Successful Neonatal Mandibular Distraction Osteogenesis in Patients with Concomitant Laryngomalacia

Purpose:
Protocols for the treatment of Robin sequence (RS) consider laryngomalacia to be a contraindication to mandibular distraction osteogenesis (MDO). The authors report their institutional experience of MDO applied to infants with RS and associated laryngomalacia**.**

Methods:
An 8-year retrospective review of all infants with RS and laryngomalacia who underwent MDO at a tertiary care children's hospital was performed. Patients were excluded if they possessed a lower airway anomaly other than laryngomalacia. Laryngomalacia was identified on laryngoscopy prior to MDO. Laser supraglottoplasty was performed at the discretion of the otolaryngologist. Variables collected included age at distraction, preoperative and postoperative AHI, syndromic diagnosis or genetic anomalies, cardiac, central nervous system (CNS), and gastrointestinal (GI) abnormalities. Outcomes were avoidance or decannulation of tracheostomy and decrease in post-operative AHI.

Results:
Eleven infants met inclusion criteria. Mean follow up was 28 months. 18.2% of patients had a syndromic diagnosis, 36.4% cardiac, 9.1% CNS, and 72.7% GI abnormalities. Mean age at time of MDO for patients without prior tracheostomy was 1.7 months. 54.5% of patients underwent supraglottoplasty. Mean AHI decreased from 46.1±31.8 preoperatively to 4.1±3.0 postoperatively ($p=0.002$). All patients without a tracheostomy prior to intervention avoided tracheostomy after MDO. One patient had a tracheostomy and was decannulated following MDO. One patient died 1 year after MDO due to complex congenital heart disease.

Conclusions:
Infants with RS and laryngomalacia are amenable to treatment via supraglottoplasty and mandibular distraction. Laryngomalacia should not be considered a contraindication to distraction. Utilizing supraglottoplasty and MDO can avoid tracheostomy in this patient population.

References:

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