

Face mask ventilation for infant with Pierre Robin Sequence

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Pierre Robin Sequence (PRS) are characterized by micrognathia, glossoptosis and cleft palate. Posteriorly displaced tongue can result in increased risk of aspiration pneumonia. Also, airway management of patients with craniofacial deformities is challenging for anesthesiologists and requires special techniques.¹ Airway management for general anesthesia is challenging in PRS patients and of great importance, since respiratory compromise carries a high risk of mortality. Face mask ventilation can provide respiratory support. But, it is difficult to master and ensure appropriate tidal volume delivery in infants.² Especially, it may be difficult to the PRS patients because of facial asymmetry and micrognathia.

A female PRS patient (7 weeks age, height 47 cm, weight 3 kg) was scheduled for percutaneous achilles tendon tenotomy. She was born at term and had micrognathia, cleft palate and respiratory difficulty. She suffered from frequent vomiting and feeding difficulty. After installing the oropharyngeal airway, self-breathing was maintained. General anesthesia was maintained with inhalation of 3-4 Vol% sevoflurane (respiratory rate 30/min, tidal volume 20-30 ml, ETCO₂ 33 mmHg and SpO₂ 98-100%) and continuous infusion of fentanyl (0.1-0.5 mcg/kg/hr). Operation was completed successfully under face mask ventilation (the two-point top hold technique).² Total operation time was 30 minutes.

Many children with PRS experience respiratory dysfunctions and feeding difficulty. Meyer et al.³ reported that over 50% of PRS patients required an airway intervention. Severe cases may require prolonged endotracheal intubation and surgical

airway interventions consist of glossopexy, mandibular distraction osteogenesis and tracheotomy. Nonsurgical airway management includes prone positioning and nasopharyngeal airway.¹ Anesthesiologists should have a lot of attention for airway management in PRS patients.

Also, optimal perioperative pain management is important and may improve clinical outcomes, because neonates feel more pain than their older counterparts.⁴ Fentanyl is almost 100 times more potent than morphine due to high lipid solubility. It may be preferred analgesic agent for critically ill pediatric patients because it is associated with greater hemodynamic stability. Fentanyl can prevent preterm neonates from surgical stress and provide perioperative analgesia. In summary, face mask ventilation using inhalation anesthetics with oro-/nasopharyngeal airway can be a good alternative anesthetic technique. However, extra caution should be exercised in such situation

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REFERENCES

1. Marston AP, Lander TA, Tibesar RJ, Sidman JD. Airway management for intubation in newborns with Pierre Robin Sequence. *Laryngoscope* 2012;122:1401-4.
2. Wood FE, Morley CJ. Face mask ventilation the dos and don'ts. *Semin Fetal Neonatal Med* 2013;18:344-51.
3. Meyer AC, Lidsky ME, Sampson DE, Lander TA, Liu M, Sidman JD. Airway interventions in children with Pierre Robin Sequence. *Otolaryngol Head Neck Surg* 2008;138:782-7.
4. Maitra S, Baidya DK, Khanna P, Ray BR, Panda SS, Bajpai M. Acute perioperative pain in neonates: An evidence-based review of neurophysiology and management. *Acta Anaesthesiol Taiwan* 2014;52:30-7.