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CASE REPORT

Combined Vestibuloplasty and Frenectomy for Functional and Esthetic Rehabilitation: A Case Report

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ABSTRACT

A Shallow vestibule can hinder oral hygiene maintenance and predispose to gingival recession due to muscular traction. When combined with inadequate attached gingiva, it can lead to increased food accumulation during mastication. Vestibuloplasty, a surgical procedure aimed at repositioning mucosa and muscle attachment, is employed to increase vestibular depth and facilitate better plaque control. Tongue tie, or ankyloglossia, is a congenital condition characterized by a short, thick lingual frenulum, often restricting tongue mobility and oral hygiene. Vestibuloplasty was performed by combining Godwin and Clark technique to deepen the vestibule and frenectomy was carried out to release the lingual frenulum. This combined approach improved vestibular depth, enhanced tongue mobility, and facilitated better oral hygiene practices. This case report presents the combined surgical management of shallow vestibule and tongue tie in a single patient.

Keywords: Clark, Godwin, Shallow vestibule, Tongue tie

1 INTRODUCTION

Periodontal plastic surgery procedures aim to address various issues affecting the gums, alveolar mucosa, and bone, such as defects arising from anatomy, development, trauma, or plaque related diseases. These procedures not only serve aesthetic purposes but also contribute to maintaining optimal oral hygiene. The oral vestibule refers to the cavity within the mouth, bordered medially by the teeth and gingiva, laterally by the cheek and lip mucosa, and apically by movable and immovable mucosal borders. Vestibular depth is measured either from crest of lip or from coronal border of the attached gingiva to depth of muccobuccal fold[1]. Adequate vestibular depth is crucial for ensuring proper oral hygiene as a shallow vestibule can lead to food accumulation and hinder the maintenance of oral cleanliness. Additionally, when combined with inadequate gingiva, shallow vestibule may result in marginal tissue pulling and gingival recession, exacerbating plaque accumulation, gingival inflammation, tooth mobility, bone loss and further gingival recession. The tongue is a muscular organ that affects speech, position of the teeth, periodontal tissue, nutrition and swallowing[2]. Tongue tie may lead to various functional abnormalities that include abnormal speech, malocclusion, Wallace defines tongue tie as a "A condition in which the tip of the tongue cannot be protruded beyond the lower incisor teeth because of a short frenulum lingua, often containing scar tissue[3].

2 CASE REPORT

A 18-year-old male patient reported to the Department of Periodontology with two main concerns, Difficulty in maintaining oral hygiene in the lower anterior region with rapid accumulation of deposits for past six month and restricted tongue movement affecting pronunciations of words such as t,d,s,z,n,l,r and th (Table. 1).

Table 1: Bristol Tongue Assessment Tool (BTAT)

Elements	
Tongue Tie Appearance	2
Attachment of Frenulum to Gum Ridge	2
Lift of Tongue with Mouth Wide	2
Protrusion of Tongue	2

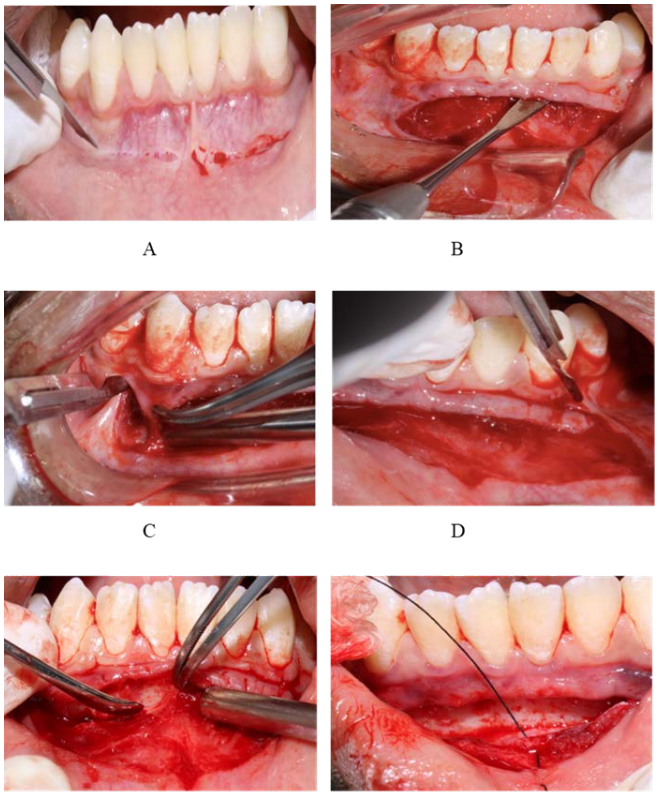
On clinical examination, vestibular depth of 2mm was observed in the lower anterior region from lower right canine to left canine along with short, fibrotic lingual frenum extending from the ventral surface of the tongue to the lingual gingiva was observed. Additionally, Cairo RT II gingival recession was measured with

3mm in the lower central, lateral incisors and canines (Fig. 1 A and B).



A B

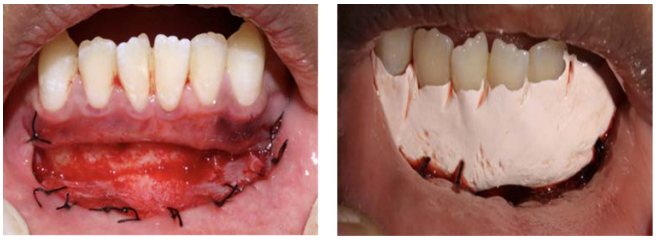
Fig. 1: A) Pre- operative view of vestibuloplasty site; B) Pre-operative view of tongue tie site



A B C D E F

Fig. 2: A) Horizontal incision from distal of left canine to distal right canine; B) Supraperiosteal dissection done; C) First vertical incision distal to the right canine; D) Second vertical incision distal to the left canine; E) Periosteum are separated from the bone; F) Separated periosteum are sutured with lip mucosa

The patient was also scheduled for orthodontic treatment for correction of open bite necessitating adequate vestibular depth and improved gingival conditions to ensure optimal treatment outcomes. Following clinical examination, vestibuloplasty using scalpel technique and frenectomy using laser technique was planned. Informed consent was obtained from the patient. After two weeks of initial non-surgical periodontal therapy, A vestibuloplasty was performed under local anaesthesia using a combined approach of Godwin's and Clark's technique[4, 5]. By using a No: 15 C blade a horizontal incision was made on the oral mucous membrane of the lip[6]. The incision was extended to the canine region bilaterally and two vertical incisions were given to extend it towards the crest of the alveolar ridge (Fig. 2).

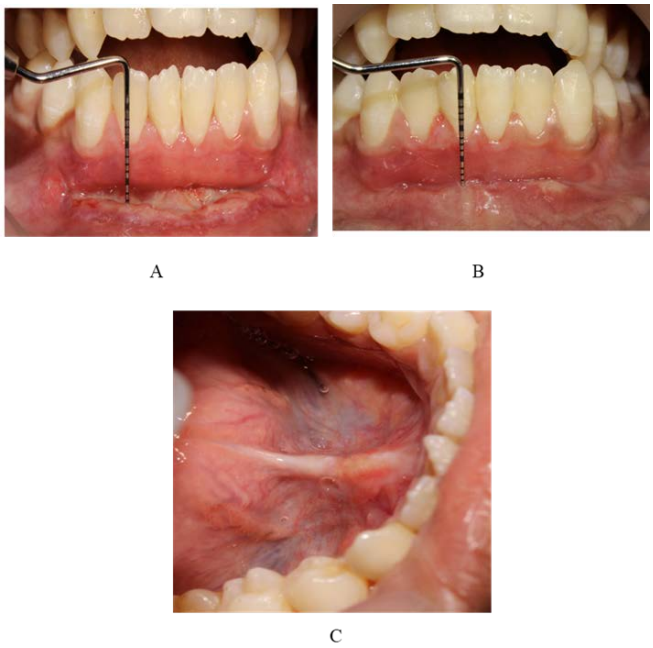


A B

Fig. 3: A) Raw area over the alveolar bone was left to heal by secondary intention; B) Coe- pack periodontal dressing was placed for wound protection



Fig. 4: By using laser technique frenectomy done to release tongue tie



A B C

Fig. 5: A) One week post operative view; B) One month post operative view; C) One month post operative view

The inner lip was undermined and secured to the periosteum at the newly established vestibular depth using 4-0 non resorbable

silk sutures. The exposed alveolar bone was left to heal by secondary intention and was protected with Coe-pack periodontal dressing (Fig. 3). During the same surgical session by using laser technique (Diode 810nm), a lingual frenectomy was performed to relieve ankyloglossia[7] thereby enhancing tongue mobility and reducing lingual gingival traction on the mandibular incisors (Fig. 4). Post- surgical instruction along with antibiotics (Amoxycillin 500mg three times a day for 5 day) and analgesics (Ibuprofen 400 mg two times a day for 5 days) was prescribed. Patient was reviewed on 7th and 30th postoperative days to assess the vestibular depth and tongue tie. The initial vestibular depth was 2mm, which increased to 10mm at the 1-week, postoperative review, indicating an 8mm gain. The gain in vestibular depth was achieved using the combined Godwin and Clark vestibuloplasty technique (Fig. 5). Preoperatively, the patient exhibited restricted tongue movement due to short lingual frenum, at 1st week the tongue mobility had improved and free elevation to the palate achieved without restriction.

3 DISCUSSION

Inadequate vestibular depth may result from the high insertion of muscles such as the mentalis, leading to an insufficient width of keratinized gingiva. A shallow vestibule limits access for adequate oral hygiene measures, leading to plaque accumulation along the gingival margin. Prolonged plaque accumulation can elicit an inflammatory response in the gingiva, which combined with continuous muscular stress, may result in recession of the gingival margin.

Consequently, maintenance of proper oral hygiene becomes increasingly difficult in patients with inadequate vestibular depth. Hence, surgical intervention was planned to increase the vestibular depth and facilitate effective plaque control and gingival maintenance. Vestibular depth measurement was recorded pre and post operatively using a periodontal probe (UNC-15) from the gingival margin to the muccobuccal fold at the site of surgery. Vestibuloplasty is a surgical procedure carried out to restore alveolar ridge heights by lowering muscle attachment on the buccal, labial and lingual aspects of the residual ridges[8, 9]. There is different technique to increase the vestibular depth I) Kazanjian technique, II) Godwin technique III) Clark's technique. The major drawback of Kazanjian technique is severe scarring of lip causing reduced lip flexibility[10]. In this case we combined Godwin and Clark's technique to minimize relapse, improve healing and for more predictable results. In addition to the shallow vestibule, the patient presented with short, fibrotic lingual frenum which not only restricted tongue movement but also exerted traction on the lingual gingiva of the mandibular anterior teeth. Frenectomy in such situations eliminates the source of undue tension, improves tongue movement and contributes to functional rehabilitation. In this case, the frenectomy was performed in the same surgical session, thereby reducing treatment time and enhance patient compliance.

4 CONCLUSION

The combined approach of Godwin, Clark's technique for vestibuloplasty and frenectomy for tongue tie proved to be an effective surgical intervention, addressing both functional limitation and shallow vestibular depth. This dual procedure not only improved tongue mobility and oral function but also enhanced vestibular depth, thereby promoting long term gingival stability and facilitating better oral hygiene maintenance. The integrated approach offers a predictable and efficient option for managing cases with concurrent high frenum attachment.

References

1. Ward V. A Technique of Measurement of the Depth of the Vestibular Fornix in the Mandibular Anterior Region. *Journal of Periodontology*. 1976; 47 (9) :525-530 . Available from: https://doi.org/10.1902/jop.1976.47.9.525
2. Kotlow LA. Ankyloglossia (tongue-tie): a diagnostic and treatment quandary. *Quintessence International*. 1999; 30,4. 259-262. https://pubmed.ncbi.nlm.nih.gov/10635253/
3. Jamilian A, Fattahi FH, Kootanayi NG. Ankyloglossia and tongue mobility. *European Archives of Paediatric Dentistry*. 2014; 15 (1) :33-35 . Available from: https://doi.org/10.1007/s40368-013-0049-0
4. Mehanna MB. Evaluation of the fenestrated mucosal flap vestibuloplasty and a modification of the Kazanjian's vestibuloplasty technique for mandibular anterior ridge extension. *Egyptian Dental Journal*. 2000; 46: 19–21. https://applications.emro.who.int/imemrf/86/Egypt-Dent-J-2000-46-4-part1-1921-1928-eng.pdf
5. Kalakonda B, Farista S, Koppolu P, Baroudi K, Uppada U, Mishra A, *et al*. Evaluation of Patient Perceptions After Vestibuloplasty Procedure: A Comparison of Diode Laser and Scalpel Techniques. *Journal of Clinical and Diagnostic Research*. 2016; 10 (5) :96-100 . Available from: https://doi.org/10.7860/jcdr/2016/17623.7820
6. Godwin JG. Submucous Surgery for Better Denture Service. *The Journal of the American Dental Association*. 1947; 34 (10) :678-686 . Available from: https://doi.org/10.14219/jada.archive.1947.0147
7. Dare S, Shirbhate U, Bajaj P. Management of Tongue-Tie Using Diode Laser for Speech Clarity: A Case Report. *Cureus*. 2023; 15 (10) . Available from: https://doi.org/10.7759/cureus.46667
8. Kazanjian VH. Surgery as an Aid to More Efficient Service with Prosthetic Dentures**Read before the Section on Full Denture Prosthesis at the Seventy-Sixth Annual Session of the American Dental Association, St. Paul, Minn., Aug. 7, 1934.. *The Journal of the American Dental Association (1922)*. 1935; 22 (4) :566-581 . Available from: https://doi.org/10.14219/jada.archive.1935.0096
9. Benuja S, Pradhan S. Clark's Technique of Vestibuloplasty - A Case Report. *Journal of Nepalese Society of Periodontology and Oral Implantology*. 2020; 4 (2) :93-95 . Available from: https://doi.org/10.3126/jnspoi.v4i2.34305
10. Patel M, Ahmed S, Haneef M. Comparison between two surgical techniques for vestibuloplasty – A retrospective study. *Journal of Oral Medicine, Oral Surgery, Oral Pathology and Oral Radiology*. 2020; 6 (4) :199-204 . Available from: https://doi.org/10.18231/j.jooo.2020.043