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CASE STUDY

MODIFIED CORONALLY ADVANCED FLAP (*ZUCCHELLLI TECHNIQUE*): A CASE SERIES

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ABSTRACT

Background: Desire for improved aesthetics and the consequent need for cosmetic dentistry have increased tremendously in recent times making aesthetic procedures an integral part of periodontal treatment. The treatment of choice for recession coverage should address the biological as well as the patient's aesthetic demands. Zucchelli and Sanctis (2000) proposed a modification in the coronally advanced flap technique for treatment of multiple recession defects in aesthetic areas. Case series in which zucchelli's technique was done to obtained desirable results of root coverage.
Method: Miller's class I multiple recession defects in upper maxillary anterior region were included for treatment. After initial therapy subjects were treated with zucchelli's technique and recession depth were evaluated after 6 months.
Results: the result revealed significant decrease in recession depth and aesthetically pleasant appearance after 6 months. No scar formation was seen.
Conclusion: Zucchelli's technique is effective for the treatment of multiple adjacent recessions in terms of both root coverage and keratinized tissue gain, irrespective of the number of defects. Moreover, this technique does not require an additional surgical site.

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INTRODUCTION

Over the years, numerous surgical techniques have been introduce to correct labial, gingival recession defects. Aesthetic concerns and to obtained optimum biologic width of gingiva are usually the reason to perform these procedures. "Gingival recession" is the exposure of the root surface because of the displacement of the gingival margin apical to cement-enamel junction (Glossary of Periodontology, 4th edi, 2001). It is a common occurrence in individual with poor oral hygiene as well as those with good oral hygiene & it usually affects the multiple teeth simultaneously. Therefore many patients request for root coverage (Marmar *et al*., 2009) for an aesthetic reason. There are several surgical approaches for covering exposed root surfaces, including free gingival graft placement (Miller,1982), the coronally advance flap (Harris *et al*.,1995), subepithelial connective tissue graft (langer & Langer 1985, paoloantonio *et al*., 1997), pedicle grafts (Harris,1995), laterally repositioned flap (Grupe,1956), double pedicle flap (Cohen,1968), oblique rotated flap (Pennel,1965).

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The guided tissue regeneration technique (Evandro, 2000; Pini Parto,1996), Acellular dermal matrix (de Queiroz Cortes, 2006) has also been utilized for root coverage procedures. The gingival recession affects 22.5% to 75.1% of individuals and multiple recessions are common manifestation in most of the populations, affecting from 6.5% to 43.5% of teeth per individual (Albandar, 1999; Susin, 2004; Van Palenstein Helderman, 1998). The possible pathogenesis of gingival recession is related to tissue inflammation produced by biofilm accumulation and traumatic brushing. When multiple gingival recessions involving adjacent teeth are present, an approach to address all the recession defects at one single surgical time is the first choice. A few case reports (Allen, 1994; Blanes, 1999; Zabaleguil, 1999) and case series (Tinti, 1996; Zucchelli, 2000; Centiner, 2004) have specifically addressed multiple adjacent gingival recessions, showing complete root coverage in 61% to 88% of defects. The aim of this case series was to clinically evaluate the effectiveness and the predictability of root coverage at adjacent multiple gingival recessions using a modified coronally positioned flap. The modified coronally advanced flap (zucchelli technique) (Zucchelli, 2000) is one of the most effective technique for miller's class I & class II recessions. Since, it gives a excellent aesthetic results and

technique is simple to perform so this technique can be used for multiple adjacent gingival recession defects.

Case report 1:

A 32 year male reported to the Department of Periodontology and Oral Implantology.

Chief Complain: Patient complained of sensitivity and unaesthetic appearance in the maxillary front region (11,21) since; 4month. Patient had a tobacco chewing habit for past 5 years and patient used to brush in horizontal scrub technique which is one of the cause of gingival recession. Clinical examination revealed Millers's I gingival recession with maxillary central incisors. Recession depth of 3 mm on mesiofacial aspect of both the central incisiors. (Fig.1)

Case 1:

Fig.no.1

Fig.no.2

Fig.no.3

Fig.no.4

Fig.no.5

Fig.no.6

Fig.no.7 Pre-operative.

Fig.no.8 Post-operative after 3 months.

Case 2:

Fig.no. 9

Fig.no. 10

Fig.no. 11

Fig.no. 12

Fig.no. 13

Fig.no. 14

Presurgical procedure: Preparation of patient including scaling and root planning of entire dentition and oral hygiene instruction has been given. The surgical procedure was explained to the patient and informed consent form was get signed by the patient. Patient was advised to stop tobacco chewing habit and advised modified stillman's technique for tooth brushing. Patient was prescribed antibiotic Amoxicilin (500mg tds) a days prior the surgery and after surgery continuing it for 4 days.

Case report 2:

A 28 year male reported to the Department of Periodontology and Oral Implantology.

Chief complain: Patient complained of sensitivity in the maxillary front region (11,12,13) since; 7months. Patient had smoking and tobacco chewing habit since a year and patient use to brush once daily with horizontal scrub technique. Clinical examination revealed miller's class I gingival recession with recession depth of 3 mm on mesiofacial aspect of 12,13,14 teeth. (Fig.9)

Presurgical procedure: Preparation of patient including scaling and root planning of entire dentition and oral hygiene instruction has been given. The surgical procedure was explained to the patient and informed consent form was get signed by the patient. Patient was advised to stop smoking and tobacco chewing habit and advised modified stillman's technique for tooth brushing. Patient was prescribed antibiotic

Amoxicilin (500mg tds) a days prior the surgery and after continuing it for 4 days.

Surgical procedure

Zucchelli's technique (Zucchelli, 2000): New modification of coronally advanced flap for multiple teeth recession coverage The procedure was carried out under local anesthesia (Lignocaine HCl with 2 % epinephrine 1 : 200,000) Clinical features of multiple coronal advanced flap are the absence of vertical releasing incisions, a variable thickness, combining areas of split and full thickness and the coronal re-positioning of the flap. Another characteristic feature is the oblique submarginal incisions in the interdental area. Incisions are given obliquely connecting the CEJ of one tooth to the gingival margin of the adjacent tooth. Horizontal incisions were given connecting the CEJ of one tooth to the gingival margin of the adjacent tooth (Fig.2 and Fig.10). A split thickness flap was reflected till the root exposure and further apically a full thickness flap was raised (Fig.3 & and Fig. 11). Beyond mucogingival junction again a split thickness flap was reflected to ensure adequate coronal displacement (Fig.4 and Fig. 12). Anatomic interdental papilla was completely de-epithelialised to expose the underlying connective tissue and to eliminate the epithelium that might interfere with healing (Fig. 3 and Fig. 12). After flap reflection the root surface was examined for remnant calculus and thorough scaling and root planing was done. While advancing the flap coronally, surgical papillae were rotated towards the ends of the flap and were displaced on the prepared connective tissue beds of the anatomical papillae. The flap was secured in place with sling sutures (Fig. 5 and Fig. 13). This ensured precise adaptation of the flap. The surgical site was then covered with periodontal dressing

Postoperative instructions

The patient was instructed not to remove the pack or disturb the surgical site in any way till the sutures were removed. Other post operative instructions were given. Patient was advised to take antibiotics & analgesics for 5 days TDS post-operatively (Amoxicillin 500mg & tablet combiflam (ibuprofen 400mg+paracetamol325mg)). Use of 0.12% chlorhexidine rinse was also advised. Two weeks post-operatively the periodontal dressing and the sutures were removed. Healing was satisfactory and adequate root coverage was obtained. Recall after 6 months reveled stable results and no sensitivity was reported.

DISCUSSION

The most important factor in the etiology of dentin hypersensitivity is the exposure of root surfaces from gingival recession (Tugnait, 2001; Paoloantonio, 2002) Treatment modality includes an attempt to cover the exposed root surfaces. Over the past decades numerous periodontal plastic surgery (PPS) procedures have been described in an attempt to cover exposed root surfaces. Among these methods the most commonly employed is the 'coronally repositioned flap' introduced by Bruiestein in 1970 and modified by Allen & Miller in 1989. Zucchelli & Sanctis modified this technique further in 2000 (Zucchelli G, de Santis 2000). The case presented here demonstrates Zucchelli's modification of the coronally advanced flap. This new technique has few clinical and biological advantages over the conventional technique. It is an envelope type of flap without vertical releasing incisions and hence the blood supply is not compromised and there are no unaesthetic scars along incision line. Since it is also a split – full – split thickness flap, it guarantees adequate coronal advancement, good anchorage and ample blood supply to the surgical interdental papillae. In present study using this flap technique adequate root coverage with stable results for over 12 months was achieved. No scar formation was observed and the color match of the tissue was excellent. The chief complaint of hypersensitivity was also resolved completely following the surgery.

Conclusion

The result of 2 cases demonstrated that this new approach to the coronally advanced technique is very effective for treatment of multiple gingival recessions. Good stable results were observed in terms of root coverage, increased thickness of attached gingiva and resolution of dentinal hypersensitivity associated with gingival recession.

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