

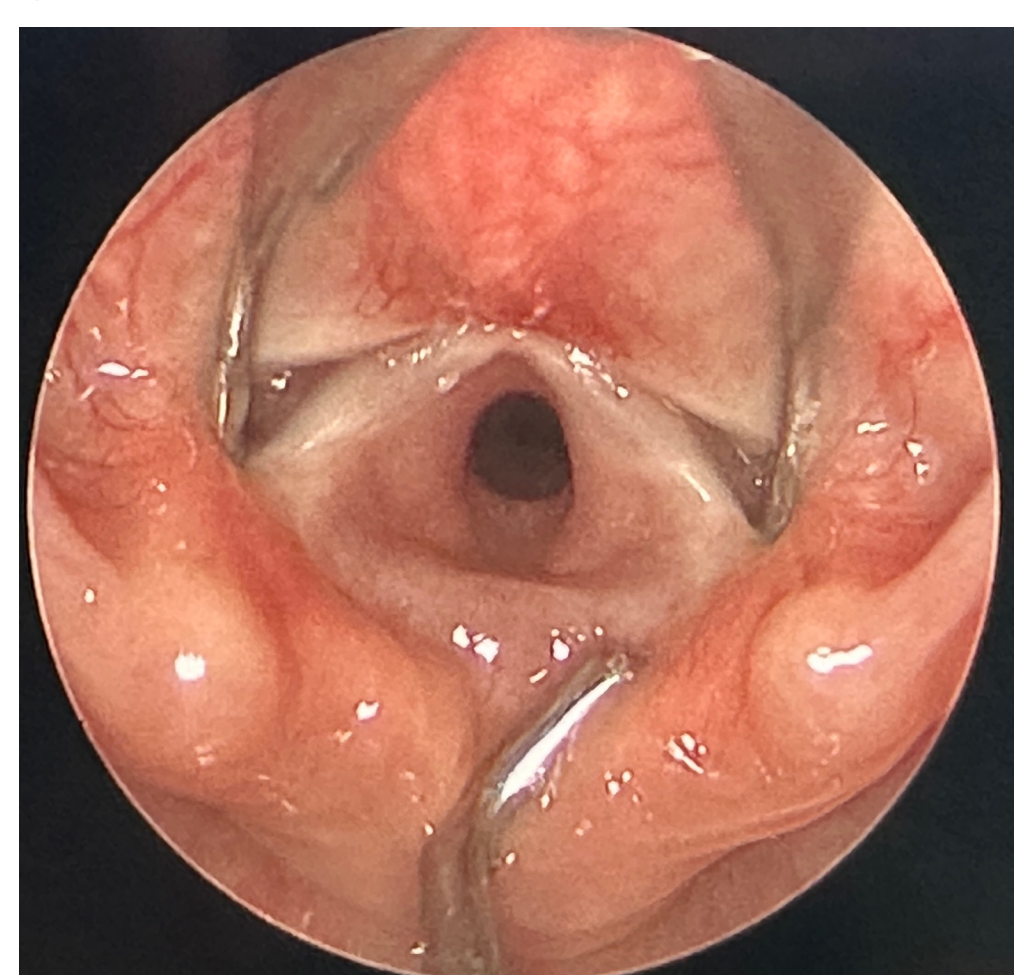
Exploring Surgical Outcomes in Endoscopic Repair of Type 1 Laryngeal Clefts (LC1) and Deep Interarytenoid Notches (DIN)

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INTRODUCTION

- Patients with a type 1 laryngeal cleft (LC1) or deep interarytenoid notch (DIN) may present with symptoms of dysphagia, especially to thin liquids, chronic cough, or recurrent pneumonia.
- If conservative management fails, the presence of a LC1 is confirmed through intraoperative palpation of the interarytenoid space.



- If present, they can be surgically augmented via interarytenoid injection laryngoplasty or formal endoscopic surgical closure.
- This study evaluates predictors of success for endoscopic repair of LC1 and DIN in pediatric patients.

METHODS

Study Participants

- Retrospective chart review of children who underwent endoscopic repair of a LC1 or DIN at a single quaternary care pediatric hospital between September 2018 through June 2022.

Data Processing

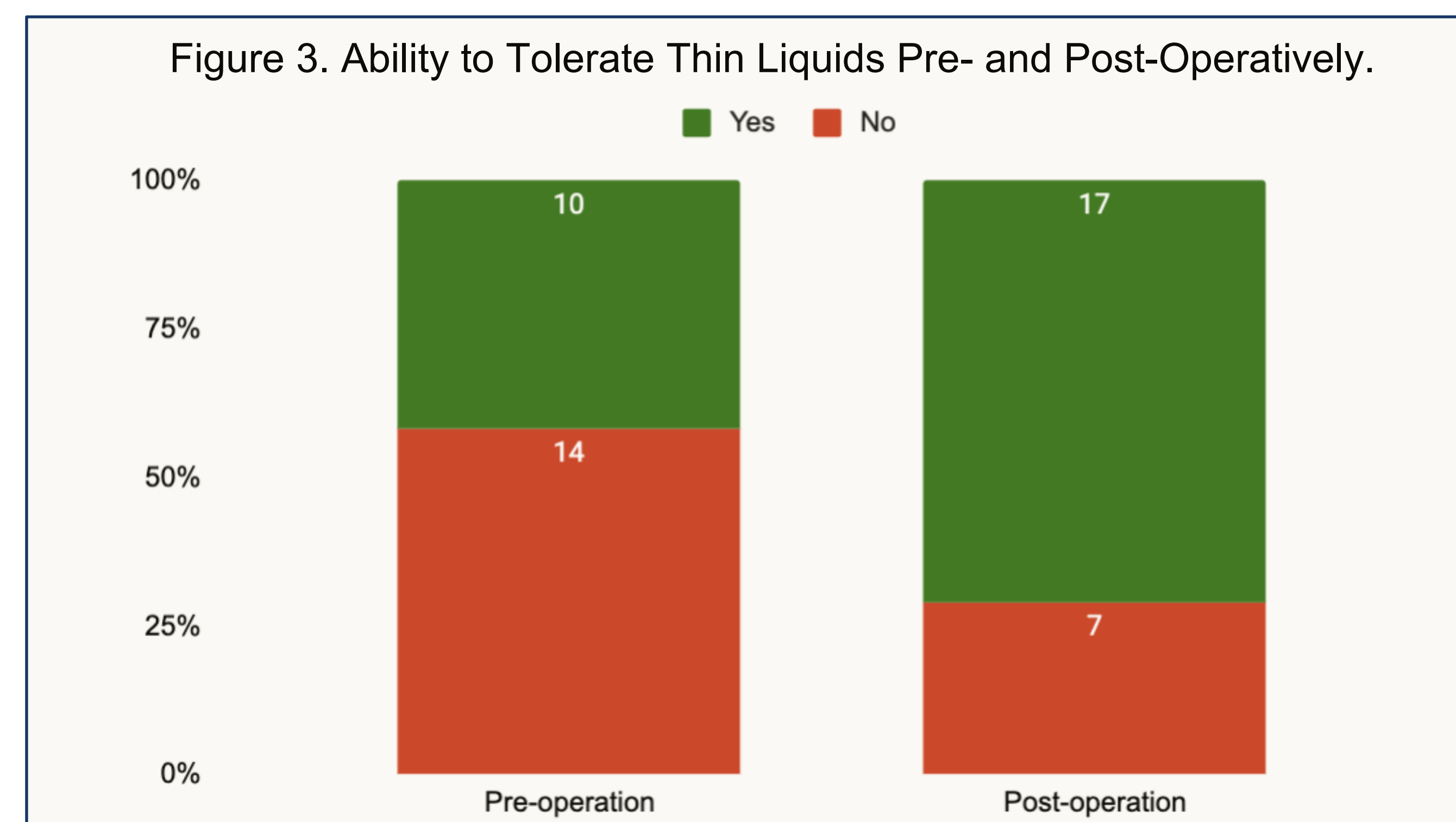
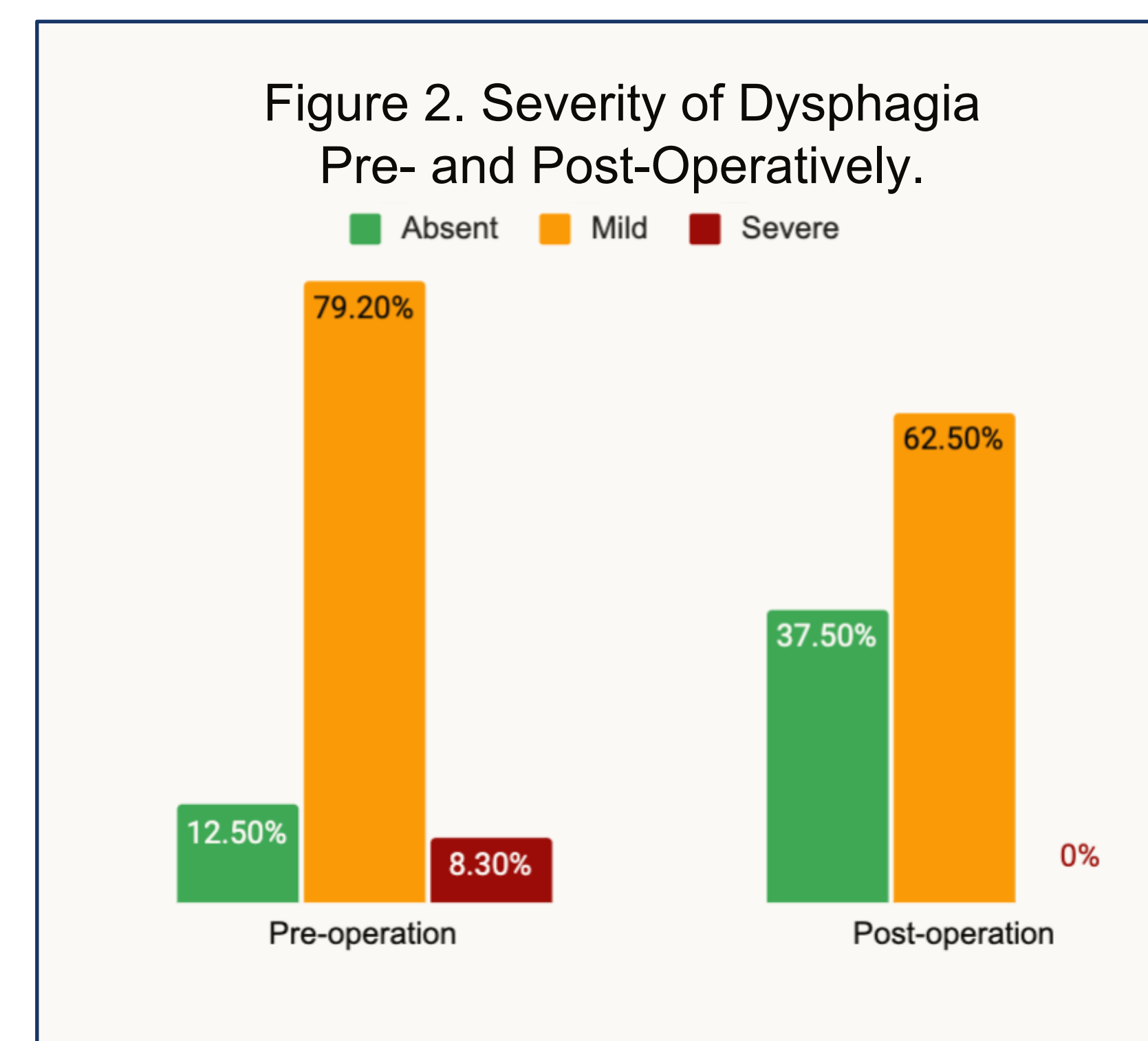
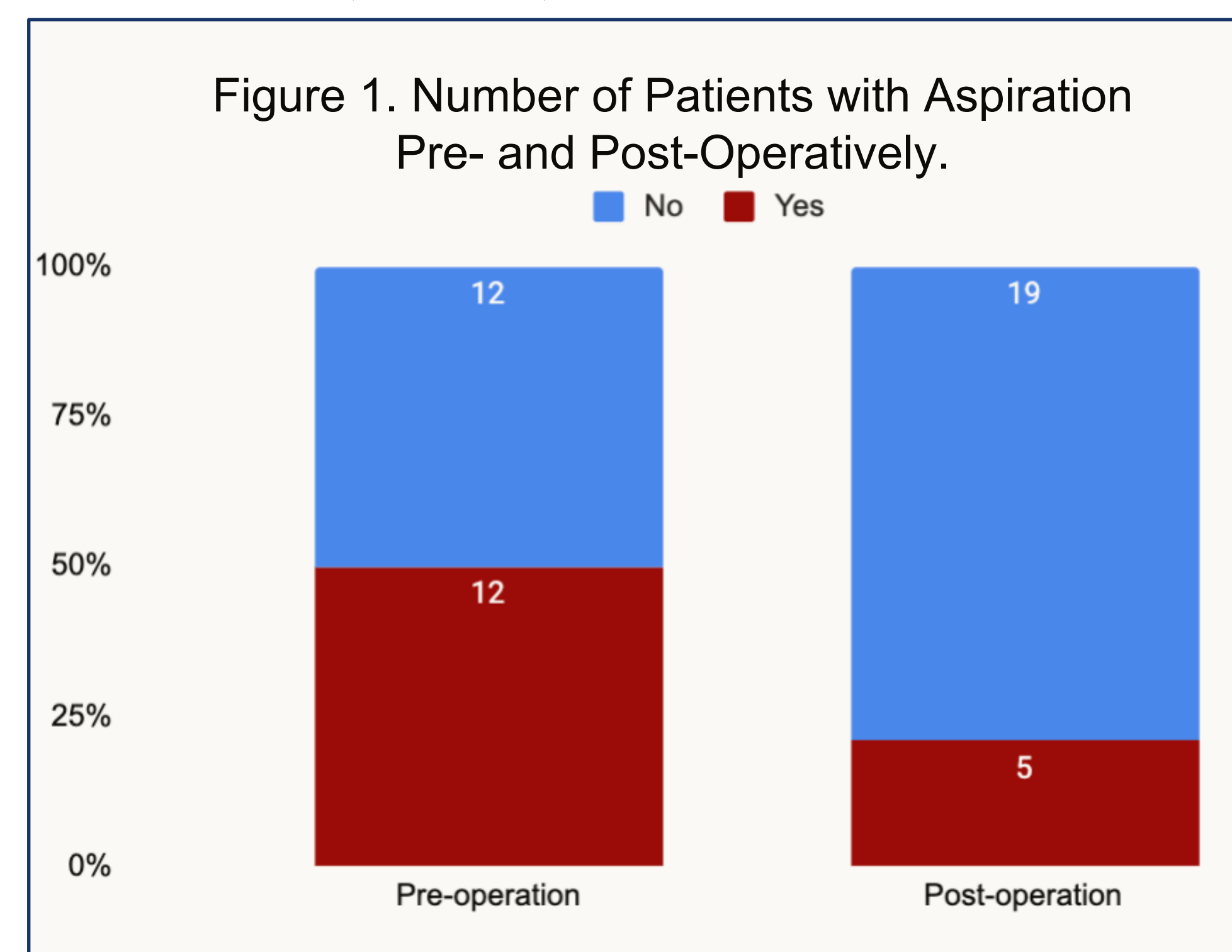
- Videofluoroscopic swallowing study (VFSS) results were examined before and after the procedure.
- "Success" of cleft repair was defined as subjective patient-reported symptom improvement and/or improvement on VFSS recommended feeding status after intervention.

Statistical Analysis

- McNemar or McNemar-Bowker tests were used to assess the symptom improvement pre- to post-operation. Group comparison for patient reported improvement was assessed using Pearson Chi-square test.

RESULTS

- A total of 31 patients were included in the study. The median age at time of diagnosis and repair of the DIN or LC1 was 13 months and 3.4 years, respectively.
- Of those with aspiration on the initial VFSS, 58% had resolution postop ($p=0.023$) (**Figure 1**).
- The severity of dysphagia decreased ($p = 0.046$) with no patients having severe dysphagia after surgical repair (**Figure 2**).
- There was a 50% reduction in the number of patients unable to tolerate thin liquids after repair (**Figure 3**).
- The only patient factor showing a significant correlation with lack of improvement after surgery was the *presence of pregnancy complications* (pre-eclampsia, poly/oligohydramnios, gestational diabetes, placental abruption, etc). Preterm birth, a history of NICU stay, prior airway and feeding interventions, and the presence of a syndrome were **not** significantly correlated with outcomes (**Table 1**).



	Pre-op (N = 24)	Post-op (N = 24)	Test Statistic
Birth History			$\chi^2 = 2.9, P=0.088$
Full-term	72%	33%	
Pre-term	28%	67%	
NICU Stay			$\chi^2 = 2.8, P=0.095$
No	57%	17%	
Yes	43%	83%	
Airway interventions			$\chi^2 = 1.7, P=0.19$
No	77%	50%	
Yes	23%	50%	
Feeding interventions			$\chi^2 = 0.64, P=0.42$
No	82%	67%	
Yes	18%	33%	
Pregnancy Complications			$\chi^2 = 4.2, P=0.041$
No	64%	17%	
Yes	36%	83%	
Airway Comorbidities			$\chi^2 = 0.59, P=0.44$
No	9%	0%	
Yes	90%	100%	
Syndromes			$\chi^2 = 1.7, P=0.19$
No	77%	50%	
Yes	23%	50%	

Table 1. Relationship between comorbidities and success of DIN/LC1 repair in improving feeding outcomes.

CONCLUSIONS

- Operative intervention in patients undergoing endoscopic repair showed a statistically significant reduction in aspiration events and severity of dysphagia.
- There was also a reduction in patients unable to tolerate thin liquids post-surgical repair.
- History of pregnancy complications was associated with worse outcomes. This could be due to other comorbidities that result from complicated pregnancies like congenital defects and coincident pathologies like gastrointestinal manifestations (esophageal atresia, tracheoesophageal fistula, microgastria), laryngomalacia, tracheobronchomalacia, GERD, or syndromic associations.
- The small sample size of this study may limit the ability to identify other significant risk factors, which can coexist with pregnancy complications. Larger, multi-center studies are needed to better predict which patients will improve from endoscopic DIN or LC1 repair.

- No funding disclosures
- Scan QR code to the right for references
- For more questions, contact: Niketna.vivek@Vanderbilt.edu

