Anesthesia challenges for emergency surgery in a pediatric patient with congenital laryngomalacia

Sir,

The genesis of congenital laryngomalacia has been enigmatic. Being the most common cause of congenital stridor, it is generally associated with various anomalies. Severe airway obstruction can be seen in 22q11.2 anomaly along with laryngomalacia.[1,2] Inherited associated anomalies may pose an additional constraint on anesthetic management and require a holistic approach. Airway obstruction in such cases increases the intrathoracic pressure leading to reflux disorders, which further aggravates the symptoms.[3,4]

An 11-month-old infant weighing 6.5 kg referred to our tertiary care center with a history of a fall on a sharp object with 2–3.5 cm vertical laceration of the nose along with nasal septal cartilage injuries for repair. The patient was a known case of congenital laryngomalacia with inspiratory stridor which decreases on being prone. On examination, bilateral crepitations were present in both the lung fields with mild inspiratory stridor and heart rate of 126/min. Fasting status was confirmed. Antireflux prophylaxis and antisialagogue were administered. The patient was shifted to the operating room after obtaining informed consent from the parents. Standard monitoring ensued. In view of the blood trickling from nasal cartilage into the postpharyngeal wall, gentle oral suctioning was done followed by Plan A, i.e., inhalational induction with 6%–7% sevoflurane and 100% oxygen while maintaining the spontaneous respiration in the lateral position with head low to prevent aspiration of the blood. Difficult airway cart was kept ready with the tracheostomy set as Plan B. Intravenous (IV) access was secured followed by fentanyl 2 μ/kg IV Mask ventilation was ascertained and check video

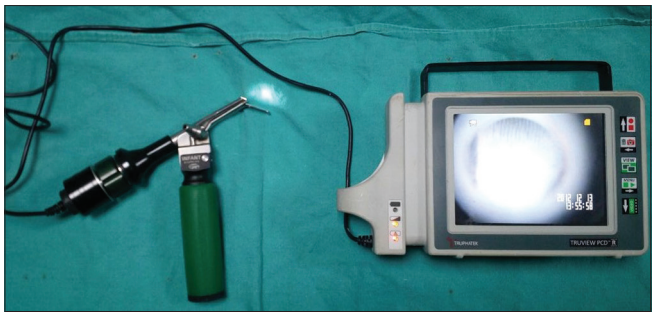

Figure 1: True view Videolaryngoscope used in the case

laryngoscopy with Truview video laryngoscope (Truview PCD™ video laryngoscope [TVL], Netanya, Israel) [Figure1] revealed a Cormack and Lehane Grade 3 of glottis. Local anesthetic spray (lignocaine 10%) of the upper airway was done to facilitate smooth intubation. TVL-guided intubation with size 4.0 micro-cuffed endotracheal tube was achieved using optimal external laryngeal manipulation in the left lateral position, and injection rocuronium 1 mg/kg was administered. Maintenance was done with oxygen, air, and sevoflurane targeting the minimum alveolar concentration (MAC) of 1.2. Intraoral packs were placed after making the infant supine. On resumption of the spontaneous breathing at the end of surgery, sevoflurane was reduced to target MAC of 1.0 to prevent emergence delirium and IV dexmedetomidine 0.5 μg/kg bolus was administered 10 min before the culmination of surgery. The patient was reversed based on the train of four patterns on peripheral nerve stimulator and extubation done gently in deep plane of anesthesia under video laryngoscope guidance. Perioperative period was uneventful with no airway event, and the infant was shifted to Pediatric Intensive Care Unit for observation.

Children with laryngomalacia frequently have an easily recognizable difficult airway, making the conventional methods of securing the airway difficult. The altered anatomy may require urgent tracheostomy for securing the airway. Fiber-optic intubation technique is the gold standard; however, in view of nasal cartilage injury with ongoing bleeding, it was obviated in our case. Inhalational induction while maintaining the spontaneous respiration as being a safer option was adopted.[4] Intubation was difficult with associated large overhanging epiglottis, redundant arytenoid tissue, and the inspiratory stridor. TVL was utilized and successfully attempted in the lateral position firstly due to stridor which increased on being supine and secondly due to the ongoing trickle of blood from the nasal cavity. All precautions were taken to extubate infant in deep and spontaneously breathing without invoking any adverse airway event. Extubation should incorporate an effective comprehensive plan to prevent cannot intubate and cannot ventilate situation. This was made possible by the administration of the bolus of dexmedetomidine an alpha-2 agonist just before the completion of surgery by preventing the unwarranted emergence delirium after sevoflurane use. Di *et al*. utilized dexmedetomidine to facilitate smooth extubation in children posttonsillectomy, utilizing its sedative, analgesic, and properties to minimally affect the airway reflexes.[5]

The anesthetic management of patients with laryngomalacia utilizes a multiprong approach by having a robust strategy to deal the anticipated difficult airway, maintaining the adequate depth of anesthesia, preferably extubating deep with spontaneous breathing and vigilant monitoring perioperatively, which could translate into a favorable outcome.

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Conflicts of interest

There are no conflicts of interest.

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