Cannot intubate and cannot ventilate scenario in an infant for airway assessment

Sir,

Cannot intubate and cannot ventilate scenario, in general, is rare, especially in infant age group, but results in calamitous events if it occurs. Here, we report the management of a case of cannot intubate and cannot ventilate in an infant with a history of stridor.

Case

A 6-month-old girl was brought by an ambulance to our tertiary care hospital with difficulty in breathing and severe stridor. It was decided to perform airway assessment by ENT surgeon to determine the possible causes of stridor due to failure of improvement despite maximum medications given by pediatrician. Preoperative assessment showed an infant with mixed stridor requiring about 4 L of oxygen to maintain oxygen saturation above 90%. Suprasternal and intercostal recessions with conducted sounds could be heard on the chest. Chest X-ray was normal. No premedication was given and she was shifted to the operation theatre.

Supraglottic airway assessment was done awake with topical anesthesia using flexible fiberoptic endoscope which was normal. Subglottic endoscopic examination was decided under general anesthesia. She was induced with sevoflurane to maintain spontaneous ventilation for dynamic airway assessment. The spontaneous ventilation was assisted with great difficulty after loss of consciousness. The ENT surgeon used pediatric rigid endoscope. It revealed subglottic mass occluding 90% of the area, and it was not possible to bypass the mass with the smallest endoscope available (size 2.7 mm) [Figure 1]. The infant started to desaturate after endoscopic manipulations with difficulty to ventilate. Intubation failed with the smallest tube size 2. Ventilation was tried but was not effective. The saturation and heart rate started to drop with the scenario of cannot intubate and cannot ventilate. Atropine was given and external cardiac massage started as saturation dropped to less than 50% and heart rate fell to less than 60 beats per minute. Emergency tracheostomy was done successfully in 7 min and saturation improved to 99%. Infant regained consciousness and spontaneous breathing. Computed tomography was done which revealed a small hypodense area measuring 0.5 cm in diameter in the region of glottis. LASER marsupialization of the subglottic cyst was done successfully after 2 days from emergency tracheostomy.

Unfortunately, there is no definitive algorithm to follow for difficult airway in case of patients aged less than 1 year of age. Difficult airway society (DAS) published algorithm of cannot intubate and cannot ventilate in a paralyzed anesthetized child aged 1–8 years in 2015.[1]

In the present case, we skipped insertion of supraglottic devices, percutaneous transtracheal jet ventilation (PTJV), rigid bronchoscopy ventilation, and percutaneous cannula cricothyroidotomy (PCC) for different reasons. Supraglottic devices cannot be used due to distal mechanical obstruction. PTJV is relatively contraindicated due to near total airway...
obstruction below vocal cord. In addition to risk of serious complications such as air embolism, extensive cervical emphysema, pneumothorax, and damage to the esophagus occur if jet ventilation is tried with misplaced cannula. Rigid bronchoscopy ventilation was impossible as the smallest endoscope of size 2.7 mm could not bypass the mass. PCC is not easy in infants. Moreover, it is challenging to obtain a proper angle to insert PCC without the risk of perforation of posterior tracheal wall. Emergent tracheostomy should be considered as the first step if an ENT surgeon is available.

The management of cannot intubate, cannot ventilate scenario needs vast experience in airway assessment, unshaken confidence, with extreme cooperation between anesthetists and ENT surgeons.

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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