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Original Research Paper

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MANAGEMENT OF CLASS III GINGIVAL RECESSION POST APICOECTOMY USING TWO STAGE PERIODONTAL PLASTIC SURGERY- A MICROSURGICAL APPROACH

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ABSTRACT Gingival recession associated with root surface exposure is a complex phenomenon that may present numerous therapeutic challenges to the clinician. Many patients seek treatment because of concerns about esthetic appearance, root sensitivity, or fear of early loss of the affected teeth. The most common cause for gingival recession is abrasive, traumatic tooth brushing habits and buccally positioned teeth. Multiple periodontal plastic surgery approaches are documented for the treatment of gingival recession defects. These treatment approaches generally includes the manipulation of patient tissues to augment the soft tissues and cover the exposed roots surfaces. The combination of sub epithelial connective tissue graft with a coronally positioned flap has been shown to demonstrate the highest success with predictable results.

KEYWORDS : gingival recession, sub epithelial connective tissue graft, coronally advanced flap

INTRODUCTION

Periodontal therapy has historically been directed primarily at the elimination of disease and maintenance of functional healthy dentition and supporting tissues. However, more recently periodontal therapy, consistent with dental therapy in general, is increasingly directed at esthetic outcomes for patients, which entered beyond tooth replacement and tooth colors to include the soft tissue component framing the dentition. Probably one of the most common esthetic concerns associated with periodontal tissue is gingival recession.

Gingival recession or marginal recession is defined as the location of the marginal tissue apical to the cemento- enamel junction with exposure of the root surface. Gingival recession associated with root surface exposure is a complex phenomenon that may present numerous therapeutic challenges to the clinician. Recession may be accompanied by root caries or abraded surfaces, and patients may complain of esthetic defects or root hypersensitivity. Periodontal plastic surgery includes periodontal surgical procedures performed to prevent, correct, or eliminate anatomical, development, traumatic or plaque induced disease related defects in gingiva or alveolar mucosa. Gingival recession is also seen in cases in improper handling of the soft tissues during surgeries for management of periapical lesions. The adoption of the plastic surgery terminology in itself suggests the increasing importance of supporting tissues in the esthetics of the dentition. Multiple periodontal plastic surgery approaches are documented for the treatment of gingival recession defects. These treatment approaches generally includes the manipulation of patient tissues to augment the soft tissues and cover the exposed root surfaces.

Case Report

A 21-year old patient reported for replacement of missing upper front tooth, the patient had history of trauma with fracture of the right upper central incisor and extraction was carried out at Private Dental clinic 2 months back. Patient underwent apicectomy for Periapical lesion in relation to lower left anterior tooth around 7 months back which was discolored due to trauma from fall 5 years back. Patient had a medical history which was non-significant and non-contributory to the case. Patient was referred to division of Periodontology for management to recession in relation to 41. Intraoral examination revealed fair oral hygiene and gingival recession of 9 mm recession with probing depth of 2 mm. which was extending beyond the mucogingival junction. On careful examination the apical portion of the root was sharp with accumulation of plaque and calculus, with bleeding on probing and inflammation in the apical most part of the recession. Patient had a fair oral hygiene as evaluated by the oral hygiene and plaque indices. Routine investigations were carried out to rule out any systemic involvement. All investigations were within normal limits. IOPA radiograph reveals normal radiographic picture. With the history, clinical examination a case was diagnosed as chronic localized severe periodontitis with Millers class III Recession.

Case history was discussed and the treatment plan was formulated initially to take the patient for oral prophylaxis and motivation and education. Patient was evaluated and taken up for surgical phase after 4 weeks. Informed consent was obtained after explaining the procedure to the patient. The surgical phase consisted of two staged surgical periodontal plastic surgery considering the need to obtain the root coverage using microsurgical technique under 6x magnification.

Stage –I Surgery [Fig-1]

To start with, the patient was anesthetized by lignocaine hydrochloride 1: 80,000 adrenaline and the recipient bed was prepared as advised by Langer and Langer by raising a partial thickness flap beyond mucogingival junction with double pedicle flap, was raised and the both the pedicles were sutured using microsurgical technique under magnification of

6x. sutures were placed and no mobilization of the flap was done. Post op healing was uneventful.

Stage –II Sugery [Fig-II]

Patient was recalled after 45 days for second stage surgery. LA was administered and recipient bed was prepared for subepithelial connective tissue graft. The graft was harvested from the palate on the left side by placing a single window incision without any releasing incisions and connective tissue was dissected by using sharp dissection with BP blade no.15. Later the donor area was sutured with 5-0 polypropylene suture and periopack with a prefabricated stent made of acrylic is placed to prevent post-op discomfort. The connective tissue is placed on to the prepared recipient bed and sutured to the periosteum with resorbable sutures and the buccal flap which was raised placed coronal to its original position and secures with 6-0 polypropylene interrupted sutures. All the flap handling and suturing was done under surgical microscope with a magnification of 6x. Patient was revaluated after 24 hours and 7 days. Sutures were removes after 7 days. Patient was recalled after 1, 3 & 6 months and the gain in the attachment was noted around 6mm.with root coverage was achieved and an increase in the width of the attached gingiva was noted. Patient was satisfied with the results obtained.

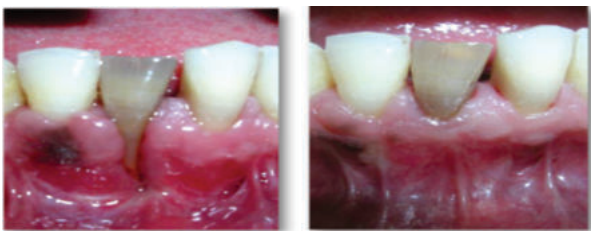

Fig-3 Pre And Post-op Comparision

DISCUSSION

Gingival recession is the term for the exposure of root surface due to apical migration of gingival margins. Many patients seek treatment because of concerns about esthetic appearance, root sensitivity, or fear of early loss of the affected teeth. However, other complications can also arise, such as root caries and tooth discoloration. The most common cause for gingival recession is abrasive and traumatic tooth brushing habits. [1,2] Other causes include, buccally positioned teeth [3] periodontal inflammation and resultant loss of attachment, frenal and muscle attachments that encroach on marginal gingiva, and orthodontic tooth movement through a thin buccal osseous plate. [4,5]. In recession caused by plaque and tartar, ulceration appears in the junctional epithelium and the destruction of the connective tissue occurs from inside out. In lesions caused by toothbrush trauma, destruction occurs from outside in [6].

Obtaining predictable and esthetic root coverage has become an important goal for a periodontist. The search for the perfect root coverage technique has taken many different approaches. Of these, subepithelial connective tissue graft (SCTG) has become a popular modality of root coverage because of its high success rate. [7]

Many techniques and flap designs have been used to meet that goal; some do not require a donor site (pedicle grafts), while others do (free autogenous grafts).[8] It often is difficult to anticipate the success rate of root coverage procedures, since coverage depends on several factors, including the classification and location of the recession and the technique used. The gingival dimension most commonly assessed is the height, the distance between the soft-tissue margin and the mucogingival Pedicle grafts differ from free autogenous soft-tissue grafts in that the base of the pedicle flap contains its own blood supply, which nourishes the graft and facilitates the re-establishment of vascular union with the recipient site. Pedicle grafts may be partial or full thickness. [9]

Cohen and Ross [10] proposed a double-papilla repositioned flap to cover defects in which an insufficient amount of gingiva is present or in which there is an inadequate amount of gingiva in an adjacent area for a lateral sliding flap. The papillae from each side of the tooth are reflected and rotated over the midfacial aspect of the recipient tooth and sutured. The advantage of this technique is the dual blood supply and denudation only of interdental bone [11]. The disadvantages may include pull of the sutures and tear of the gingival papilla. Bernimoulin and colleagues [12] first reported the use of a coronally positioned graft, or CPG, subsequent to grafting with a free graft; it is a two-stage procedure. In the first stage, a free autogenous soft-tissue graft is placed apical to an area of denuded root. After healing, the flap is coronally repositioned. Edel (1974) proposed the trap-door technique with the aim of keeping the epithelial layer intact to achieve healing by primary intention in the donor area. Langer & Langer (1985) introduced a surgical procedure with a rectangular shaped flap design, obtaining a connective tissue graft with a thin epithelial margin. Harris (1994) used a special scalpel with two parallel blades to harvest a 1.5-mm-thick soft tissue graft with an epithelial margin from the palate. Raetzke (1985) used a technique involving two semilunar parallel incisions converging to the apical portion of the graft, obtaining a wedge of connective tissue. Historically, the underlying gingival connective tissue has been shown to be a viable source of cells for repopulating the epithelium (Karring and colleagues, 1971) and a somewhat predictable source for increasing the zone of keratinized gingiva [13]. The technique gains its clinical predictability by use of a bilaminar flap (Nelson 1987; Harris, 1992) design to ensure graft vascularity and a high degree of gingival cosmetics from the secondary intention healing of the connective tissue graft. This seems to avoid the "tire patch" look often associated with Free Gingival Grafts. Recently, a single incision technique has been proposed by Hürzeler & Weng (1999) and by Lorenzana & Allen (2000) to harvest a SCTG. This method was described as more conservative and less traumatic for the patient, ensuring healing by primary intention and reducing palatal discomfort. The clinical advantages of SECTG are apparent not only at the recipient site, where there is good tissue blending and predictability of results, but also in the palatal donor area, as it uses a more conservative approach to harvest the graft, decreasing the degree of discomfort.

SECTG yields excellent color and tissue blending. [15] Harris, in his study, found areas of regeneration, with new bone, cementum, and connective tissue attachment, in a case successfully treated with SECTG and confirms that regeneration is possible with SECTG. Recent evidence based studies suggests that among all the plastic surgical procedures for root coverage, SCTG remains the most effective. [16]

CONCLUSION

The treatment of gingival recession can be accomplished with a variety of different procedures. The combination of subepithelial connective tissue graft with a coronally positioned flap has been shown to demonstrate the highest success. This technique although requires a second surgical site, but following the correct technique allows minimal injury

and a primary healing of the donor site. This technique gives the most predictable aesthetic results.

REFERENCES:

[1] Hirschfeld, I. (1931). Toothbrush trauma recession. A clinical study. J Dent Res, 11(1), 61-63.

[2] Agudio, G., Prato, G. P., Cortellini, P., & Parma, S. (1987). Gingival lesions caused by improper oral hygiene measures. The International journal of periodontics & restorative dentistry, 7(1), 52-65.

[3] Hirschfeld, I. (1923). A study of skulls in the American Museum of Natural History in relation to periodontal disease. Journal of Dental Research, 5(4),241-265.

[4] Boyd, R. L. (1978). Mucogingival considerations and their relationship to orthodontics. Journal of periodontology, 49(2), 67-76.

[5] Trossello, V. K., & Gianelly, A. A. (1979). Orthodontic treatment and periodontal status. Journal of periodontology, 50(12), 665-671.

[6] Santarelli, G. A., Ciancaglini, R., Campanari, F., Dinoi, C., & Ferraris, S. (2001). Connective tissue grafting employing the tunnel technique: a case report of complete root coverage in the anterior maxilla. International Journal of Periodontics and Restorative Dentistry, 21(1), 77-84.

[7] Roccuzzo, M., Bunino, M., Needleman, I., & Sanz, M. (2002). Periodontal plastic surgery for treatment of localized gingival recessions: a systematic review. Journal of clinical periodontology, 29, 178-194.

[8] Paolantonio1, M., Murro, C. D., Cattabriga, A., & Cattabriga, M. (1997). Subpedicle connective tissue graft versus free gingival graft in the coverage of exposed root surfaces A 5.year clinical study. Journal of clinical periodontology, 24(1), 51-56.

[9] Staffileno, H. (1974). Significant differences and advantages between the full thickness and split thickness flaps.

[10] Wilcko, M. T., Wilcko, W. M., Murphy, K. G., Carroll, W. J., Ferguson, D. J., Miley, D. D., & Bouquot, J. E. (2005). Full-thickness flap/subepithelial connective tissue grafting with intramarrow penetrations: three case reports of lingual root coverage. International Journal of Periodontics & Restorative Dentistry,25(6).

[11] Hokett, S. D., Peacock, M. E., Burns, W. T., Swiec, G. D., & Cuenin, M. F. (2002). External root resorption following partial.thickness connective tissue graft placement: A case report. Journal of periodontology, 73(3), 334-339.

[12] Muller, H. P., Eger, T., & Schorb, A. (1998). Alteration of gingival dimensions in a complicated case of gingival recession. International Journal of Periodontics & Restorative Dentistry, 18(4).

[13] Borghetti, A., & Louise, F. (1994). Controlled clinical evaluation of the subpedicle connective tissue graft for the coverage of gingival recession. Journal of Periodontology, 65(12), 1107-1112.

[14] Harris, R. J. (2002). Connective tissue grafts combined with either double pedicle grafts or coronally positioned pedicle grafts: results of 266 consecutively treated defects in 200 patients. International Journal of Periodontics & Restorative Dentistry, 22(5).

[15] Tözüm, T. F., Keçeli, H. G., Güncü, G. N., Hatipoğlu, H., & Şengün, D. (2005). Treatment of gingival recession: comparison of two techniques of subepithelial connective tissue graft. Journal of periodontology, 76(11), 18421848.

[16] Zabalegui I, Sicilia A, Cambra J, Gil J, Sanz M. Treatment of multiple recessions with the tunnel subepithelial connective tissue graft: A clinical report. Int J Periodontics Restorative Dent 1999; 19:199-206.