Airway management of a near obstructive vallecular cyst in an infant

Sir,

Congenital vallecular cyst is a rare, benign condition but carries a potential threat of hypoxia and death if not managed appropriately.[1] It is associated with laryngomalacia in 90% of cases.[2] Airway management in these patients is very challenging because of difficult mask ventilation, laryngoscopy, supraglottic device insertion, and fiberoptic intubation.

A 3 –month-old male child weighing 5 kg presented with complaints of cough, noisy breathing, and chest retractions for the last 2 months. On examination, the patient was tachypnoeic and having decreased air entry, inspiratory stridor, and intercostal recession. X-ray was done, which showed a hyperdense protrusion above the epiglottis [Figure 1, Panel a]. Nasendoscopy showed a large vallecular cyst abutting the epiglottis, which was completely obscuring the view to the larynx [Figure 1, Panel b]. The laryngeal inlet was opening for less than a second when the patient was trying to cry [Figure 1, Panel c, Video 1]. Patient was posted for vallecular cyst excision under general anaesthesia.

Premedication was avoided in this patient due to the risk of airway obstruction in the preoperative room. Anticipating difficult airway, a backup plan of tracheostomy with the surgeon and resuscitation equipment was kept ready. Sedation was started with intravenous dexmedetomidine 1mcg/kg bolus over 10 min followed by an infusion at the rate of 0.5 mcg/kg/h. The patient was induced with sevoflurane with maintenance of spontaneous ventilation to achieve a minimum alveolar concentration (MAC) of 1 to 1.2. A nasopharyngeal airway of size 3 mm internal diameter (ID) was inserted from left nostril and anaesthesia circuit was connected to it with end tidal CO2 monitoring. Intubation was then tried from right nostril with a fiberoptic bronchoscope (FOB) of size 2.8 mm (outer diameter), loaded with a 3.5 mm ID cuffed endotracheal tube. However, the laryngeal inlet was not visualised due to falling back of the vallecular cyst under the effect of general anaesthesia. Maneuvers like jaw thrust and tongue pulling were tried during fibroscopy but in vain. Cyst aspiration was then done with 26 G Quincke spinal needle under light laryngoscopy. Plane of anaesthesia was maintained by achieving a MAC of 1.5 and depth of anaesthesia was monitored clinically by the variability of vital signs and immobility. After aspiration of 3 ml of cyst fluid, the laryngeal inlet was visible and we were able to intubate the trachea. After securing the airway, the cyst was marsupialised with cyst wall excision. Aryepiglottopexy was done in the same sitting to prevent laryngomalacia. After securing haemostasis, extubation was performed on table. Postoperative period was uneventful and the patient was discharged after 2 days.

Preoperative assessment of these patients is of utmost importance and should include a detailed history and examination to identify obstructive symptoms. Computed Tomography (CT) scan, Magnetic resonance Imaging (MRI), and nasendoscopy are valuable diagnostic methods to determine the size, location, and contents of the cyst to plan anaesthesia and surgical management. Prenatal diagnosis of vallecular cyst with ultrasonography and MRI has been reported and earlier diagnosis allows planning perinatal management. Various methods of securing the airway have been used in the past depending upon

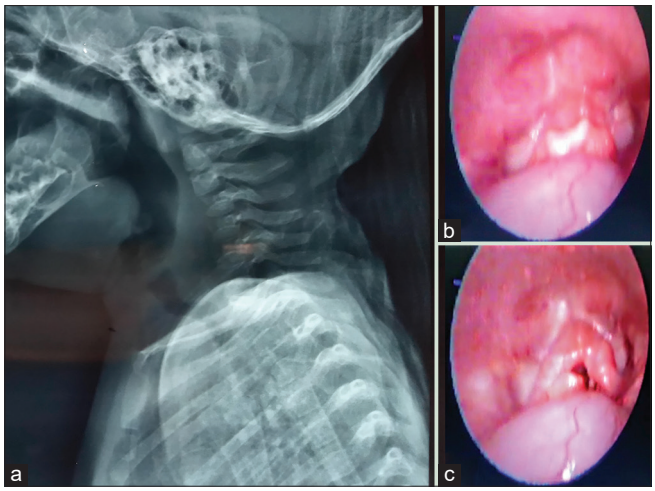

Figure 1: (a) X-ray neck showing hyperdense protrusion above the epiglottis, (b and c) Nasendoscopic view showing the glottic opening in the closed and open state

the size and location with varied success like rigid and flexible bronchoscope, video laryngoscopy, lightwand, retrograde intubation, and tracheostomy.[3,4] Awake fiberoptic intubation is the gold standard for these patients but can encounter hurdles due to cyst location and distortion of laryngeal anatomy.[4,5] Unlike the adult patient population, awake intubations are not practical for the majority of paediatric patients owing to their inability to cooperate.[6] In our case, fiberoptic under sedation was also difficult due to vallecular cyst abutting the epiglottis. We used cyst aspiration as our backup plan for intubation that was successful in our case. Cyst aspiration does carry the risk of pulmonary aspiration of cyst contents but can be life saving in difficult situations. Extubation in these cases should be done cautiously keeping in view the chances of airway oedema, bleeding, and laryngomalacia and can be delayed to avoid airway problems.

Planning individual cases according to the availability of equipment and expertise and a backup plan for airway crisis is the key to successful management.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patients has given his consent for his 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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