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CORRESPONDENCE REMOTE ANESTHESIA

Navigating complexities: anesthetic management of infants with laryngotracheomalacia in the MRI suite

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SUMMARY

Anesthesia in remote places has multiple associated complexities and the problems. The most compelling challenge is airway management in a poorly equipped and poorly staffed place, especially if pre-assessment indicates difficult airway in young children. The authors write about airway management in an MRI suite for a child with multiple respiratory system anomalies.

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Malacia is abnormal softening of a biological tissue, most often cartilage. The word is derived from Greek μαλακός, malakos = soft. Malacia of the airway can occur in larynx, trachea, bronchi, namely *laryngomalacia*, *tracheomalacia* and *bronchomalacia* respectively. These are the most common congenital abnormalities of the pediatric airway leading to increased airway compliance and hence excessive dynamic collapse during respiration.[1]

The symptoms improve as the child reaches 1 or 2 years of age.[2] Laryngomalacia is the most common cause of stridor in infants and worsens during feeding, supine position and agitation; and hence leads to failure to thrive.[3] Management of the airway in these infants is challenging due to the risk of airway obstruction. Patients with congenital anomalies and structural airway anomalies pose a higher risk when non-operative room anesthesia has to be provided for procedures like CT and MRI.

We report a case of 9-month-old female child, weighing 7 kg with innominate artery syndrome, dysmorphic facies with microcephaly, failure to thrive and delayed milestones. The child had come with recurrent URTI and fever with noisy breathing. She was evaluated and bronchoscopy was performed, which showed posterior laryngomalacia with asymmetrical tracheomalacia (right > left) (70-90%) with left bronchomalacia (70-90%). Routine investigations were within normal limits. The child was scheduled for MRI brain.

She was fasted for 6 hours for solids and 2 hours for clear fluids. After confirmation of the fasting status the child was taken inside the MRI suite. Standard monitors including pulse oximeter, ECG and non-invasive blood pressure monitor were attached. Induction was done with graded increase in sevoflurane concentration. An IV cannula was placed. Trachea was intubated without neuromuscular blockade. Once the endotracheal tube was placed and confirmed, atracurium 0.5 mg/kg was given. Anesthesia was maintained with sevoflurane in oxygen and air mixture with controlled ventilation. Duration of the procedure was 45 min. After the procedure the child was observed for spontaneous breathing, muscle relaxation was reversed with neostigmine and was extubated once she was fully awake. Post-extubation the child was shifted to the recovery room.

The frequency of providing anesthesia beyond the operation theatre premises is increasing. Availability of limited resources makes non-operative room anesthesia intricating especially in infants and when associated with various syndromes and airway anomalies. Choosing an ideal mode of anesthesia depending on the clinical condition of the patient is the utmost priority. In our case we chose graded sevoflurane induction, since rapid sevoflurane

induction can be fatal in cases of laryngomalacia.[4] General anesthesia in an MRI setting provides complete immobility of the patient which is required for a better imaging. It is important to balance technical factors governing image quality of the study with safety concerns arising from risks related to anesthetising an infant in a location remote to the operation theatre.[5] Considering a definitive airway by intubating the trachea negates the risk of airway obstruction and hypoxia in high risk cases.

Authors' contribution

NS: Concept, design, analysis

SN: Interpretation, editing, proof reading

REFERENCES

1. Hysinger EB. Laryngomalacia, tracheomalacia, and bronchomalacia. Curr Probl Pediatr Adolesc Health Care. 2018;48:113-8. [PubMed] DOI: 10.1016/j.cppeds.2018.03.002
2. Thorne MC, Garetz SL. Laryngomalacia: review and summary of current clinical practice. 2015;2016:3-8. [PubMed] DOI: 10.1016/j.prrv.2015.02.002
3. Isaac A, Zhang H, Soon SR, Campbell S, El-Hakim H. A systematic review of the evidence on spontaneous resolution of laryngomalacia and its symptoms. Int J Pediatr Otorhinolaryngol. 2016;83:78-83. [PubMed] DOI: 10.1016/j.ijporl.2016.01.028
4. Manikandan S, Sinha PK, Neema PK. Rapid sevoflurane induction unmasks laryngomalacia. Paediatr Anaesth. 2004;14:800-1. [PubMed] DOI: 10.1111/j.1460-9592.2004.01410.x
5. Mahmoud M, Towe C, Fleck RJ. CT chest under general anesthesia: pulmonary, anesthetic, and radiologic dilemmas. Pediatr Radiol. 2015;45:977-81. [PubMed] DOI: 10.1007/s00247-014-3250-3

