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Introduction: Microstomia is the term used to describe a reduction in the size of the oral aperture that is severe enough to compromise quality of life, nutrition and cosmetic appearance. Most cases of microstomia reported in the literature are acquired from either accidental electrical, thermal or chemical burns. Few, if any, case reports discuss congenital microstomia in a neonate. We present a case report of a neonate with congenital microstomia presenting for emergent tracheostomy for respiratory distress.

Case presentation: A two day old neonate in respiratory distress and impending respiratory failure presented in the operating room for an urgent tracheostomy. He was born at term by elective cesarean section and required CPAP shortly after birth. On physical exam he was tachypneic with mild intercostal and suprasternal retractions; he had severe microstomia, syngnathia and retrognathia. After placement of standard monitors, he underwent mask induction with 100% oxygen and Sevoflurane. The patient was mask ventilated with an endoscopy mask which has a flexible membrane through which a fiberoptic scope can be passed while still maintaining a seal on the patient's face to supply positive pressure. After dilation of the left nares with a nasal trumpet a flexible nasolaryngoscopy was performed which showed significant tongue base prolapse causing retroflexion of the epiglottis. No other airway abnormalities were noted distally. A 3.0 uncuffed endotracheal tube was then placed over the flexible scope and the scope was maneuvered back into the trachea where the endotracheal tube was passed into the trachea via a Seldinger technique. After confirmation of end-tidal CO₂ and adequate ventilation in both lungs the tube was secured. The case then continued with an uneventful tracheostomy and return to the NICU.

Discussion: Microstomia by itself is a challenge for anesthesiologists for elective cases. Add to that a two day old neonate in respiratory distress. The combination of high metabolic rates and oxygen consumption and low lung volumes in neonates leaves very little reserve leading to rapid desaturation. Furthermore, due to a highly compliant chest wall and decreased FRC urgent action was required to secure an airway due to fear of impending respiratory failure. The patient's oral aperture barely accommodated a single digit and would not be able to accommodate a laryngeal mask airway. In addition to the microstomia, the retrognathia and small mandible made mask ventilation challenging. The use of the endoscopy mask allowed for positive pressure bag mask ventilation while accommodating a flexible fiber-optic scope without compromising the seal necessary to provide positive pressure. One of the purposes of this case report was to improve awareness of these masks that may be useful when most airways are not adequate when positive pressure mask ventilation is required while trying to secure an airway.


