Maxillary Frenotomy Relapse Rate is High

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Introduction

- Maxillary frenum: vertical tissue fold from upper lip interior to superior alveolar ridge; influences lip positioning during speech, smiling, and eating[1,2]
- Maxillary frenum Kotlow classifications:[3]

Kotlow Score	Maxillary Frenum Findings
1	Most superior attachment; minimal motility restrictions
2	Less superior attachment; mild tension
3	Attachment onto gingival margin
4	Frenum extends beyond superior alveolar ridge into palatal area

- Limited evidence supports a direct link between upper lip-tie and breastfeeding challenges that can be resolved with maxillary frenotomy[4,5]
- Pediatric maxillary frenotomy frequency has greatly increased in the last decade[6]

Objective

To assess whether maxillary frenotomy results in sustained changes in maxillary frenum insertion depth.

Methods

- Retrospective chart review was conducted on children aged 0-21 seen at a pediatric otolaryngology clinic from March-Dec. 2022
- Data collected: patient age, gender, race, Kotlow score, maxillary frenum tautness, and maxillary frenotomy history
- All patients underwent routine oral examination, including maxillary frenum assessment and classifications based on Kotlow score[3] and tautness

Results

- Patients with prior maxillary frenotomy were significantly younger (p=.038; Table 1; Figure 1)
- No significant gender, race, or ethnicity differences between groups (Table 1)

Results

- Kotlow scores decreased with increasing age in both groups (Table 2; Figure 2)
- No association was found between maxillary frenotomy history and lower Kotlow score or frenum tautness (Table 2)

TABLE 1. Summary of patient demographic information by history of maxillary frenotomy.

	History of Maxillary Frenotomy		Total	P-value
	Yes	No		
Patients, N (%)	24 (4.2)	546 (95.8)	570 (100.0)	-
Mean Age, years (±SD)	3.0 (±1.2)	5.1 (±0.4)	5.0 (±0.4)	**.038**
Gender, N (%)	-	-	-	.851
Male	14 (2.5)	288 (50.5)	302 (53.0)	-
Female	10 (1.8)	257 (45.1)	267 (46.8)	-
Transgender Male	0 (0.0)	1 (0.2)	1 (0.2)	-
Race / Ethnicity, N (%)	-	-	-	.108
Caucasian	20 (3.5)	449 (78.8)	469 (82.3)	-
Black / African American	0 (0.0)	43 (7.5)	43 (7.5)	-
Asian	0 (0.0)	15 (2.6)	15 (2.6)	-
Indian	0 (0.0)	1 (0.2)	1 (0.2)	-
Hispanic	3 (0.5)	17 (3.0)	20 (3.5)	-
Mixed	0 (0.0)	11 (1.9)	11 (1.9)	-
Not Reported	1 (0.2)	10 (1.8)	11 (1.9)	-

FIGURE 1. Patient ages by maxillary frenotomy history.

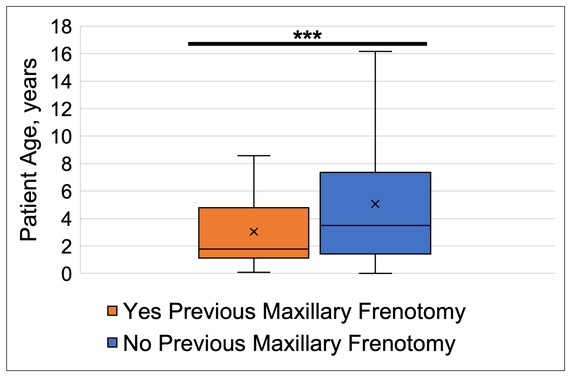

FIGURE 2. Patient age by Kotlow score.

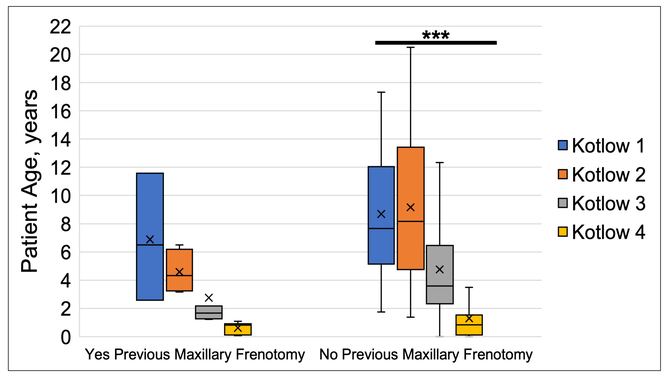

TABLE 2. Summary of patient maxillary frenum information by history of maxillary frenotomy.

	History of Maxillary Frenotomy		Total	P-value
	Yes	No		
Kotlow Score, N (%)	-	-	-	.209
1	3 (0.5)	21 (3.7)	24 (4.2)	-
2	4 (0.7)	127 (22.3)	131 (23.0)	-
3	11 (1.9)	261 (45.8)	272 (47.7)	-
4	6 (1.1)	137 (24.0)	143 (25.1)	-
Taut on Palpation, N (%)	-	-	-	.437
Yes	0 (0.0)	12 (16.2)	12 (16.2)	-
No	3 (4.1)	59 (79.7)	62 (83.8)	-

Discussion

- Correlation between maxillary frenum attachment and breastfeeding outcomes remains poorly understood[5]
- American Academy of Pediatrics and World Health Organization stress breastfeeding's importance but advise against frenum release based solely on appearance[7,8]
- In our study, Kotlow scores decreased with age, aligning with higher frenum insertion as alveolar ridge lengthens[9]
- >25% of children with previous maxillary frenotomy have a low-lying frenulum later in childhood, indicating a notable relapse rate with this procedure

Conclusion

Our study is the first to demonstrate long-term challenges of maxillary frenotomy, offering valuable insights for otolaryngologists considering the procedure in young children.

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