Case report

ENHANCING GINGIVAL BIOTYPE WITH VESTIBULOPLASTY AND FREE GINGIVAL GRAFT: A CASE REPORT

Abstract

This case report describes the Clark's technique of Vestibuloplasty to treat shallow vestibule and in addition, the use of Connective Tissue Autograft to augment attached gingiva to treat Miller's recession. Vestibuloplasty is performed to deepen a shallow vestibule. Different Vestibuloplasty techniques are used to deepen the shallow vestibule by modifying the soft tissue attachment. A 29-year-old male was presented to the department of Periodontics and Oral Implantology, Regional Dental College, Guwahati, India with the chief complaint of bleeding from lower anterior along with gingival recession. The combined technique of Vestibuloplasty and use of free gingival graft was performed to achieve dual benefits of increasing the vestibular depth and attainment of a thick gingival biotype.

Keywords: Vestibuloplasty , Gingival Graft, Biotype, Clark's technique

INTRODUCTION:

A radiant smile results from a healthy body and emotional well being in today's world. The overall smile aesthetics is governed by many factors, such as gingival tissues, form and position of the teeth[1]. Periodontal Plastic Surgery plays an important role in enhancing the overall aesthetics. Few times periodontal plastic surgery, apart from being used as an aesthetic procedure, is also used for improving the maintenance of regular oral hygiene [2]. One such common problem is the shallow vestibule. Shallow vestibule hinders in maintenance of oral hygiene, which leads to incomplete removal of plaque deposits [2]. Sometimes the muscular

traction provided by the vestibule can be a causative agent for the development of gingival recession. Presence of a labial frenal attachment can be an additive factor leading to further gingival recession. The depth of the vestibule is measured from the coronal part of the attached gingiva to the muco-buccal fold [3]. Vestibuloplasty is performed to deepen a shallow vestibule. Different Vestibuloplasty techniques are used to deepen the shallow vestibule my modifying the soft tissue attachment. This case report describes the Clark's technique [4] of Vestibuloplasty to treat the shallow vestibule and in addition, the use of Connective Tissue Autograft to augment attached gingiva to treat Miller's recession.

CASE REPORT:

A 29-year-old male presented to department of Periodontics and Oral Implantology, Regional Dental College, Guwahati, India with the chief complaint of bleeding from lower anterior and gingival recession. Following routine examination, it was found that the patient had no previous dental history and patient was not having any tobacco chewing habits. The patient had a shallow vestibule and tension test was positive in relation to lower anterior. Bleeding on probing was present along with gingival recession (Miller's Grade I) in relation to 41, 42, and 31. Patient was suggested vestibuloplasty to treat the shallow vestibule with Connective Tissue Autograft to augment the thin attached gingiva following Phase I Therapy, which included full mouth scaling and gingival curettage in lower anterior. Preoperative evaluation was done before the surgical procedure. The Vestibule depth was taken from the coronal part of the attached gingival to the base of the Vestibule (Figure 2). A horizontal incision was given 3mm away from the CEJ (cement enamel junction) to preserve the interdental papilla and to prevent the further extension of recession. Vertical incision was given on the distal aspect of 32 and 43 which was extended apically towards the mucogingival junction. The mucosa on the buccal side was then undermined and the mucosal flap was sutured with resorbable synthetic vicryl 5-0 suture at the depth of vestibule (Figure 3). A free gingival tissueauto graft was harvested from palate (Figure 4). The harvested grafted was stabilized using 5-0 Vicryl suture (Figure 5). A tin foil was placed over the surgical recipient site and Coe-pack was placed for wound protection (Figure 6, 7). The surgical site was then left to heal by means of secondary intention.Coe-pack provided for wound

protection was removed after 10 days.The surgical site was irrigated with saline. Post operative evaluation was done after 2 weeks (Figure 8, 9) and 3 months (Figure 10, 11).

Figure 1: Pre-operative

Figure 2:Pre-Operative Evaluation

Figure 3: Deepning of the vestibule

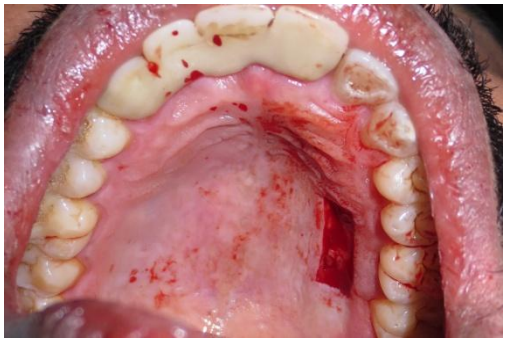

Figure 4: Connective Tissue harvested from Palate

Figure 5: Connective tissue stabilized using 5-0 Vicryl

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Figure 6: Sterilized Tin Foil Covering the recipient site

Figure 7: Coe-Pack Placed

Figure 8:Post-Operative Evaluation after 2 weeks.

Figure 9: Post-Operative Evaluation after 2 weeks

Figure 10: Post-Operative Evaluation after 3 Months

Figure 11: Post-Operative Evaluation after 3 Months

DISCUSSION:

Periodontal plastic surgery techniques that were earlier included in the definition of mucogingival surgery were widening of attached gingiva; deepening of shallow vestibule; and resection of aberrant frenum. Deepening of shallow vestibule by vestibuloplasty is a widely performed technique [5]. Achieving the widening of attached gingiva and to augment the thin gingival biotype along with obtaining a deeper vestibule for maintaining routine oral hygiene is the primary aim for this case.

Primary reason for having a shallow vestibule is ridge resorption following extraction of tooth. Other factors relating to shallow vestibule can be firm muscle pull/insertion by positive frenal attachment [6].This case presents as a gingival recession, which is because of frenal pull in lower anterior. Also, the patient is having a thin gingival biotype and a shallow vestibule. Both can lead to accumulation of plaque in lower anterior and also the predictability of having further recession in lower anterior increases. [7].

Vestibuloplasty techniques can be broadly classified as mucosal advancement vestibuloplasty, secondary epithelization vestibuloplasty, and grafting vestibuloplasty [8]. Mucosal advancement vestibuloplasty depends on the height of the bone and extent of free mobile mucosa along the vestibule so that adequate deepening can be achieved. If there is an absence of free mobile mucosa along the vestibule, secondary epithelization technique has a better prognosis [9,10]

Kazanjian's technique (1924) was the foremost technique described in literature for vestibuloplasty. The disadvantage associated with Kazanjian's technique was extensive scarring of lip. This scarring was mainly because of the labial flap, which was pedicled off the alveolar process and used to cover the alveolar bone side. The labial surface heals by secondary epithelization.Clark (1953) recommended flap to be pedicled off the lip and raw area was left on the alveolar side rather than labial side [11].The disadvantage of Clark's technique is its unpredictability in maintaining the vestibule depth.The clark's technique, which heals by secondary epithelisation mechanism, can cause reinsertion of detached muscles to its pre-operative levels, causing a relapse in vestibular depth [10]. In this case, besides Clark's

technique of vestibuloplasty, free gingival graft harvested from palate was used to augment the thin gingival biotype and to prevent further recession.Periodontal phenotype has been proposed to replace the term gingival biotype [11].The term periodontal phenotype, first proposed by Müller and Eger, includes the three-dimensional gingival volume and thickness of the buccal/facial bone plate [12].

CONCLUSION:

In conclusion, this case report shows successful outcome of vestibuloplasty in anterior mandible. The combined technique of vestibuloplasty and use of free gingival graft have dual benefits of increasing the vestibular depth and attainment of a think gingival biotype. The deeper vestibule will make routine oral hygiene possible and the prevent accumulation of plaque. The free gingival graft will help in prevention of further recession [13]

Disclaimer regarding Consent and Ethical Approval:

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors

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