

## Short Clinical Report

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## Coblator assisted marsupialization of vallecular cyst

Pradeep Kumar,<sup>1</sup> Lakshmi Venkitaraman,<sup>\*2</sup>

1. Consultant ENT Surgeon, Department of ENT, EMC, Kochi, Kerala

2. Consultant ENT Surgeon, General Hospital, Kochi, Kerala

**Correspondence\***: Dr. Lakshmi Venkitaraman, MBBS, DNB ENT, Consultant ENT Surgeon, General Hospital, Kochi, Kerala. **E-mail:** [mimivenkit@gmail.com](mailto:mimivenkit@gmail.com)

## CASE PRESENTATION

A 45-day-old baby presented with respiratory distress, chest in-drawing, and stridor since birth. She was a full-term female baby with no dysmorphic features (Fig. 1A).



Figure 1: A) Preoperative picture of 45-day old baby with chest in-drawing, subcostal retractions and audible stridor. B) Postoperative 1 month picture depicting a completely recovered state.

The lesion was misdiagnosed elsewhere as laryngomalacia and spontaneous recovery were assured without intervention. Endoscopic evaluation was not done. The baby was brought to our center due to failure to thrive, feeding difficulty, repeated choking episodes, and worsening physical findings. Preoperative fiber optic laryngoscopy was done which revealed a cystic lesion at the vallecula obstructing the laryngeal inlet, pushing the epiglottis forward (Fig. 2). MRI scan showed a well-defined non-enhancing thin-walled cystic lesion measuring 14.8x14.2mm at vallecula and the diagnosis was confirmed (Fig. 3). Surgery was planned. Intubation was attempted but failed. The baby was tracheostomized before the procedure for ventilation, anticipating postoperative surgical site edema as well. Uncuffed tracheostomy tube size 3 was used. A direct laryngoscope straight blade with zero degree endoscope was held by the anesthetist to view the cyst and the EVAC-70 coblation wand was held in the right hand by the surgeon. The settings of the

coblator were maintained at 70-30, coblation and coagulation respectively. The wand was used in both coblator and coagulation mode based on need. The anterior cyst wall was completely removed by coblation, and the cyst was thus marsupialized.



Figure 2: Fiber optic laryngoscopy view of the cystic lesion at vallecula (star).

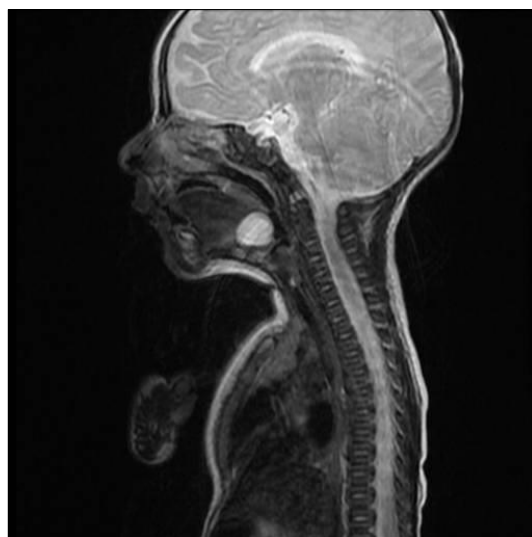


Figure 3: MRI Showing Cyst

Bleeding points were coagulated using the same wand. The child was attached to the ventilator immediately and was taken off on a postoperative day 1. The tracheostomy tube was closed on day 2 and

removed on postoperative day 3. Postoperative recovery was uneventful and the general condition improved considerably. Stridor completely disappeared on day 5 (Fig. 1B).

Trained nursing staff are an integral part of the Surgical NICU team. We need to train them and invest in their professional upliftment. These trained dedicated nurses should not be rotated to other wards. They should undergo periodic Continuous Nursing Education (CNE); the advantages of such training have been well validated previously. [16] Neonatal surgical care modules and curricula should be developed for them.

## DISCUSSION

Congenital laryngeal cysts are a rare but life-threatening condition in newborns as they present with stridor. [1, 2] The vallecular cyst is thought to occur as a consequence of either ductal obstruction of mucous glands or an embryologic malformation and presents as inspiratory stridor, respiratory distress, apnea, cyanosis, and hoarse cry. The majority of affected infants develop symptoms within the first week of life. [3] One of the commonest presentations at this age is laryngomalacia which usually resolves without any intervention. Flexible fiberoptic endoscopy is the most helpful tool in the diagnosis of vallecular cysts as it enables a dynamic assessment of the airway, helping the surgeon to assess management and postoperative complications. MRI is the radiological test of choice as it helps to determine the dimensions. Direct laryngoscopy under general anesthesia is the key to confirming the diagnosis as well as further management. A high index of

suspicion is needed as neonatal airway presentations can be challenging.

Endoscopic marsupialization with coblator assistance is the key to surgical technique as the coblation wand itself produces very less thermal energy and hence minimal tissue damage. Coblation is a newer technique where a controlled plasma field is created which helps in removing tissue in a very precise manner. It produces very minimal thermal damage and hence minimal soft tissue edema. Temperatures are between 40 °C and 70 °C with thermal penetration of fewer than 1100 µm. [4] When dealing with pediatric airways, the postoperative period can be as challenging as the procedure itself, hence smooth recovery is much needed. Coblation being a technique with minimal postoperative edema enables early extubation and recovery. Endoscopic-assisted coblation of congenital vallecular cyst is a safe procedure. It is quick, precise, and bloodless. There is no edema or charring post-operatively. The wand tip itself gives us precise cutting with the advantage of coblation and coagulation in the same setting. Smaller cysts that allow easy intubation can be managed without tracheostomy.

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