

Modified Approach of Double Papillae Laterally Positioned Flap Technique using Alloderm® for Root Coverage

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ABSTRACT

Cosmetic concern is on increase in dental patients these days resulting in more demand for periodontal plastic surgical procedures. Gingival recession is one of the common problems which impairs aesthetic and may result in hypersensitivity and increase chances of root caries. Several plastic procedures are available to correct the defect. Double papilla laterally positioned flap combined with Alloderm has been used to cover single tooth class I recession site as adequate width of keratinized gingiva is present on adjacent teeth. The technique has resulted in 80% of root coverage.

Keywords: Alloderm, Cosmetic, Double papilla flap, Gingival recession, Lateral positioned flap, Root coverage

CASE REPORT

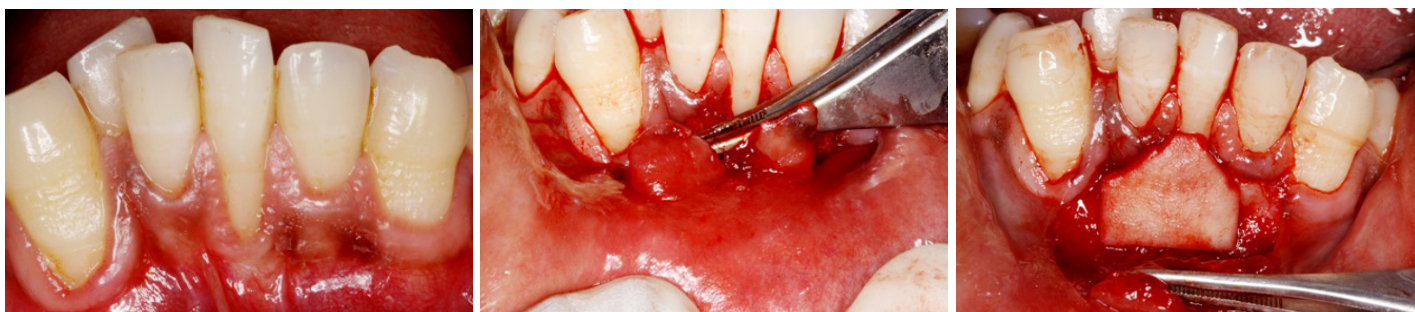
A 35-year-old male patient reported to outpatient Department of Periodontology, with the chief complain of hypersensitivity in lower anterior tooth region. On clinical examination, class I gingival recession and lack of attached gingiva was noticed in relation to mandibular left central incisor [Table/Fig-1] Diagnosis of chronic localised periodontitis was reached. Other clinical parameters noticed were probing depth of 1mm, gingival recession is 5mm and clinical attachment loss is 6mm. The possible aetiology considered to be incorrect tooth brushing technique. As the adequate amount of attached gingiva was present in relation to the adjacent tooth and patient's unwillingness to underwent surgery for harvesting free autografts from palate, it was decided to use double papilla lateral flap with alloderm for root coverage. The patient was explained about the procedure and written informed consent was taken. Clinical parameters were assessed at the mid-buccal site of the tooth using the CEJ as a fixed reference point from which recession was recorded. All measurements were recorded using an UNC-15 periodontal probe at baseline, 3 months and 6 months after surgery. Presurgical preparation including oral hygiene instructions, complete scaling and root planning was done.

After adequate anaesthesia (2% lidocaine with 1:100,000 epinephrine), a v – shaped incision was made to remove a wedge of gingiva over the exposed root. The full thickness lateral releasing incisions was made at the mesiofacial and distofacial line angles of the adjacent teeth on both sides of exposed root. This incision was extended far enough apically into the mucosa to prevent bunching of the tissue when the flaps are brought together. The submarginal horizontal incision is made connecting lateral releasing incision to recipient site; full thickness flap is elevated on either side of recipient

bed [Table/Fig-2]. The measured piece of rehydrated alloderm was placed on recipient site involving the adjacent donor areas where bone is exposed [Table/Fig-3] and sutured into place with sling and interrupted sutures using 5-0 bioabsorbable suture [Table/Fig-4]. The lateral pedicle tissue is grasped with corn tissue plier and the suture needle is passed through the outer surface of first papilla and on through the under surface of another papilla. Coaptation of double flap is done using 5-0 bioabsorbable suture. Releasing incisions were sutured by interrupted sutures [Table/Fig-5]. Special care is taken to ensure that there is no separation of flaps. Digital pressure was applied for five minutes to aid initial adherence of the flaps to the underlying bed and prevents formation of a blood clot.

After surgery, patient was instructed to discontinue tooth brushing at the surgical area for two weeks and to rinse with 0.12% chlorhexidine solution three times daily for 6-8 weeks. Amoxicillin (500 mg three times a day for five days) and ibuprofen (three times a day for five days) were prescribed. Suture removal was done at 15 days [Table/Fig-6]. Patient was recalled once a week for review for the first month and then at the end of 3rd month [Table/Fig-7] and 6th months [Table/Fig-8] to evaluate stability of the root coverage achieved. Regular maintenance care by scaling and plaque control was performed.

The healing of the tissue was uneventful. Coverage of around 4mm was achieved. Shrinkage of the tissue during healing period resulted in 1mm of the residual defect. The patient maintained good oral hygiene and the probing depth on the midfacial surface of the treated tooth was normal (2mm) throughout the six months follow-up period. The result was found to be stable from 3 to 6 months. The patient was instructed and trained to use a soft toothbrush and to eliminate habits related to the aetiology of the recession.



[Table/Fig-1]: Pre-operative photograph showing gingival recession

[Table/Fig-2]: Double papilla pedicle flap elevated from adjacent teeth

[Table/Fig-3]: Alloderm® graft placed at the site



[Table/Fig-4]: Alloderm® sutured and stabilized at the site

[Table/Fig-5]: Double papilla pedicle flap sutured over alloderm and stabilized

[Table/Fig-6]: Fifteen days post operative photograph

DISCUSSION

Gingival recession is the displacement of the gingival margin apical to the cemento-enamel junction with oral exposure of the root surface. Gingival recession when causes hypersensitivity or aesthetic problems necessitate the coverage of root [1,2]. Various techniques such as free gingival graft, free connective tissue grafts, pedicle flaps, allografts, guided tissue regeneration have been proposed for root coverage. The selection of the procedure depends on degree of recession, width of attached gingiva, no. of teeth involved and postoperative color harmony. Each technique has its own indications and limitations. Free autogenous grafts result in good coverage but associated with second surgical site and postoperative patient discomfort. On the other hand, Lateral pedicle flaps have advantage of good blood supply and avoidance of second surgical site, thus decreasing patient morbidity. They are preferred at recession sites with narrow mesiodistal dimension on single tooth, sufficient width, and thickness of keratinized gingiva on adjacent tooth [3] Double papillae laterally positioned flap is the type of lateral pedicle flap in which the adjacent papillae from either

technique was combined with alloderm®. This technique not only results in root coverage but also results in increase in keratinised attached gingiva. Double papillae laterally positioned flap technique has been considered to be a reliable and predictable method for treating localised gingival recession. The advantages of laterally repositioned over other procedures are the presence of its own blood supply after the transfer of the graft and a high survival rate. It results in reduced hypersensitivity, aesthetic color matching, high mean percentage of root coverage [4]. Studies have shown that these procedures are associated with significant clinical attachment gain with reduction in probing pocket depth along with root coverage outcomes. The root coverage was obtained with no change in the position of the gingival margin lateral to the defect [5]. Studies have shown that laterally positioned flap results in 93% of root coverage and 62.5% of the recipient sites with complete root coverage. This technique have also resulted in gain in keratinised gingiva (more in maxilla than mandible) [7].

Double laterally rotated bilayer flap, another modification of double papillae flap had also resulted in complete coverage of root [8]. In one of the study, lateral positioned flap showed results similar to that of connective tissue graft for recession coverage with regard to mean recession change ((LPF 2.47 mm versus CTG 2.64 mm) [9]. In the present case report, alloderm® has been used underneath the flap to increase the predictability of the procedure. In a study, alloderm® has been used with coronally advanced flap procedure, mean gingival recession decreased from 4.20 to 0.25 mm when basement side of the graft was toward the site and it decreased from 3.70 to 0.15 mm when connective tissue side was toward the site [6]. When double papilla flap combined with GTR was compared with coronally advanced flap combined with GTR, the study had shown that there was significant decrease in recession in both the cases and no significant difference between the groups [10]. Double papillae flap in combination with subepithelial connective tissue graft had shown to have better result than free gingival graft alone [11,12].

The present technique avoids discomfort and morbidity of patients encountered with other grafting techniques which are associated with palatal donor sites. This procedure is a time efficient, less invasive, and highly aesthetic treatment option for managing isolated recession defects [13].

CONCLUSION

Combining double papilla lateral sliding flap with Alloderm® for root coverage presents a new technique which possesses many potential benefits to patients with localised recession defects. Thus, it can be considered as a predictable method for root coverage.

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[Table/Fig-7]: Three months post operative photograph



[Table/Fig-8]: Six Months post operative photograph

side is mobilised into recession defect. Sometimes, pedicle flaps are combined with free autografts to increase the predictability of the procedure [4,5]. Alloderm® has been introduced as an alternative to autografts and has also been combined with coronally positioned flaps for root coverage in studies [6].

This case report describes the root coverage procedure using newer technique in which Double papillae laterally positioned flap

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