

Periodontal Pinhole Surgery For Gingival Recession: A Case Report

Case Report

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Abstract

One of the most common periodontal diseases is gingival recession. The main issues with recession problems are hypersensitivity and aesthetics. There are a variety of treatment options for it, however minimally invasive treatments have lately gained popularity due to lower patient morbidity and equivalent results when compared to traditional treatments. One of the evolving techniques, based on the principles of minimally invasive procedure, is the pinhole technique invented by John Chao. This is a scalpel free, suture free procedure which is used for correcting recessions. Along with the use of PRF, this is a very promising technique for the management of Miller's Class I and II type of recession.

Introduction

The concern among the general population with regard to gingival recession is on the rise as it concerns the esthetic and functional aspect of a dentition. With the demand for precision treatment for multiple recession defects, the challenge posed to clinician is high because of The extensivity of avascular root surface area along with the increasing demand for precision treatment poses a challenge to the clinician. The other challenges which limit the treatment options include thin biotype of gingiva, decreased Keratinized Tissue Width, root prominence and root proximity. [1] There are numerous techniques that are advocated for the treatment of recession, majority of which are suited for the treatment of isolated defects.

The current gold standard technique, the connective tissue graft as well as the other recommended techniques present with a number of disadvantages, which include the need for harvesting at a distant donor site, scar formation at the recipient site, increased potential for post harvesting morbidity and limited tissue availability. Each technique has specific indications, advantages, and

disadvantages and when followed with proper guidelines leads to successful results.[2] One of the evolving techniques, based on the principles of minimally invasive procedure, is the pinhole technique invented by John Chao. [3] This is a scalpel free, suture free procedure which is used for correcting recessions. It is a very promising technique for the management of Miller's Class I and II type of recession.[4, 5] Our research experience has prompted us in pursuing this survey [6-15].

Case Report

This is a case of a 38 year old systemically healthy male who visited the Department of Periodontology of Saveetha Dental College with the chief complaint of sensitivity in relation to the upper right back tooth region for the past 3 months. Intraoral examination of the patient revealed Millers Class I gingival recession in relation to 24 and Millers Class II gingival recession in relation to 25. The parameters assessed include probing depth(PD) and Clinical attachment loss (CAL). The surgical procedure was explained to the patient and an informed consent was obtained. As a part of the phase I therapy thorough scaling and root planing was done. The patient was recalled after one week for the phase

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Figure 1.1 : Baseline showing height of gingival recession.

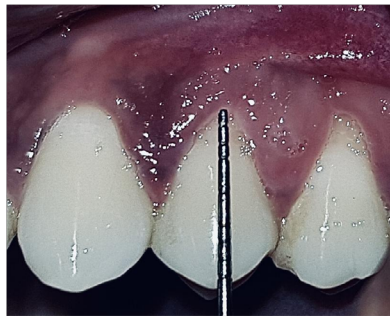


Figure 1.2 : Baseline showing width of gingival recession

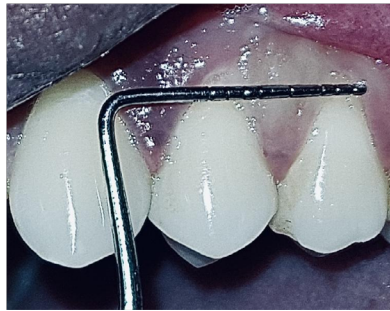


Figure 2: Intraoral Tissue Markings.



Figure 3: Instrumentation in relation to 24.

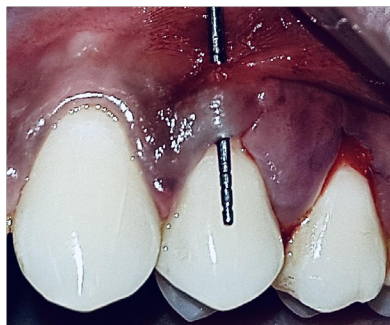


Figure 3.1: Instrumentation in relation to 25.



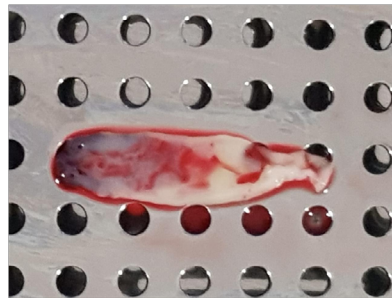
Figure 4: Preparation of PRF.**Figure 4.1: Suspension of PRF using suture material.****Figure 4.2: Insertion of PRF.****Figure 5: Suturing of the surgical site.****Figure 5.1: Coe pack application.**

Figure 6: Postoperative healing after 1 month.**Figure 6.1: Postoperative healing after 6 month.**

II therapy- the surgical procedure. Routine pre-surgical protocols were followed and local anesthesia was administered. This was followed by making a pinhole incision using an Orban's knife in the alveolar mucosa just apical to the recession. Access was gained through the pin hole created using gingival elevators, all the muscular and fibrous adhesions were removed and a subperiosteal blunt dissection was done apicocoronally and laterally till the interdental papilla.

The entire mucogingival tissues were mobilized passively until the tissues advanced coronally. The tissues which were advanced were stabilized using a protein rich fibrin (PRF). The PRF, 2mm width was introduced into the pinhole. They were positioned at interdental papillae until there was sufficient fullness in the papillary tissues for holding the mucogingival tissue complex. The surgical site was then covered with periodontal dressing. Postoperatively, the patient was advised to take analgesics until no discomfort was observed and asked to rinse with 0.2% chlorhexidinedigluconate mouth rinse for 3 weeks. Post operative evaluation was done after 6 months. [3]

Discussion

The concept of Minimally Invasive Surgery (MIS) is embracing all aspects of surgical techniques aiming to produce minimal wounds, minimal flap reflection, and gentle handling of the soft and hard tissues. MIS avoids the use of open invasive surgery in favour of closed or local surgery. A new minimally invasive treatment of multiple gingival recession defects in maxillary anterior region was achieved by Zadeh, as a case series by vestibular incision subperiosteal tunnel access technique.[16] The result showed a good outcome in esthetic zones. Following the similar principle, is the Chao's Pinhole Surgical Technique (PST) which is a minimally invasive option for treating multiple gum recession. Unlike traditional grafting techniques, PST is incision and suture free. The mean root coverage attained following the PST was 88.4 percent in Chao's initial study. The average root coverage attained at 6-month follow-up was 87 percent, according to this study. [3]

The use of PRF, combined with minimal tissue manipulation, may have contributed to the considerable increase in WKT and consistency of the results. PRF was compared to connective tissue grafts and tunnel technique in the treatment of multiple gingival recession defects, and the outcomes were found to be equivalent (93.29 percent and 93.22 percent, respectively), implying that PRF can be used as an alternative to CTG.[17]

The effectiveness of a procedure is measured by Mean Root Coverage (MRC) which is the actual amount of root coverage achieved in individual sites. The MRC expressed as percentage, was calculated using the formula; $\text{baseline recession height} - \text{postoperative recession height} / \text{baseline recession height} \times 100$ [3]. The MRC achieved in our cases, 6 months post operatively, averaged between 88%-90% in both the treated teeth. In this case report, the overall MRC was comparable and similar to the prior results. A novel alteration of coronally advanced flap has also been observed to result in an increase in WKT (CAF). Contribution from the periodontal ligament through granulation tissue and the final stabilisation of the mucogingival junction (MGJ) in its genetically determined position were identified as reasons for the rise. The amount of time required for the MGJ to re-establish itself in its former location, resulting in an increase in WKT, has yet to be determined. When comparing the considerable rise in WKT in the current case series to earlier studies with adjusted CAF, it was discovered to be similar. PST's excellent success rate can be ascribed to the fact that it is the least intrusive surgery, requiring no incisions or stitches. The results are aesthetic because they are instantly visible to the patients following surgery. Vertical release incisions in periodontal flaps are widely known for reducing the vascularity of the flap. A good vascular perfusion is essential for speedier healing in any surgical procedure. [2, 3] In terms of aesthetics, vertical release wounds result in unsightly keloid-like tissues along the incision line. Although there is no substantial difference in root coverage whether surgery is performed with or without a vertical release incision, there is a difference when cosmetic needs are high. PST has a biologic, aesthetic, and time advantage in that there is no disruption of the lateral vascular supply, no scar formation, and it takes less time. PST has several

advantages, including minimal invasiveness, no scar, no sutures, and self-retentive coronal alignment of the MTR. PST's drawback is that it necessitates specialised instruments and a lengthy learning curve. There are no histological studies on the packed collagen membranes in the interdental papilla region, and no evidence of their fate. The critical thickness of the soft tissue is also considered to be a key factor for the success of root coverage and lead to a coverage of 100% when the flap thickness is >0.8 mm. In PST, the flap is not lifted and the whole thickness of the soft tissue available on your host bed is therefore used completely. It is well known that the time it takes for absorbable collagen membranes to resorb varies depending on a variety of circumstances. Acellular dermal matrix (ADM) can also be employed with a small modification of the PST, according to the researchers [18-20].

Conclusion

Patient satisfaction is the ultimate goal of any surgical procedure. In this case report, intraoperative pain was minimal, and postoperative bleeding, edoema, and pain were minor and only lasted a few days. In terms of colour match and tissue merging, aesthetic acceptability was likewise favourable. The use of PRF enhanced optimal results and outcome. This unique surgical technique's increased success rate could also be related to its minimum invasiveness and lack of sutures. Furthermore, larger sample size is required to evaluate the effectiveness of this technique using PRF or other platelet concentrates.

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