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The Use of Subepithelial Connective Tissue Graft for Treatment of Gingival Recession in a Snuff Dipping User (A Case Report)

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Abstract Nowadays patients have become excessively concerned about esthetics. These esthetic concerns of patients have become an essential part of periodontal practice. Gingival recession is considered as one of the clinical manifestations affecting adult people with chronic periodontal disease. Smokeless tobacco (ST) use has been linked with a number of oral manifestations confined to the site of ST placement. These manifestations include mucosal lesions, gingival and periodontal effects, such as gingival recession, changes in gingival blood flow, and interproximal periodontal attachment loss. Gingival recession and attachment loss have been shown to occur in the area adjacent to where the smokeless tobacco is held. Various grafting procedures have been proposed in order to cover the area of recession and to prevent further recession by increasing the width of the attached gingiva. This paper reports a case in which a subepithelial connective tissue graft with a coronally positioned flap were used to produce a full coverage for miller class II recession.

Keywords: *gingival recession, snuff dipping, connective tissue grafts.*

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1. Introduction

Gingival recession is considered as one of the clinical manifestations affecting adult people with chronic periodontal disease, it has been defined as "Displacement of the gingival soft tissue margin apical to the cemento-enamel junction which results in exposure of root surface" [1].

It has many etiological factors, ranging from direct physical and mechanical impact on the gingival tissues, to the indirect influence of the inflammatory reactions on gingival tissues [2].

The major concern regarding gingival recession is alterations of gingival tissues and its possible consequences that may affect oral health [3].

Considering its effect on oral health, the clinical significance is reflected by bringing about cervical dentin hyperesthesia [4]; aesthetic problems, especially when the anterior teeth are involved; accumulation of dental plaque; increased risk of cervical root caries, abrasion or erosion due to exposure of root surface [5]. All these clinical features are considered as indications for treatment of gingival recession.

Smokeless tobacco is found in two major forms: snuff and chewing tobacco. Snuff may be moist or dry and is usually taken orally. This product is sold in small round cans, in which the snuff is loosely packed, or in small, tea-bag-like sachets. Dry snuff, which is less commonly used, is usually inhaled through the nose [6].

Chewing tobacco is coarser than snuff and exists in three forms: loose leaf (sold in a soft package or pouch), plug (sold in a small block) and twist (dried tobacco leaves that are twisted into strands). Chewing tobacco is usually placed in the buccal vestibule. It is referred to as a "chaw" or "quid" of chewing tobacco. The quid may be retained in the mouth for hours, and the user expectorates the saliva that mixes with the tobacco extract [6].

Toombak is the type of snuff tobacco that is commonly used in Sudan, the prevalence of Toombak use is around 45% among men aged 40 years and older and 10% among women aged 60 years and older [7].

According to 2011 unpublished estimations presented by the Sudan Toombak and Smoking Research Center, the prevalence of toombak use is 24.2% in the Nile states, 40.7% in the Northern states, 36.5% in the Eastern states, and 21.2% in the capital, Khartoum. In western Sudan, the prevalence of use is exceedingly low, which reflects cultural and tribal influences on the use of tobacco.

Smokeless tobacco (ST) use has been linked with a number of oral manifestations confined to the site of ST placement. These manifestations include mucosal lesions, gingival and periodontal effects, such as gingival recession, changes in gingival blood flow, and interproximal periodontal attachment loss [8,9,10,11].

Gingival recession and attachment loss have been shown to occur in the area adjacent to where the smokeless tobacco is held [12].

Several investigators have suggested that the vasoconstrictive properties of nicotine may lead to tissue necrosis, compromising the integrity of the periodontium and causing increased attachment loss [13,14].

According to unpublished study conducted among Sudanese snuff dippers, a strong association was found between gingival recession and duration of snuff dipping.

Since gingival recession is one of the common problems that snuff dippers are complaining of, the treatment of it should be of a considerable importance.

The treatment of gingival recession and its consequences is depending on a comprehensive assessment of the etiological factors and the degree of tissue involvement. The first part of the management of the patient with gingival recession should be directed towards amending the etiological factors. Surgical root coverage is indicated when esthetics is the prime concern and periodontal health is good.

Generally, the indications to cover the exposed root surface due to gingival recession include esthetics, root sensitivity, prevention and management of root caries, and prevention of periodontal disease progression in areas where maintenance of appropriate oral hygiene is difficult to be attained [15].

Various grafting procedures have been proposed in order to cover the area of recession and to prevent further recession by increasing the width of gingiva [16].

Amongst these procedures, the subepithelial connective tissue graft (SCTG) has been used the most frequently, for the reason that of the final color achieved and the high predictability reported. Additionally, the vitality and high survival potential of SCTG are achieved by the double source of blood supply from the gingival flap facially and the overlying periosteum from the opposite side [17]. In this case report, SCTG was used with a coronally positioned flap to produce full coverage for miller class II recession.

2. Case Report

A 39-year- old male patient attended to our clinic complaining of receding gum and hypersensitivity in relation to upper left central incisor, the patient was a snuff dipper for 15 years. The general health of the patient was good.

2.1. Clinical Examination

On intraoral examination, Miller's class II recession [18] was seen in relation to tooth number 21, and area of wrinkled oral epithelium opposing the tooth 21 (Figure 1).

Clinical measurements including probing pocket depth (1 mm), recession 6 mm), clinical attachment level (CAL= 7 mm) in relation to tooth number 21 were performed by using Williams periodontal probe.

- Probing pocket depth was measured by William periodontal probe from the gingival margin to the bottom of the sulcus [19].
- Recession was measured from the cemento-enamel junction (CEJ) to the gingival margin [19].
- Clinical attachment level was measured from the CEJ to the bottom of the sulcus [19].

The patient was educated and motivated about the procedure and advised about quitting the snuff dipping (Toombak), informed consent was obtained.

Figure 1. gingival recession in relation to upper left maxillary incisor

2.2. Treatment Procedures

After controlling the oral hygiene of the patient, and elimination of the factor that contributed to gingival recession (i.e. cessation of snuff dipping) surgical treatment was implemented.

The root surface was smoothly scaled and planed with ultrasonic and hand instruments. The basic concept of the surgical procedure that has been adopted in this case report at the recipient site has been described by Allen and Miller [20]. One tablet of Ibuprofen 600 mg had been taken one-hour prior the operation as preemptive drug to reduce the pain [21].

Following local anesthesia, intra-crevicular incisions through the bottom of the crevice was done, in order to raise a partial thickness flap at the buccal aspects of the tooth (Figure 2).

Figure 2. shows intra-crevicular incisions through the bottom of the crevice in order to raise a partial thickness flap at the buccal aspect of the tooth.

Mesial and distal vertical releasing incisions (mesial and distal to tooth number 21) were made including both papillae adjacent to the area of gingival recession. The partial thickness flap was reflected beyond the mucogingival junction, and was extended until the flap could be passively positioned over the defect without tension.

Following flap elevation, the exposed root surface was gently planed with sharp curettes, no root conditioning was applied.

the surgical procedure at the donor site was adopted from the techniques done by Hurzeler and Weng, [22] in this technique only a single incision parallel to the gingival margin is used to access the donor site for graft preparation and harvesting.

The length and depth of the incision were determined by the probing depth at the recipient site. Subepithelial connective tissue graft was obtained, shaped and trimmed to fit the recipient site; the graft was placed horizontally in order to cover the exposed root area up the CEJ and the thickness and the width of the graft were adjusted (Figure 3).

Figure 3. shows the placement of subepithelial connective tissue graft at the recipient site.

The connective tissue graft was placed on the denuded root and the flap coronally positioned as high as possible in order to completely submerge the graft. The harvested graft was sutured over the defect by sling suture using a 5-0 vicryl and then the overlying mucosa coronally positioned over the connective tissue graft and secure by sling suture followed by suturing of vertical incisions using interrupted sutures without tension (Figure 4, Figure 5). wound edges at the palatal donor site were adapted and sutured (Figure 6).

Figure 4. The harvested graft was sutured over the defect by sling suture using a 5-0 vicryl

Figure 5. the overlying mucosa coronally positioned over the connective tissue graft and secure by sling suture

Figure 6. wound edges at the palatal donor site were adapted and sutured

2.3. Postoperative Care

No surgical dressing was used; patient was instructed to apply an ice pack over the affected area as required on the day of the grafting. For the next 4 weeks, he was advised to rinse twice daily with 0.2% Chlorhexidine gluconate. Special consideration was given during the postoperative period to avoid any tensile strength on the covering flap; for the period of the first 2 weeks the patient was instructed to brush normally, excluding the grafted area and to chew for 3 weeks on the opposite side of the jaw.

Plaque control and oral hygiene were checked postoperatively at each appointment. The final measurements were made after 4 months.

2.4. Clinical Measurements

The measurements were made by the clinician who performed the surgery. The surface of the recession at the affected site was recorded preoperatively and after 1, 2, 3, 6, 12, and 24 weeks.

Probing depth, probing attachment level, and gingival width were obtained at baseline and at 3, 6 months and 12 months. Plaque scores were the supporting measurements that established the degree of compliance by the patients and the periodontal soft tissue conditions throughout the study.

2.5. Esthetic Evaluation

Photographs (magnification ratio: 1/1 and 1/1.2) of the recessions were taken preoperatively and again 6 months later.

Keloid formation was not exhibited at the surgical site and the patient was satisfied with the esthetic result (Figure 7, Figure 8).

Figure 7. healing of the soft tissue graft two weeks' post operatively. Keloid formation was not exhibited at the surgical site

Figure 8. aesthetic result after 12 months

The management of gingival recession and its sequelae is based on a thorough assessment of the etiological factors and the degree of involvement of the tissues. By these two factors we can assure that surgical root coverage is a potentially useful therapy.

As the true benefit for the patient is not only improved esthetics but also the stability of the result over time, it is relevant to evaluate whether or not these successful outcomes remain stable for long term [23].

Fortunately, this case study has been evaluated for more than one year and the results showed successful grafting procedure together with good maintenance for the oral hygiene and cessation of the snuffing which has been proposed as essential factors to maintain long term complete root coverage.

The success of the subepithelial connective tissue graft is attributed to the double blood supply at the recipient site from the underlying connective tissue base and the overlying recipient flap [24].

Snuff dippers are exposed to high local concentrations of nicotine, which is readily absorbed across the oral mucosa [25].

Therefore, it would seem that the local application of nicotine might produce an alteration in blood flow by reducing the vasculature due to its vasoconstrictive action [26].

In this case report we obtained a full root coverage despite the effect of the snuff in blood supply of the area and this reflects the importance of the periosteum blood supply to the connective tissue graft.

Therefore, to achieve a successful outcome of a root coverage procedure a careful case selection and surgical management are critical.

3. Conclusion

A significant gain in tissue volume has been attained in both apicocoronal and buccolingual directions. According to the result of this case report, the technique would be effective in treating recession with Miller Class II. However, more studies are necessary to confirm these findings in a larger series of patients.

References

[1] Tugnait A, Clerehugh V. Gingival recession-its significance and management. J Dent. 2001; 29: 381-94.

[2] Kassab MM, Cohen RE. The etiology and prevalence of gingival recession. J Am Dent Assoc. 2003; 134: 220-5.

[3] Albandar JM and Kingman A, "Gingival recession, Gingival bleeding, and dental calculus in adults 30 years of age and older in the United States, 1988-1994," Journal of Periodontology 1999; 70: 30-43.

[4] Addy M, Mostafa P, Newcombe RG. Dentine hypersensitivity: the distribution of recession, sensitivity and plaque. J Dent 1987; 15: 242-8.

[5] Gorman WJ. Prevalence and etiology of gingival recession. J Periodontol 1967; 38: 316-22.

[6] Walsh PM, Epstein JB. The Oral Effects of Smokeless Tobacco. J Can Dent Assoc. 2000; 66: 22-5.

[7] Idris AM, Ibrahim YE, Warnakulasuriya KA, Cooper DJ, Johnson NW, Nilsen R. Toombak use and cigarette smoking in the Sudan: estimates of prevalence in the Nile state. Prev Med. 1998; 27:597-603.

[8] Axéll T, Mörnstad H, Sundström B. The relation of the clinical picture to the histopathology of snuff dipper's lesions in a Swedish population. J Oral Pathol. 1976; 5: 229-236.

[9] Frithiof L, Anneroth G, Lasson U, Sederholm C. The snuff-induced lesion. A clinical and morphological study of a Swedish material. Acta Odontol Scand. 1983; 41:53-64.

[10] Christen AG, McDaniel RK, Doran JE. Snuff dipping and tobacco chewing in a group of Texas college athletes. Tex Dent J. 1979; 97: 6-10.

[11] Montén U, Wennström JL, Ramberg P. Periodontal conditions in male adolescent using smokeless tobacco (moist snuff) J Clin Periodontol. 2006; 33: 863-868.

[12] Robertson PB, Walsh M, Greene J, Ernster VL, Grady D, Hauck W. Peridontal effects associated with the use of smokeless tobacco. J Peridontol 1990; 61: 438-43.

[13] Kardachi BJR and Clarke NG. An Etiology of Acute Necrotising Ulcerative Gingivitis: A Hypothetical Explanation, J Periodontol 1974; 45: 830-832.

[14] Clarke NG and Carey SE. Etiology of Chronic Periodontal Disease:An Alternative Perspective, J Am Dent Assoc 1985; 110: 689-691.

[15] Alghamdi H, Babay N, Sukumaran A. Surgical management of gingival recession:A clinical update. The Saudi Dental Journal (2009); 21: 83-94.

[16] Hall WB. Gingival augmentation/mucogingival surgery. In: Proceedings of the World Workshop in Clinical Periodontics. Chicago: The American Academy of Periodontology; 1989: VII/l-VII/21.

[17] Novaes Jr. AB, Grisi DC, Molina GO, Souza L.S.S., Taba Jr.M, Grisi M.F.M. Comparative 6-Month Clinical Study of a Subepithelial Connective Tissue Graft and cellular Dermal Matrix Graft for the Treatment of Gingival Recession. J Periodontol 2001; 72: 1477-1484.

[18] Miller Jr PD. A classification of marginal tissue recession. Int J Periodontics Restorative Dent 1985; 5: 8-13.

[19] Kour A, Kumar A, Puri K, Khatri M, Bansal M, and Gupta G. Comparative evaluation of probing depth and clinical attachment level using a manual probe and Florida probe. J Indian Soc Periodontol. 2016; 20: 299-306.

[20] Miller PD. Root coverage grafting for regeneration and esthetics. Periodontology 2000 1993; 1: 118-127.

[21] Donaldson M, Goodchild JH. Appropriate analgesic prescribing for the general dentist. Gen Dent. 2010; 58(4): 291-7.

[22] Hürzeler MB, Weng D. Hurzeler MB, et al. Int J Periodontics Restorative Dent. 1999; 19: 279-87.

[23] Agudio, G., Nieri, M., Rotundo, R., Cortellini, P., Pini Prato, G. Free gingival grafts to increase keratinized tissue: a retrospective long-term evaluation (10 to 25 years) of outcomes. J. Periodontol.2008; 79: 587-594.

[24] Langer L, Langer B. The subepithelial connective tissue graft for treatment of gingival recession. Dent Clin North Am. 1993; 37: 243-64.

[25] Gritz ER, Baer-Weiss V, Benowitz NL, Van Vunakis H, and Jarvik ME. Plasma Nicotine and Cotinine Concentrations in Habitual Tobacco Users, Clin Pharmacol Ther 1981; 30: 201-209.

[26] Johnson GK, Todd GL, Johnson WT, Fung YK, Dubois LM. Effects of Topical and Systemic Nicotine on Gingival Blood Flow in Dogs. J Dent Res 1991; 70: 906-909.