Double Papillary Flap - A Treatment for Gingival Recession

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Abstract: Esthetic concerns of the patient have become an essential part of dentistry, especially Periodontics. Periodontal plastic surgery is a rapidly emerging field, which helps us to meet this criterion. Marginal tissue recession can cause the major functional and esthetic problems. It has been clinical related to higher incidence of root caries, attachment loss, root sensitivity and smile related concerns. Root coverage is being achieved by a variety of techniques namely pedicle grafts and free soft tissue grafts. This paper highlights on case series in which a double papillary flap technique has been used for root coverage.

Key words: Denuded Root Surface • Root Coverage • Plastic Surgery

INTRODUCTION

“Double-Papillae Laterally Positioned Flaps” This procedure was first described by Wainberg as the double lateral repositioned flap (Goldman and colleagues, 1964) and was refined by Cohen and Ross (1968) as the double-papilla flap. It is designed to achieve an adequate zone of attached keratinized gingiva and/or coverage of a denuded root surface by joining two interdental papillae. Grupe et al proposed the technique of laterally repositioned flap operation for root coverage of isolated recessions [1]. The reported mean percentage of root coverage ranges between 34% and 82% [2].

Indications:
- When the interproximal papillae adjacent to the mucogingival problem are sufficiently wide
- When the attached keratinized gingiva on an approximating tooth is insufficient to allow for a laterally positioned flap
- When periodontal pockets are not present

Advantages:
- The risk of loss of alveolar bone is minimized because the interdental bone is more resistant to loss than is radicular bone.
- The papillae usually supply a greater width of attached gingiva than can be gotten from the radicular surface of a tooth.
- The clinical predictability of this procedure is fairly good.

Disadvantage:
- The primary disadvantage of this procedure is in having to join together two small flaps in such a way that they act as a single flap.

Case Report 1

Case 1: Patient age 24Yrs has reported to dept of periodontics complaining of traumatic injury on year. Clinical examination revealed Grade 2 mobility in the upper anterior teeth. Gingival bleeding on probing, Pre-operative

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measurements was taken. The baseline measurements of gingival recession were depth 7mm, width 4mm. Gingival biotype was measured by transgingival probing and found to be thin biotype (A).

The mucogingival junction is the line of demarcation between the coronally attached gingiva and the oral mucosa below. When the periodontal probe is inserted, into the gingival sulcus, that it extends 1 mm beyond the mucogingival line; therefore, that 1 mm of marginal tissue is not attached to the root surface.

Treatment: Phase I therapy was planned and scaling and root planing procedure was done. Re-evaluation of Phase 1 therapy was commenced after 4 weeks. The next stage of treatment was aimed on ligature wire splinting in relation to 14 to 24 region to stabilize the teeth.

The surgical incisions are outlined in by dotted lines. Root conditioning was done. The exposed root surface was thoroughly planed with a curette. A root surface free of plaque, deposits, or any restorative material represents an optimal biological surface onto which the autograft will heal and lead to reattachment, repair, or regeneration. Healing with a connective attachment was shown in human histological specimens [3]. Then chemical root conditioning was done with a cotton pellet using Tetracycline tablet that was applied on tooth surface.

Acid conditioning (tetracycline or citric acid, edetic acid) to remove the smear layer and to expose wider dentinal tubules has shown beneficial effects in animal studies. Another form of root conditioning is performed by topical application of 50 mg/ml tetracycline for 5 min (Wikesjö et al. 1986). This is accomplished by dissolving the content of a 250-mg tetracycline capsule in 5 ml saline. Using a Q-tip, apply the tetracycline mix on the root surface and then thoroughly irrigate the root surface with water and dry it with air [4].

The lateral releasing incisions will be made at the mesiofacial and distofacial line angles of the adjacent teeth and should not encroach on the radicular surfaces of the approximating teeth because this will expose radicular bone.

This incision should extend far enough apically into the mucosa. Horizontal incisions were made across the tops of the papillae to allow better placement of the flap.

Using a no. 15 scalpel blade, the V-shaped incision is made and extended to the depth of, but not including, the periosteum. The V-section is then removed and the root surface is thoroughly scaled. Once the horizontal incisions are made across the tops of the papillae, the tissue is grasped with pliers and gently lifted as it is separated from the underlying tissue by means of a no. 15 scalpel. Care must be exercised to prevent lifting the periosteum off the bone or accidentally puncturing or severing the flap.

Fig. 1: Grade III gingival recession interdental In relation to 13
Fig. 2: Horizontal incision at the Papilla and Vertical incision at the Interproximal angles of the teeth
Fig. 3: partial thickness flap is elevated the recession area in 13
Fig. 4: Flap is approximated to cover
Fig. 5: Flap is adapted to the denuded surface
Fig. 6: Suturing done
Case Report 2:

The tissue at the mucogingival line is more firmly bound and is easier to separate from the mucosal side. Therefore, to completely release the flap, the scalpel blade is inserted into the base of the lateral releasing incision and moved in an apico-occlusal direction until the flaps are lifted off the periosteum (the periosteum overlying the bone coronal to the mucogingival junction.

A full-thickness mucoperiosteal flap is occasionally used as a modification by which the underlying bone is exposed. The tissue is now grasped with pliers and the suture needle is passed through the outer surface of the first papilla and on through the undersurface of the second papilla. Coadaptation of the double-papillae flap is accomplished using 4-0 absorbable suture with a P-3 atraumatic needle. Special care must be taken to ensure that there is no separation of the flaps. Removal of the outer epithelium on one flap, allowing the two papillae to overlap with contact on their connective tissue surfaces, may be used to prevent separation.

After surgery, patients were instructed to discontinue tooth brushing at the surgical area for two weeks and to rinse with 0.12% chlorhexidine mouth rinse three times daily for 6-8 weeks. Amoxycillin 500 mg three times daily was prescribed for 5 days after surgery to prevents infection. Patients were recalled once a weeks review for the first months.

The periodontal dressings was removed after one week post-operatively. Post operative follow up are arranged at 1, 2, 3 weeks for 3 months. Regular maintenance care by scaling and plaque control was performed.

Case Report 2: A 24 /F patient has reported to the dept of Periodontics for the treatment of gingival recession in buccal side to 41. On clinical examination Millers class 3 gingival recessions. The dimensions of gingival recession were width and depth 2mm. Similar surgical procedure was performed in relation to 41. Two weeks after surgery satisfactory root coverage, the results were satisfactory.

Case Report 3: The third patient was 26 /F who was treated for Millers Class 3 gingival recession in relation to 31. The dimension of gingival recession was 3 mm of width and depth. Similar surgical technique was performed in relation to 31. Sutures were placed and periodontal pack was given. Two weeks after surgery a satisfactory root coverage was found.
Common Reasons for Failures:

- Adequate suturing is necessary to ensure proper healing in the desired position. Without adequate closure of the double-papillae flap, separation can occur, with possible nonunion of the component flaps. This is the most frequent cause of failure.

- The use of full-thickness flaps as opposed to the recommended split-thickness flap can lead to surgical failure if, after raising the full-thickness flap, dehiscence or fenestration of the osseous support is present. The failure will be unsightly exposure of the root surface (Figure 6-47B).

- For the double-papillae flap procedure to be successful, it is imperative that adequate attached gingiva be available in the papillary area for transfer. Proper evaluation of the donor areas should be made prior to surgery so that another procedure may be done if necessary (Figure 6-47C).

- Proper placement of the flap on the periosteal bed is necessary to ensure the success of the procedure. Note that the attached gingiva is placed only over the root surface and not over part of the periosteum. If the attached gingiva does not take on the root surface, the whole procedure will fail.

- Adequate fixation of the flaps to the underlying periosteum is necessary to prevent shifting of the component flap tissues and the formation of a blood clot. Two sutures should be made at the base of the flaps to ensure fixation in the case shown in Figure 6-47E.

- In the patient shown in Figure 6-47F, two additional sutures placed at the coronal aspect of the flaps but not at the base would have been the preferred procedure.
DISCUSSION

Double papillary flap has been demonstrated to be a reliable technique for root coverage. The advantage for this technique are reduced hypersensitivity, good color matching, good blood supply for the reflected flap with high mean percentage of root coverage[6]. However there are many limitations need to be considered when this technique is applied:

- The interdental papillary tissue adjacent to the area of recession should be thick
- There should be no deep periodontal pockets and the bone loss beyond the mucogingival junction at the interdental areas of the affected tooth.
- Separate surgical procedures are still needed in presence of multiple adjacent areas of recessions.
- A shallow vestibule also may jeopardize outcomes[7].

The disadvantages of this method are possible bone loss and gingival recession at the donor site[8].

CONCLUSION

The present study is based on the double papillary flap. It has lot of advantage such as preservation of exposed bone, preservation of attached gingiva, there are also disadvantage attachment of two flap into a single one and special care should be taken that there should be no flap separation.

REFERENCES