

EARLY MANDIBULAR DISTRACTION IN PRUZANSKY III CRANIOFACIAL MICROSOMIA: MATTHEWS DEVICE TO AVOID BONE GRAFTING

Jeromie Sequitin¹, Matthew J Davis², Amjed Abu-Ghname², Tuan Truong², Edward P Buchanan²

¹ Baylor College of Medicine, Department of Texas Children's Hospital

² Texas Children's Hospital, Surgery, Plastic Surgery

Background: Early mandibular distraction is the preferred treatment of Pruzansky III craniofacial microsomia with clinically significant airway obstruction. The primary goals of distraction include resolution of airway obstruction and avoidance of tracheostomy. However, current standard approaches of early mandibular reconstruction with a free bone flap followed by distraction are often complicated by ankylosis. As an alternative, we present the case of a 4-year-old patient with Pruzansky III hemifacial microsomia secondary to Goldenhar syndrome whose severe airway obstruction was successfully managed with the unilateral placement of a Matthews device coupled with bilateral mandibular distraction.

Materials/Methods: A 4-year-old female with a history of Goldenhar syndrome with associated right-sided Pruzansky III craniofacial microsomia of the mandible presented with worsening, severe obstructive sleep apnea. Her apnea hypoxia index (AHI) measured 42. Surgical management was indicated to avoid tracheostomy. It was decided to forego traditional early mandibular reconstruction in favor of a novel approach. Bilateral mandibular distractors were placed, and to avoid driving the atrophic condyle into the TMJ, a Matthews device was secured to the right cranium and mandible.

Results: The patient tolerated distractor placement, distraction, and hardware removal without complication. Tracheostomy was avoided, the TMJ was protected by the Matthews device, and no ankylosis occurred. The patient's AHI decreased to 8. The patient is currently doing well 13 months post-distraction. We anticipate that she is unlikely to require further surgical intervention until achieving skeletal maturity.

Conclusions: Our case describes a novel approach to early mandibular distraction in children with Pruzansky III craniofacial microsomia complicated by severe airway obstruction. This approach offers the advantage of tracheostomy avoidance without the comorbidities associated with free bone grafting. Our findings suggest that simultaneous MDO coupled with placement of a unilateral Matthews device is an effective and safe alternative to address mandibular-based airway obstruction in the setting of Pruzansky III craniofacial microsomia.