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Case Report

Interdisciplinary management of gingival recession associated with traumatic anterior malocclusion with orthodontics and periodontal plastic surgery

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Introduction

Cosmetic treatments have become an integral part of dentistry including periodontal treatment. One of the commonly used esthetic periodontal procedures is coverage of denuded root surface. While considering the elimination of these defects, esthetic and functional problems are faced.^{1,2} Since 1985 the treatment of gingival recession has been influenced by the development of the subepithelial connective tissue graft (SCTG) technique which has led to predictable results.³ However on

some occasions the situation becomes complex with associated malocclusion and resulting trauma from occlusion. In such cases interdisciplinary combined orthodontic and periodontal plastic surgical procedures provides excellent results.⁴

Case report

A 20 years female patient reported to Dept of Dental Surgery with complaint of sensitivity and bleeding gums [Fig. 1]. No significant medical, family and personal history were reported. The patient was moderately built and nourished and exhibited no signs of systemic illness. No extra oral abnormality was observed. On intraoral examination the patient had 28 teeth, Angle's Class I malocclusion with 21 overlapping on 11. There was Millers Class-III gingival recession in relation to 31 and 41 of 4 and 3 mm respectively. The probing depth was 1 mm in both the teeth. There was slight rotation in the lower anteriors with mild crowding. Overjet was insufficient with grade-II Fremitus was noted on lower anteriors with significant traumatogenic occlusion. Patient had fair oral hygiene. Based on the findings the patient was diagnosed as chronic localized periodontitis.

A comprehensive treatment plan was formulated which included to take up the patient for orthodontic correction in the upper arch with limited objective to just to relieve the

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Fig. 1 – Patient presentation.

Fig. 2 – After orthodontic therapy and prepared for surgery.

crowding and correction of overlap of the upper centrals reducing the traumatogenic factors which were detrimental for the outcome of root coverage. Correction of crowding in the maxillary arch was achieved by three months of limited orthodontics with fixed appliance therapy. The patient was unwilling to undergo comprehensive orthodontic therapy in view of the long duration for the same. Fixed orthodontic appliance was used in the upper arch and crowding was corrected in 3 months [Fig. 2].

Later the patient underwent coronally repositioned flap along with connective tissue graft surgery under local anesthesia for root coverage of 31 and 41. Langer and Langer technique was used for the incision design and recipient bed preparation.⁵ Connective tissue was harvested from the left side of the palate using Liu's Class-1 incision⁶ with a dimension of 10 mm × 10 mm. Hemostasis was achieved and interrupted sutures placed using 3-0 silk suture material. The graft was then placed on the recipient bed and sutured by 5-0 resorbable with subperiosteal sutures. The flap was coronally positioned to cover the connective tissue and sutured using 3-0 silk by sling sutures [Fig. 3]. Periodontal pack was placed and patient was recalled at 1, 7 and 14 days. Post-op sutures were removed at 14 days. The patient was followed for 1, 3 and 6 months. Adequate root coverage was obtained [Fig. 4]. The patient is still on follow-up.

Discussion

Localized gingival recession that occurs at the smile line may be a great esthetic concern for the patient. There are many

Fig. 3 – Periodontal plastic surgery.

Fig. 4 – Final outcome.

periodontal esthetic procedures used to treat this situation. The success of root coverage varies depending on the width and depth of recession, biotype of gingival tissue, type of surgical technique used, and smoking status. Miller has classified recession defects into four classes taking into consideration the anticipated root coverage that can be obtained. Factors like tooth brushing trauma⁷ and periodontitis factors such as tooth malposition, alveolar bone dehiscence, high muscle attachment and frenal pull and iatrogenic factors related to restorative and periodontal treatment procedures have been associated with the development of gingival recession. The consequences of a denuded root surface can be sensitivity, increased susceptibility to caries, and an unaesthetic appearance. Several mucogingival procedures aimed at successful root coverage and/or increased gingival dimensions have been reported such as pedicle and free soft tissue grafts.⁸

Over the years, numerous surgical techniques have been introduced to correct gingival recession defects. Adjunctive orthodontic treatment for adults is, by definition, tooth movement carried out to facilitate other dental procedures necessary to control disease, restore function and/or enhance appearance.⁹ Almost always, it involves only a part of the dentition. It makes it easier for the patient to control periodontal problems. The treatment duration tends to be a few months, rarely more than a year. Adjunctive orthodontics must be coordinated carefully with the periodontal and restorative treatment.¹⁰ The goals of adjunctive orthodontic

therapy in the present case were alignment of anterior teeth to improve esthetics, while maintaining good interproximal bone contour and embrasure form. Regardless of the disease activity at initial examination frequent periodontal care during the orthodontic treatment is recommended for all patients.

Conflicts of interest

All authors have none to declare.

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