Inpatient Supraglottoplasty Improves Respiratory Symptoms

Lindsey Herberger, BA[1]; Peter Eckard, MD[1]; V Peyton Pinkus, BS[1]; Courtney Hunter, MD[1]; Gresham Richter, MD[1,2]

1 University of Arkansas for Medical Sciences Department of Otolaryngology
2 Arkansas Children's Hospital Department of Pediatric Otolaryngology

Arkansas Children's
HOSPITALS • RESEARCH • FOUNDATION
archildrens.org

UAMS
University of Arkansas for Medical Sciences
Pediatrics.uams.edu

BACKGROUND

- Congenital laryngomalacia is a common contributing factor to respiratory and feeding concerns in infants inside and outside the hospital.
- Supraglottoplasty (SGP) for moderate to severe laryngomalacia may be employed to improve the upper airway in newborns admitted to the neonatal intensive care unit but outcomes have rarely been examined.

PURPOSE

The aim of this study is to analyze outcomes of supraglottoplasty in infants in the neonatal intensive care setting.

MATERIALS AND METHODS

- Retrospective cohort
- All pediatric patients in the NICU with laryngomalacia identified during their hospital admission between 2017-2024 at a tertiary care center.
- Data collected on comorbidities and SGP vs. no SGP treatment outcomes including days of intubation or supplemental oxygen post-operatively and time till discharge from NICU.

			Unadjusted		Adjusted*	
	SGP	**No SGP**	**Effect Measure^ + 95% CI**	**p**	**Effect Measure^ + 95% CI**	**p**
	76 (60.32)	50 (39.68)				
Intubated post-op	16 (21.1)	19 (38)	0.554 (0.316,0.971)	**0.039**	0.812 (0.473,1.393)	0.45
Mean days of intubation (SD)	5.8 (21.9)	92.6 (232.1)	0.063 (0.014, 0.278)	**<0.001**	0.186 (0.039, 0.886)	**0.035**
Oxygen post-op	49 (64.5)	33 (66)	0.977 (0.753, 1.267)	0.86	1.14 (0.887, 1.463)	0.306
Mean days of oxygen (SD)	59.7 (187.4)	183.5 (317.2)	0.325 (0.132, 0.802)	**0.015**	0.441 (0.17, 1.145)	0.093
Mean days to discharge after diagnosis (SD)	103.6 (89.6)	65.2 (97.4)	1.588 (1.119, 2.256)	**0.01**	2.509 (1.802, 3.493)	**<0.001**

*adjusted for gestational age at birth and severity of laryngomalacia
^Effect measure = mean ratio (MR)

RESULTS

- After adjusting for gestational age and severity of laryngomalacia, there is a **significant difference** between SGP vs. no SGP in terms of overall days of intubation and time to discharge (0.035).
- The length of intubation for patients with SGP is **84% shorte**r than for patients without SGP.
- SGP is associated with longer length of time until discharge from NICU compared to no SGP (<0.001).
- Patients with tracheomalacia and congenital cardiac comorbidities required **longer postoperative admissions** (p=0.009 and p=0.0001, respectively).
- Tracheomalacia was also associated with an **increased risk of 30-day readmission for airway concerns** (p=0.04), while congenital cardiac conditions and subglottic stenosis were not (p=0.72 and p=0.14, respectively).

CONCLUSIONS

- Supraglottoplasty for the management of laryngomalacia can improve respiratory symptoms of infants in the NICU setting.
- Patients with critical care needs have a higher risk of negative outcomes such as longer duration of admission following surgery and need for readmission compared to the typical laryngomalacia population.