Unrecognized epiglottic cyst: Cause of difficult mask ventilation

Sir,

Undetected intraoropharyngeal pathologies such as epiglottic cyst may result in unanticipated difficulty in mask ventilation (MV) and endotracheal intubation. 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.

A 60-year-old male was posted for transurethral resection of bladder tumor under general anesthesia. His history revealed snoring, daytime somnolence suggestive of obstructive sleep apnea. On examination, the patient was obese with body mass index of 34.9. Airway was adequate except for neck circumference of 47 cm. He was partly edentulous and was an anticipated case of difficult MV and intubation [Figure 1]. The anesthetic management plan was to intravenously (IV) induce anesthesia and paralyze if MV is possible or to insert a laryngeal mask airway. 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 thiopentone until the loss of eyelash reflex (total dose of 210 mg). MV was possible with two-handed technique and after insertion of the oral airway. Injection atracurium 40 mg was given IV following which there was increased difficulty in MV which manifested as gradual decrease in end-tidal CO₂ (EtCO₂). With another person for jaw thrust maneuver, there was an improvement in the EtCO₂. Laryngoscopy with McCoy size 3 showed a soft cystic sessile swelling approximately 1.5 cm × 1.5 cm arising from the lingual surface of epiglottis, causing the epiglottis to hang over the glottic aperture [Figure 2]. It covered most of the epiglottis causing it to prolapse and partially obstruct the laryngeal inlet. Activation of the flexitip was difficult but possible as portion of the cyst was covering the vallecula. BURP maneuver was tried with little success. With optimal external laryngeal maneuver and activation of flexitip, the visualization of glottis was Cormack-Lehane Grade III. Intubation was done with a stiletted 8 mm size endotracheal tube without rupture of the cyst. The intraoperative period was uneventful. 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.

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, lightwand, rigid laryngoscopy, and gum elastic bougie in endotracheal intubation. In one undiagnosed cyst...

Figure 1: Lateral view of patient in intubating procedure

Figure 2: Endoscopic view of the endotracheal tube, epiglottis, and the cyst. (1) Endotracheal tube, (2) Epiglottis, and (3) Epiglottic cyst
wherein 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 epiglottic 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, MV after administration of muscle relaxants was difficult. Even without muscle relaxation, deep sedation alone can result in laryngeal obstruction. The difficulty in MV was overcome with two-handed mask holding technique with maximal head tilt and an assistant providing additional jaw thrust (Grade III MV). Loss of the tone of epiglottis and tongue following muscle relaxation along with the effect of gravity 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 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 flexitip with McCoy blade are size limited and carry a definite risk of rupture of the cyst. Rupture of the cyst and the consequent spillage of fluid into the trachea can lead to airway spasm, glottic closure, hypoxia, bradycardia, and even cardiac arrest. Fortunately, we could intubate the trachea by elevating epiglottis with McCoy laryngoscope, optimal external laryngeal manipulation, and a stiletted endotracheal tube. The situation can rapidly deteriorate when a large laryngeal cyst produces a cannot ventilate and cannot intubate scenario. As per guidelines,\[^8\] Supraglottic airway devices (SGAs) are recommended in difficult MV situations. But, SGA may not be useful here as they have the potential for rupture and subsequent aspiration. Oxygenation then needs to be provided by either an emergency cricothyrotomy or tracheostomy.

We conclude that maintaining ventilation and oxygenation and preventing the cyst from rupture are critical factors during the airway management of unsuspected epiglottic cyst.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/ their consent for his/her/ their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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