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Case Report

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Vestibuloplasty with coronal advancement in mandibular gingival recession defects- A Case Report

Dr Rashmi Paramashivaiah,[1] Dr Anusha S,[2] Dr Prabhuji MLV[3]

[1]Reader, Department of Periodontology Krishnadevaraya College of Dental Sciences And Hospital, India

[2]Postgraduate student, Department of Periodontology, Krishnadevaraya College Of Dental Sciences And Hospital, India

[3]Professor and Head of the Department, Department of Periodontology, Krishnadevaraya College of Dental Sciences And Hospital, India

Correspondence: Rashmi Paramashivaiah, Department of Periodontology Krishnadevaraya College of Dental Sciences And Hospital, Bangalore, India, Email rashparams2005@yahoo.in

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Introduction

Diligent plaque control ensures optimal periodontal health thereby ensuring longevity of dentition. There are several impediments for removal of plaque some antomical and others related to manual dexterity.[1] One such anatomical factor is a shallow vestibule which really hinders mechanical plaque control more specifically tooth brushing. An inadequate vestibular depth and insufficient keritinized tissue width often go hand in hand. The sequelae of shallow vestibular depth are gingival inflammation, recession and pocket formation.

In some cases, an anatomical variation, such as a higher insertion of the vestibular mentalis and other associated muscles muscle attachments, causes a decrease in the vestibular depth. To make matters worse, there may not be enough keratinized gingiva, which is essential for maintaining periodontal health.[2]

Vestibuloplasty is a procedure to treat the same and can be carried out using a scalpel, electrocautery and lasers.[1] Different vestibuloplasty procedures have varying degrees of success. The common methods include Kazanjian's and lip-switch technique, obwegeser and mandibular vestibuloplasty methods.

Most of these methods rely on abundance of mucosa to increase vestibular depth. The Kazanjian procedure addresses this problem by obtaining a pedicle from the labial mucosa, which may lead to exposure labially.[3] The lip-switch technique performs an incision and dissection of periosteum before placing the periosteum over the denuded labial submucosa to address this problem but has varying degree of success.[4]

In addition to being more popular for improving vestibular depth, Clark's vestibuloplasty was also very successful at resolving the mucogingival issue related to the teeth.

Clark's vestibuloplasty because of its simplicity is more popular and is hence used in this case report,[5] Since there was also Miller's class III recession coronal advancement was attempted.

Case Report

A 35-year old female patient reported with complaint of receded gums in the lower anterior region. On clinical examination with the University of North Carolina-15 (UNC-15) periodontal probe, a shallow vestibule of 3 mm in relation to 31 and 41 along with Miller's class III recession were observed and a diagnosis of chronic generalised gingivitis with mucogingival deformity irt 31 and 41 was made.

Scaling and root planning was carried out and oral hygiene instructions were given. The patient was re-evaluated every week and recalled after a month for surgery following hemetological investigation. The procedure were explained verbally and a written informed consent was obtained. A 0.2% CHX solution as a mouth rinse and 2% lignocaine with adrenaline 1:200,000 was administered as a topical anaesthetics. Using 15 BP blade horizontal incision was made at the mucogingival junction i.r.t relation to teeth 31, 41. Supraperiosteal dissection was then performed up to the appropriate vestibular depth. After undermining the buccal mucosa, a vertical releasing incision were given to aid in the coronal advancement of the flap to achieve root coverage irt 31 and 41, the mucosal flap was sutured using resorbable synthetic vicryl 4-0 suture at the vestibule's depth.

Postsurgical instructions were given with prescription of analgesic (paracetamol+ aceclofenac 425 mg, if needed) and warm saline rinse (three to four times per day for two weeks). Mechanical tooth cleaning was restricted on the surgical site for the first week with extraoral cold compression for the first day.

Discussion

Freidman (1957) referred to the term "mucogingival surgery" as a surgical procedure that corrects the relationship between gingiva and the oral mucous membrane. The main mucogingival problems are high frenum, gingival recession and shallow vestibule. Shallow vestibule can occur as a result of alveolar ridge atrophy after extraction, high muscle insertion or as a result of surgical procedures such as coronally advanced flaps, excisional wound followed by scarring, etc. It has been associated with problems in maintenance of oral hygiene, increased food accumulation during mastication, gingival recession, difficulty in placing removable prosthesis, etc. Hence, correction of shallow vestibule is needed to maintain the periodontal health.

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Figure 1 Pre- operative.

Figure 2 After 1 week of healing.

Figure 3 7 month follow up.

In the present case, the patient had difficulty in brushing due to shallow vestibule and this subsequent recession i.r.t 31 and 41 which was corrected by vestibuloplasty and coronally advanced flap. Vestibuloplasty is the surgical modification of the gingiva-mucous membrane relationships including deepening of the vestibular trough, altering the position of the frenulum or muscle attachments, and widening the zone of attached gingiva. Kazanjian's technique (1924) is the prototype of vestibuloplasty procedure where the labial flap pedicled off the alveolar process is used to cover the alveolar bone side while the labial surface is allowed to heal by secondary epithelisation. The major drawback of this procedure is severe scarring of lip causing heading to lip flexibility. Thus, to overcome this drawback Clark (1953) recommended flap to be pedicledoff the lip and raw area was left on the alveolar side rather than labial side. In Clark's mucosal advancement vestibuloplasty the mucous membrane of the vestibule is undermined and advanced to line both sides of the extended vestibule.

The disadvantages of Clark's technique is there can be unpredictable amount of relapse of the vestibular depth gained and scarring of vestibule. The secondary epithelisation vestibuloplasty heals similar as excision wound. Hence, during healing, the newly attached mucosa becomes loose and the detached muscles reinsert into preoperative levels causing relapse. Reduction in the vestibular depth can be seen over three months follow-up in current case report. Thus, in the present case Clark's vestibuloplasty was performed from 33 to 43. Depth of the vestibule increased approximately by 4mm and remained so after seven months without any relaps.

Recession can be treated using a range of treatments like free gingiva autograft, connective tissue auto graft, dermal graft etc which are complex and often their success is unpredictable. Millers class I and II respond favourably to any of the treatments making class III as the most challenging one to treat. Thus, in this case a modified coronally advanced flap was attempted in 31 and 41 along with vestibuloplasty.

The baseline recession depth was 6mm and width 4mm which reduced to 4mm and 3mm at seven months. This was a modest recession coverage considering the reduced keritinised tissue width and a advanced grade of recession initially. There was an improvement in maintenance of oral hygiene and patient was satisfied with the recession coverage obtained with these two procedures.

Conclusion- Each clinical scenario is unique with its own challenges. Treatment can only be successful if we as clinicans adapt to what is required in each situation and modifies the procedure accordingly. Thus, in relevant clinical situations vestibuloplasty could be combined with modified coronally advanced flap procedure to achieve satisfactory outcome.

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Conflicts of Interest

None.

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