CORONALLY ADVANCED FLAP PROCEDURE FOR GINGIVAL RECESSION AND PERIODONTAL CIRCUMFERENTIAL DEFECTS - A CASE REPORT

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Gingival recession may present problems. These include root sensitivity, esthetic concern to the patient, predilection to root caries, cervical abrasion, and compromising of a restorative effort. While the dentist focuses on health and on the adequacy of attached gingiva, the patient focuses on proper functioning of the tooth and/or unsatisfactory esthetics. In shallow recession when gingiva is still present treatment usually consists of a modification of home care technique, generally brushing, so the area doesn't "get worse." Patients are frequently told that if they follow proper brushing instructions, the sensitivity will eventually "go away." Often the dentist attempts to desensitize the area or encourages the patient to use a desensitizing agent at home. On the other hand, if Periodontal Plastic Surgery is simple and produces the desired result, perhaps it should be considered.

This case report will outline a simple yet often overlooked technique for management of class II recession in a 30 year old female patient whose major concern is not only esthetics but also proper functionality of the tooth.

Key Words: **Periodontal Plastic Surgery; Gingival recession; Coronally Advanced Flap; Circumferential Defect; Tetracycline.**

Periodontal disease is one of the most prevalent diseases worldwide. The most serious consequence is the destruction of the tooth supporting structures like periodontal ligament, cementum and the alveolar bone resulting in eventual loss of tooth.

Periodontal therapy has historically been directed primarily at the elimination of disease and maintenance of a functional healthy dentition and supporting tissues that includes regrowth of alveolar bone. However, more recently periodontal therapy is increasingly directed at esthetic outcomes for patients that extend beyond tooth replacement and tooth color to include the soft tissue components framing the dentition.

This case report would describe technique for the correction of circumferential defects and gingival recession to restore esthetics and function of the dentition.

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CASE REPORT

Patient and Site Description

A Female patient, aged 30 yrs, reported in dental office with a chief complaint of tooth sensitivity and gums receding in Upper right anterior region (Fig. 1). She was also concerned about the esthetics and further progression of gingival recession. The patient was in good general health and was non-smoker.

An Intraoral examination revealed an acceptable oral hygiene status. Millers Grade –II Gingival Recession[1] was observed in Maxillary Right Lateral Incisor (#12). The width of attached gingiva was found inadequate in the region of #31 since the tension test was positive. Tension test is elicited by pulling the lips outwards to make the frenum taut and presence of mobility of gingivae with frenal pull is considered as positive. Clinically, there was no proximal papilla loss.

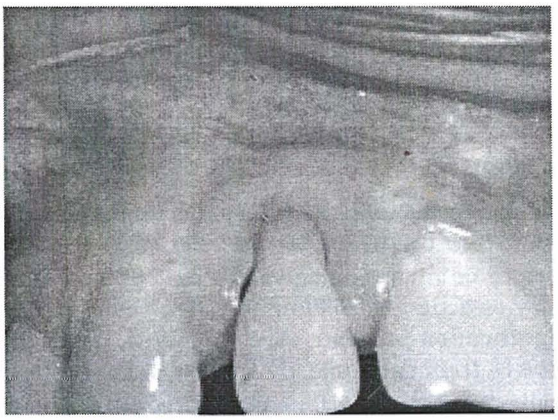


Fig. 1: Pre Operative

Also, a periodontal pocket was observed while probing at the distal surface of tooth #12. The periodontal pocket depth was 7mm which was meas-

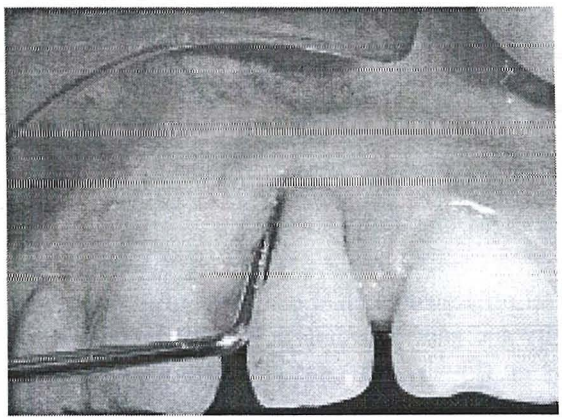


Fig.2a: Probing Pocket Depth



ured from crest of the gingival margin to the base of the pocket (Fig.2a). An I.O.P.A. examination revealed interproximal bone loss on both mesial and distal surfaces of tooth #12 (Fig.2b). Consequently,

Fig.2b: I.O.P.A. showing Mesial and Distal bone loss

Coronally Advanced Flap (CAF) for root coverage and for pocket reduction was planned.

Following initial examination and treatment planning, the patient underwent phase I therapy and occlusal adjustments was done for traumatic occlusion. Detailed instructions regarding self performed plaque control measures and proper brushing technique were advised. An ultra soft brush was recommended to avoid further recession.

SURGICAL PROCEDURE

The patient was made comfortably seated on the dental chair and then asked to rinse the mouth with 10ml of 0.2% chlorhexidine digluconate solution. The extra oral surfaces of the patient were swabbed with 5% Povidone iodine solution. The operative site was anaesthetized with 2% xylocaine HCL with adrenaline (1:80,000), using block and infiltration techniques.

The coronally advanced flap procedure was initiated with the placement of two apically divergent vertical releasing incisions, extending from a point coronal to the cemento-enamel junction at the mesial and distal line axis of the tooth and apically into the lining mucosa (Fig.3). A split thickness flap was prepared by sharp dissection mesial and distal to the recession and connected with an intracrevicular incision (Fig.4).

Apical to the receded soft tissue margin on the facial aspect of the tooth, a full thickness flap was elevated to maintain maximal thickness of tissue flap to be used for root coverage. Approximately 3 mm apical to the bone dehiscence, a horizontal incision was made through the periosteum, followed by a blunt dissection into the vestibular lining mucosa to release muscle tension (Fig.5). The blunt dissection was extended buccally and laterally to such an extent that the mucosal graft can be easily positioned coronally at the level of the cemento-enamel junction[2] (Fig.6)

The surgical site was thoroughly irrigated with normal saline. Tetracycline root conditioning[3]

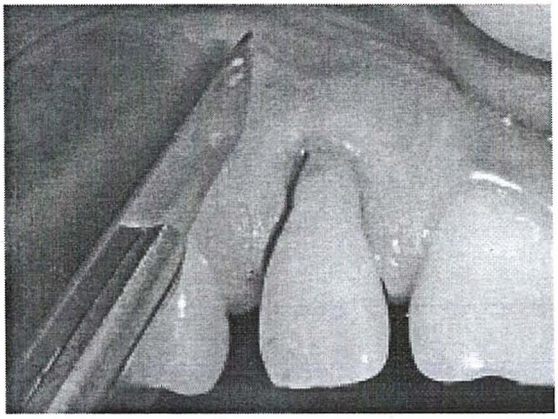


Fig.3: Placement for Vertical Incision

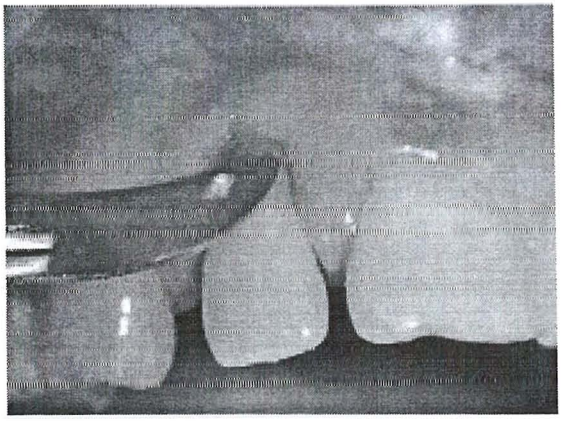


Fig.4: Placement for Intracrevicular Incision

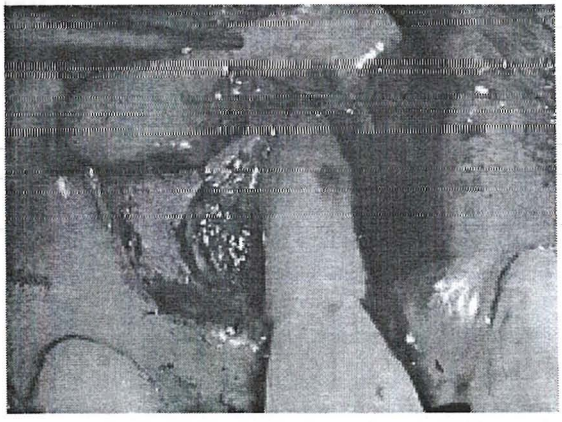


Fig.5: Split thickness Flap raised



Fig.6: Incision extending bucally and laterally

was done with the help of the cotton pellet on the exposed root surface for new attachment.(Fig.7)

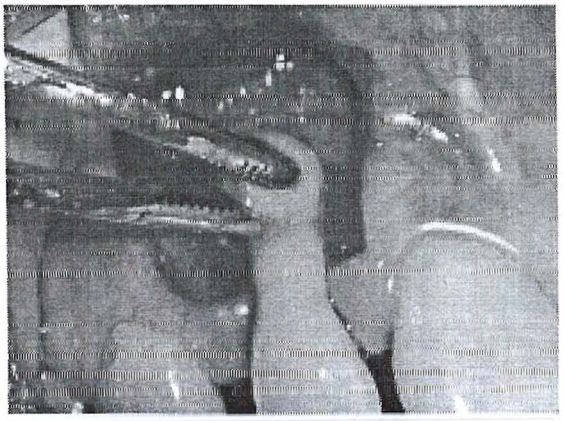


Fig.7: Tetracycline Root Conditioning done

After reflection, complete debridement of both soft and hard tissues was achieved with Gracey curettes (No.1-14). A Circumferental defect was observed on both mesial and distal surfaces of the tooth #12. The circumferential defect is a four wall defect that completely surrounds the root of the tooth[4]. Bone Grafting was planned to fill the osseous defect.

Preparation of Bone graft:

The required amount of Bone Graft (Bio Active Glass) granules were transferred to dappen dish and

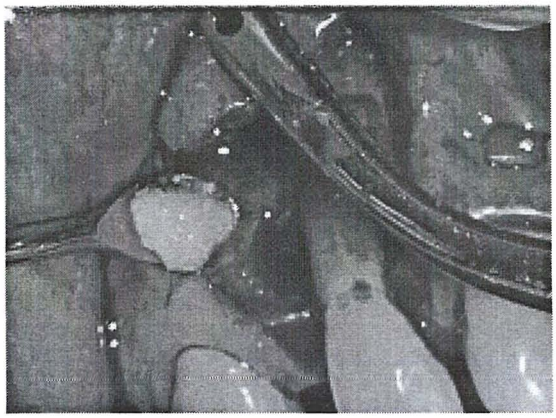


Fig.8: Bone Graft being carried

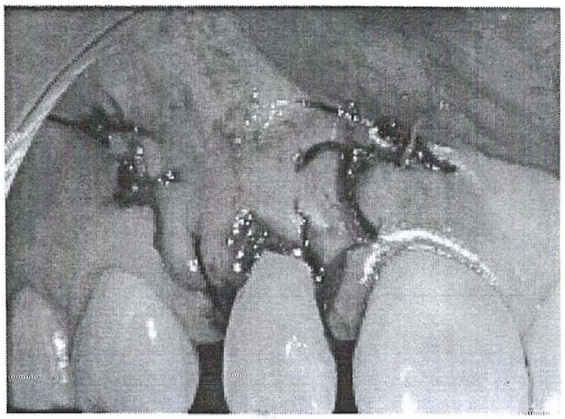


Fig11. Suturing done

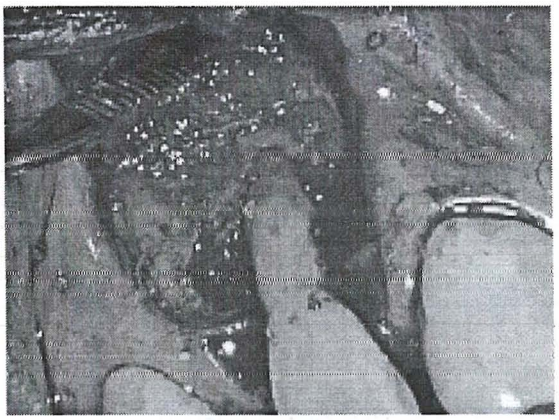


Fig.9: Bone Graft placed at the defect

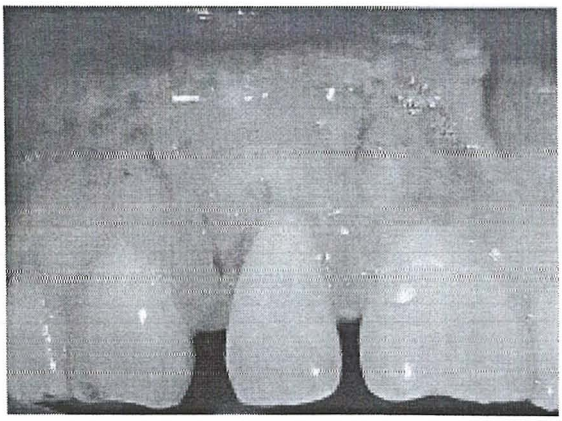


Fig.12: Suture removal done

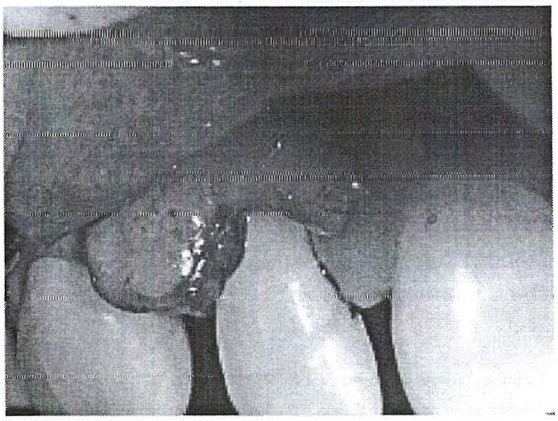


Fig.10. Coronally Positioned flap above CEJ

moistened with sterile saline which was then placed into the vertical defect with the help of scoop of Gracey scaler to the approximate level of the crest of the remaining osseous walls (Fig.8, 9).

The tissue flap was coronally advanced, adjusted for optimal fit to the prepared recipient bed, and secured at the level of the cemento-enamel junction by suturing the flap to the connective tissue bed in the papilla regions (Fig.10). Additional lateral sutures were placed to carefully close the wound of the releasing incisions. (Fig.11)

The patient was administered with Amoxycillin plus Clavulenic acid 375mg, thrice daily for 5 days and Combiflam, thrice daily for 3 days post operatively. The

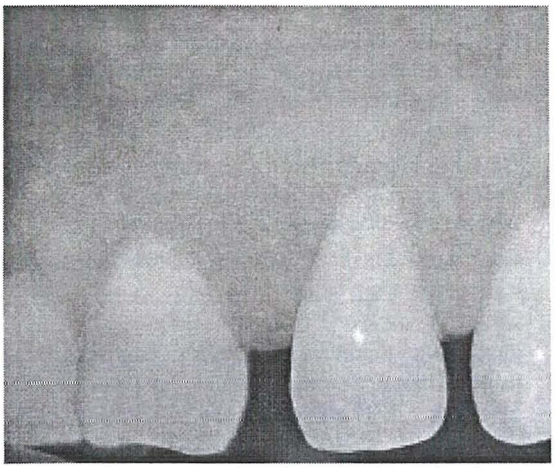


Fig.13: Post Operative

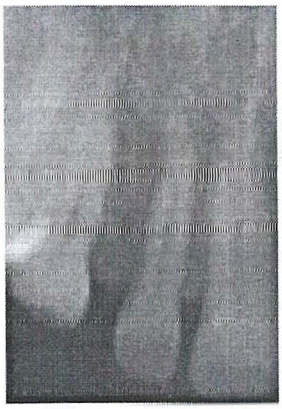


Fig.14: Post Operative I.O.P.A.

of the periodontium at the site of previous periodontal breakdown i.e., the formation of new cementum, periodontal ligament, alveolar bone and also complete root coverage.

The main aim of utilizing CAF was not only provide gingival esthetics to the patient but also to regenerate alveolar bone and thereby reduction of pocket depth. In this case report, CAF successfully accomplished the twin aims.

The purpose of the CAF procedure is to create a split thickness flap in the area apical to the denuded root and position it coronally to cover the root[5,6]. The surgical execution of a CAF for root coverage requires an intrasulcular incision and 2 vertical releasing incisions to raise a full-thickness gingival flap up to the mucogingival junction; a partial-thickness flap, apical to the mucogingival junction, obtained by a horizontal incision to separate the flap from the underlying periosteum and a mesio-distal and apical dissection under the alveolar mucosa to facilitate mobility, and the coronal displacement of the flap. These surgical incisions could impair blood supply to the flap and the coronal displacement of the flap and sutures could stretch the residual vessels.

To minimize these circulatory alterations, it was suggested that: 1) Flaps should be broad enough at their base to include major gingival vessels. 2) A flap's length to width ratio should not exceed 2:1. 3) Minimal tension should be produced by suturing. 4) Partial-thickness flap preparations to cover avascular areas should not be too thin so that more blood vessels are included in them. 5) The apical portion of periodontal flaps should be of full thickness wherever possible."

In order to increase the vascularization of the base of the flap, Pini Prato et al.[9] proposed a trapezoidal full-partial thickness flap when using CAF in combination with guided tissue regeneration procedures to treat gingival recessions. As reported by Allen, the large base of the flap, obtained by performing 2 oblique and divergent releasing incisions, guarantees a greater vascularization of the flap for complete healing.[7]

Bioactive Glass carries ideal traits as a regenerative material. Its granules not only allowed bone to fill into the periodontal defects, but encouraged the proliferation of bone throughout the defect simultaneously, i.e. bone growth independent of connection with the bony wall of the defect. This wa called as "osteoproduction". Its beneficial properties includes[8] : 1) A hemostatic, reduces bleeding. 2) Is completely biocompatible - no risk of rejection. 3) Is 100% synthetic - no risk of viral transfer 4) Bioactive Glass is easier to work with. It mixes easily in seconds. It adheres to instruments for easy insertion, and it contours easily to the shape of the defect. It's negatively charged particles adhere to the defect site, so it does not float out 5) It eliminates the need for the second surgical site needed with autografting, reducing infection risk and patient discomfort. It also saves operating room time and

cost. 6) It is more readily accepted by patients than animal derived products and offers no risk of transgenic disease or rejection. 7) It is clinically shown to generate faster and denser bone growth.

CONCLUSION

In conclusion, the present study indicates that reduction of 1) Gingival Recessions and 2) Clinical Attachment level gain after 8 months post operatively confirms that CAF is a predictable surgical technique for treatment of gingival recessions and periodontal regeneration.

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MGR MEDICAL UNIVERSITY HONOURS DR V M VEERA BAHU

Recently on Dentist's Day, MGR Medical University honoured Fellow Dr V M Veera Bahu with 'Lifetime Achievement Award.'

Dr V M Veera Bahu is known for his dynamism in Dental Organisations. He is the Past President of IDAHO, Hon. Gen Secretary, IDAHO and Past Chairman of PFA India Section.

Congratulations Dr. Veera Bahu.



Dr Veera Bahu receiving the award.