture of the cyst. During intraoperative period brady arrhythmia and transient hypotension developed. Physician consultation was taken managed according to guideline. At the end of the procedure, neuromuscular block reversed and trachea extubated when fully awake. He was discharged with advice to consult an otorhinolaryngologist for further management of the epiglottic cyst.

### Discussion:

Epiglottic cysts are rare, mostly located on the lingual surface or vallecula and when sufficiently large may cause difficulty in MV and endotracheal intubation. A research work on this revealed case reports of preoperatively diagnosed epiglottic cysts in which airway management was properly planned. These reports highlighted the utility of Shikani's optical stylet,[1] lightwand,[2] rigid laryngoscopy,[3] and gum elastic bougie [4] in endotracheal intubation. In one undiagnosed cyst where in MV was possible, aspiration of the cyst was done prior to intubation.[5] The use of laryngeal ultrasound in the diagnosis of epiglottic cyst has not been reported but may be considered if available. In prediagnosed epiglottic cyst, the airway management can be altered depending on the size of the cyst. As per the American Society of Anesthesiologists' Practice Guidelines [6] for Management of a difficult airway, awake intubation methods are the first choice for securing the airway. Airway blocks should be attempted with care to avoid rupture of the cyst internally. Maneuvering the fiberoptic bronchoscope beneath the epiglottis cyst may require the use of laryngoscope to insert the bronchoscope as well as the endotracheal tube. Aspiration of the cyst before posting for the surgery is a feasible alternative. However, patients with undiagnosed epiglottic cyst may present with difficulty at any stage of airway management. In our case, mask ventilation (MV) after administration of muscle relaxants was more difficult. Even without muscle relaxation, deep sedation alone can result in laryngeal obstruction. But the difficulty in MV was overcome with two-handed mask holding technique with maximal head tilt and providing additional jaw thrust (Grade III MV). Loss of the tone of epiglottis and tongue following muscle relaxation has possibly caused the cyst to fall back on the glottis resulting in laryngeal

obstruction. During intubation, the epiglottic cyst made the visualization of the glottis quite difficult. Manipulations of larynx such as optimal external laryngeal maneuver, BURP or side to side movement of larynx and positioning the patient to minimize the degree of dynamic obstruction [7] can be helpful in smaller cysts. The technique of inclusion of the cyst with Miller blade and activation of flexi tip with McCoy blade are size limited and carry a definite risk of rupture of the cyst. Rupture of the cyst and the subsequent spillage of fluid into the trachea can lead to airway spasm, closure of glottis, hypoxia, bradycardia, and even cardiac arrest. Fortunately, we could intubate the trachea by elevating epiglottis with McCoy laryngoscope, optimal external laryngeal manipulation, and a styletted endotracheal tube. But situation can rapidly deteriorate when a large laryngeal cyst produces a cannot ventilate and cannot intubate scenario. As per guidelines,[6] Supraglottic airway devices (SGAs) are recommended as alternative method in difficult air way management. But SGA may not be beneficial here as they have the potential for rupture of cyst and subsequent aspiration. So, Oxygenation then needs to be provided by either an emergency cricothyrotomy or tracheostomy.

Hence, we conclude that maintaining ventilation and oxygenation and preventing the rupture of cyst are important factors during the airway management of unsuspected epiglottic cyst.

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