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Coronally Advanced Flap For The Treatment Of Gingival Recession In Molars: A Clinical Case

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Abstract
Gingival recession is characterizedbythe apical migration of gingival tissue margin apical to cement-enamel junction. These defects give rise to both functional and esthetic challenges. Therefore, looking for a satisfactory outcome, several techniques have been proposed for the same.The purpose of this case report was to clinically evaluate the use of coronally advanced flap (CAF) to cover labial gingival recession defect.

Keywords: Recession, Coronally repositioned flap, Root coverage, Perioplastic.

Introduction

Gingival recession (GR) is a very common problem which periodontist encounters. It may be found in the population with low oral hygiene levels. There are several etiological factors which are responsible for root exposure are mechanical factors (faulty tooth brushing), periodontal diseases, anatomical factors (tooth malposition and frenal pull) and iatrogenic factors (orthodontic movement, poor restoration).[1] The prevalence ranges from 20% to 100% of gingival recession in adults. Root caries, periodontal attachment loss, dental hypersensitivity and unaesthetic gingival appearance all of these might be the cause of the gingival recession.[2] Cervical wear is the most common cause for gingival recession.[3] There are many surgical techniques, including free grafts, connective tissue grafts, pedicle gingival grafts, guided tissue regeneration (GTR) may also be used. [4] While selecting a surgical procedure, it is necessary to estimate the amount of root coverage required for the exposed roots and other factors (i.e., recipient site, donor site, position of the teeth in the arch, thickness of the flap. etc). The preference of pedicle over the free soft tissue grafts is preserving the vascularity of the flap. Pedicle flaps may be a full thickness, partial thickness or combination. Coronally advanced flap (CAF) is one of the most widely used surgical technique indicated for the treatment of Miller's class I and class II gingival recession defects. In 1999, Pini Prato et al. coined the term Coronally advanced flap. CAF may lead to excellent esthetic results, avoiding the need for a second surgical site, more over it is simple to perform. Coronally advanced flap is routinely used to treat recession in anterior teeth, we tried to treat a Miller's class I gingival recession defects in maxillary posterior teeth with this technique.

Case Report

A 32 year old male patient reported to the Department of Periodontology, Faculty of Dental Sciences, Sri Guru Gobind Tricentenary University, with the chief complaint of hot and cold sensation in teeth in right upper back region. A 3mm Class I gingival recession defect (Miller, 1985) was diagnosed on examination in the maxillary right first molar (**Figure 1**). Informed consent was obtained from the patient after thorough explanation of the risks and benefits of the clinical procedure planned. Patient was a non-smoker, systemically healthy and had no contraindications for periodontal surgery. It was planned to perform root coverage of the maxillary right first molar (16) with the Coronally Advanced Flap. We used this technique as there no need for donor site. Patient has a firm and adequate width of attached gingival.

Figure 1: Preoperative photographs

Surgical technique

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2% lignocaine hydrochloride containing adrenaline at a concentration of 1:80,000 was used as anesthesia. On the buccal aspect of the tooth involved intra-sulcular incision was made by using Bard parker number 15 blade (B.P. Blade). Muscle tension relieved by giving two oblique vertical incisions which were extended apically beyond the mucogingival junction (**Figure 2**) and a full- split thickness flap was elevated (**Figure 3**) and favoring the coronal positioning of the flap. The root surface was instrumented with curettes and irrigated with sterile saline solution. The tissue flap was advanced coronally, adjusted to the prepared recipient bed for optimal fit, and secured by suturing the flap at the level of the CEJ to the connective tissue bed in the papilla regions by single sling sutures {Ethicon, non-resorbable black 3.0 suture material} (**Figure 4**). Additionally for careful closer of the wound of releasing incisions interrupted sutures were placed. Surgical sutures were removed after 10 days.

Figure 2: Incision placed

Figure 3: Full- Split mucoperiosteal flap elevated

Figure 4: Sutures in place

Patient was instructed to refrain from tooth brushing particularly in the surgical area for 4 weeks. However, active chemical plaque control was maintained by 0.12% chlorhexidine mouthwash in dosages of 10 ml for 1 minute twice a day for 6 weeks after the procedure. Furthermore, Systemic antibiotics and analgesics were prescribed for 7 days post surgically (Cap Amoxicillin 500mg t.i.d. along with Tab. Ibuprofen 400mg t.i.d.)[5]. Three weeks after the surgery, the patient was instructed to resume tooth brushing in the treated area using soft bristled toothbrush. Patient was instructed to report to the department in case of any discomfort following surgery.[5] Post operative Photograph after 6 weeks(**Figure 5**).

Figure 5: 6 week post-operative

Discussion

The Coronally advanced Flaps have been holding an important position in the periodontal Literature. From Kalmi (1949)[6] to Harvey (1965, 1970)[7,8], Nordenram(1969)[9], have been employing various surgical techniques to cover recession defects by the means of mucogingival surgeries. Further Sumner(1969)[10], Ward (1973) worked on modifications for Coronally repositioned flaps. Further a two step surgical procedure for Coronally advanced flap utilizing vertical incisions was described by Bernimoulin in 1975[11]. The coronally advanced flap has shown predictable results in terms of root coverage for intact root Miller Class I gingival recessions.[12,13] These studies as well as others affirmed the clinical usefulness of the, "coronally repositioned flaps" which gave rise to the newer approaches for periodontal plastic surgery[5].

Since complete root coverage is influenced by postsurgical positioning of gingival margin along with the baseline depth, thus in this surgery the Gingival margin was placed 2mm coronal to CEJ so as to counteract the gingival retraction after the surgery.This was done in accordance to studies conducted by Pini Prato and Baldiet al.[5]

Healing after mucogingival surgeries rely on clotting, revascularization and maintenance of blood supply. After the healing was complete a significant difference was observed in the parameters including recession depth and width, width of keratinized tissue and clinical attachment level (CAL).[14] Formation of the new connective tissue attachment and epithelial attachment which leads to the gain in the probing depth. [15] This was in accordance with previous studies conducted by Carlo Baldi et al.,.[16] The results attained in CAF are in accordance with the previous

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studies conducted by Fabio Modica et al., Stefen Hagewald et al.. [17]

The limitations of this case report are the short time period and no comparisons, with the other root coverage procedures. Thus, this technique constitutes a simple clinical procedure in comparison to an expensive or sensitive procedures such as EMP or Alloderm that could be used as a good option for mucogingival surgery. Further long term studies comparing different techniques and using different teeth in both the arches should be considered.

Conclusion

CAF is the procedure mainly performed for the esthetic purpose i.e. in anterior region but in this case report we performed it in the posterior region i.e. in maxillary first molar region. There is a marked improvement in the clinical parameters and also complete coverage of root with this technique. So, the treatment of gingival recession by coronally advanced flap could be used as an effective procedure for root coverage in both anterior and posterior regions especially the ones with relatively shallow defects, more cases to be done with large sample size.

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