

Speech and Language Outcomes in Children with Ankyloglossia Undergoing Lingual Frenulectomy: A Retrospective Pilot Study

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BACKGROUND

- Patients with ankyloglossia, or “tongue-tie” can present with significant speech impairment [1]
- Speech problems are seen in the production of some consonants and sibilants with subtle differences in pronunciation [2-3]
- Surgical release via lingual frenulectomy is offered due to ease of surgery, brief surgical time, need for minimal anesthesia, and minimal complications [4-6]
- No sufficient evidence favoring a preferred surgical treatment option, or if/when observation is appropriate [3]
- Ankyloglossia remains a controversial and subjective topic with no standardized universally-accepted treatment guidelines

OBJECTIVES

1. Retrospectively review our institution's experience regarding speech and language outcomes in children with ankyloglossia undergoing lingual frenulectomy from 2011 to 2017
2. Identify factors contributing to success of lingual frenulectomy with “success” defined as symptom improvement

METHODS

- Retrospective chart review to identify children who underwent lingual frenulectomy for ankyloglossia-related speech and language impairment in the Otolaryngology-Head and Neck Surgery Department at St. Christopher's Hospital for Children between 2011 and 2017
- Inclusion criteria: age > 1 year old, documented pre-and post-operative speech impairment as defined by physician in patient chart
- Impairment severity recorded pre- and post-operatively by the physician as mild, mild-to-moderate, moderate, moderate-to-severe, or severe

- Binary outcome variables created for no symptom improvement versus symptom improvement as noted in patient chart according to physician at initial encounter
- Individual descriptive variables tested for statistical relationship to improvements in speech and language post-operatively using chi-square analysis

RESULTS

- Fifty three (n=53) children identified after exclusion criteria
- Average age was 2.86 years old, 72% male
- Fifteen (28%) children enrolled in concurrent speech and language therapy

		No Symptom Improvement	Symptom Improvement	P-value
Sex	Male	2	36	0.098
	Female	3	12	
Age	< 2 years old	1	11	0.256
	2 – 5 years old	2	31	
	> 5 years old	2	6	
Pre-Op Symptom Severity (As defined by physician in patient chart at initial encounter)	Mild	4	8	0.015*
	Mild-to-Moderate	0	10	
	Moderate	0	29	
	Moderate-to-Severe	0	1	
Required Suturing?	Yes	0	24	0.033*
	No	5	24	
Concurrent Speech Therapy?	Yes	2	13	0.542
	No	3	35	
Combined Procedure?	Yes	0	6	0.401
	No	5	42	
Developmental/Cognitive Delay?	Yes	1	5	0.520
	No	4	34	
Re-adhesion?	Yes	1	1	0.045*
	No	4	47	

Figure 1. Patient demographics and clinical characteristics of patients who underwent lingual frenulectomy for ankyloglossia-related speech and language impairment.

*Indicates statistical significance (p < 0.05)

- All (100%) of children with pre-operative moderate and moderate-to-severe speech and language impairment attained a better severity score post-operatively compared to mild-to-moderate and mild impairment pre-operatively (p=0.015)
- Sutured closure was associated with better symptom improvement (p=0.033)
- Patients who experienced re-adhesion after frenulectomy were more likely to not have symptom improvement (p=0.045)
- Age, gender, and concurrent speech and language therapy not significant predictors of surgical success

CONCLUSION

- Children with moderate and moderate-to-severe speech and language impairment undergoing lingual frenulectomy experienced greater symptom improvement compared to children with mild-to-moderate or mild impairment
- Patients who were sutured and did not have re-adhesion after frenulectomy experienced better symptom improvements
- Although the sample size is small, this data can help determine which patients with ankyloglossia-related speech and language impairment are and are not good candidates for lingual frenulectomy
- This pilot study sheds light on a controversial topic and encourages further studies

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