GINGIVAL RECESSION –A SHORT REVIEW

Dr.J.Kavitha[1*] and Dr.S.Sivakrishnan[1]
Assistant Professor, Department of Periodontia, Rajah Muthiah Dental College and Hospital, Annamalai University, [1*]
Assistant Professor, Department of Pharmacy, Annamalai University,[1]

ABSTRACT

Gingival recession (GR) is a common periodontal condition that affects a large portion of the young and adult population and negatively affects the aesthetic aspects of the smile. Gingival recession is a frequently observed clinical condition characterised by exposure of tooth cementum, predominately on the labial surfaces of teeth and reported to be present in the vast majority (50-88%) of the adult dentition. Gingival recession is the term used to characterize the apical shift of the marginal gingiva from its normal position on the crown of the tooth to the levels on the root surface beyond the cemento-enamel junction. Although many dental conditions go unnoticed by patients, gingival recession can often be visible to patients and for which they may seek advice of a dentist. Gingival recession usually creates an esthetic problem, especially when such problem affects the anterior teeth and anxiety about tooth loss due to progression of the destruction. It may also be associated with dentine hypersensitivity, root caries, abrasion and/or cervical wear, erosion because of exposure of the root surface to the oral environment and an increase in accumulation of dental plaque. The article reveals the prevalence, etiology, causes, classification and treatment of gingival recession.

Keywords: Gingival recession, Cemento enamel junction, Plaque, Frenectomy

INTRODUCTION

A beautiful smile is the best ornament for the face and is the most primitive forms of human communication. The harmony of the smile is determined especially by the shape, the position and the color of the teeth.[1] People of all ages are increasingly concerned about their smile and overall appearance. Healthy gingival tissue forms a protective collar around a tooth. When gingival tissue recedes, exposing the tooth's root, sensitivity may result. Tooth root decay (root caries) may develop because the softer root surface decays more readily than the enamel on the tooth's crown. There are two types of gingiva in the mouth: attached gingiva—the thick, pink tissue that hugs the teeth and is attached firmly to the underlying bone—and the mucosa, or unattached gingiva, the soft, thin, moveable tissue that makes up the inside of the lips and cheeks. Gingival recession (GR) occurs when the edge of the gingival tissue (called the gingival margin) moves away from the crown of the tooth. GR or marginal tissue recession is defined as the location of the marginal tissue apical to the cement enamel junction (CEJ) with exposure of the root surface (American Academy of Periodontology [AAP]-Glossary of Periodontal Terms). Diagnostic difficulties may, however occur when the CEJ of a tooth is lost due to restorations e.g. crowns and fillings or to abrasion and abfraction lesions [2]. According to the classification system established at the International Workshop for Classification of Periodontal Diseases and Conditions, GR is recognized as a type of periodontal condition classified under the sub-category of “Mucogingival deformities and conditions around teeth” [3].

CLASSIFICATION

Classification of the different types of recession defects would appear to be essential for the diagnosis, management and predictability of subsequent non-surgical and surgical procedures. Although a number of published papers have attempted to introduce a classification system, Table 1 is the most commonly used

classification proposed by Miller[4]. Miller‟s classification utilizes the interproximal tissue height and the MGJ as primary variables for the classification:

Table 1: Miller's classification for GR

DEFECT CLASSIFICATION WITH CLINICAL FEATURES	
Class 1	Marginal tissue recession not extending to the mucogingival junction. No loss of interdental bone or soft tissue.
Class II	Marginal tissue recession extending to or beyond the mucogingival junction. No loss of interdental bone or soft tissue.
Class III	Marginal tissue recession extending to or beyond the mucogingival junction. Loss of interdental bone or soft tissue is apical to the cement–enamel junction, but coronal to apical extent of marginal tissue recession.
Class IV	Marginal tissue recession extending to or beyond the mucogingival junction. Loss of interdental bone extends to a level apical to the extent of marginal tissue recession.

This method presents the advantage of accurate recording of each component of the GR defect and the ability to correlate treatment prognosis / outcome and anatomical features, whereas, previous classification systems used either anatomical features or treatment prognosis only. Full root coverage can be expected for Miller Class I and II defects. Only partial RC (root coverage) is achievable for Class III and no predictable RC can be expected for Class IV [5].

PREVALENCE

According to the US National Survey, 88% of seniors (age 65 and over) and 50% of adults (18 to 64) present recession in one or more sites; progressive increase in frequency and extent of recession is observed with increase in age [6]. In the youngest age cohort (30 to 39 years), the prevalence of recession was 37.8% and the extent averaged 8.6% teeth. In contrast, the oldest cohort, aged 80 to 90 years, had a prevalence of 90.4% (more than twice as high) and the extent averaged 56.3% teeth (more than six times as large) [7]. Gingival recession is associated with the presence of supragingival and subgingival calculus and showed that the lingual surfaces of the lower anterior teeth were most frequently affected in 20–34 year age group in Tanzanian adult population [8].

CAUSES OF GINGIVAL RECESSION

One of the main causes of gingival recession is an irregular or abnormal tooth position. A tooth may protrude because it was crowded when permanent teeth began to push through the gingivae. As a result, inadequate jaw bone covers the tooth's root. The condition sometimes is noticeable by age 10 years. Heredity is another factor. A person simply may have thin, fragile or insufficient gingival tissue. The other causes of gingival recession include:

- ✓ aggressive or excessive tooth brushing
- ✓ inflammatory periodontal diseases

- ✓ trauma from over-zealous oral hygiene
- ✓ periods of recurrent gingival inflammation over underlying bone dehiscence or fenestration
- ✓ recurrent inflammation associated with overhanging restorations
- ✓ orthodontic tooth movement through the labial bone plate
- ✓ viral-induced ulceration of the gingival margin
- ✓ cytotoxic drug-induced ulceration of the gingival margin
- ✓ neutropenia (benign familial)
- ✓ traumatic injuries to the gingival margin
- ✓ gingival ischaemia.[9-12]

Gingival recession defects are typically treated by mucogingival surgery, aimed at the esthetic, biologically sustainable correction of defects of the morphology, position and/or dimensions of the gingiva.

ETIOLOGY

GR is considered to be a multi-factorial periodontal condition [13]. Table 2 shows the contribution of each of these factors in the initiation and development of the condition, it may be convenient to classify aetiology into Predisposing and precipitating factors:

Table 2: Etiology of GR

Calculus	Association between gingival recession with supragingival and subgingival calculus can be noted because of inadequate access to prophylactic dental care.
Tooth Brushing	Khocht et al. showed that use of hard tooth brush was associated with recession [14].
High Frenal Attachment	This may impede plaque removal by causing pull on the marginal gingival [15].
Position of the Tooth	Tooth which erupts close to mucogingival line may show localised gingival recession as there may be very little or no keratinized tissue [16].
Tooth Movement by Orthodontic Forces	The movement of tooth such as excessive proclination of incisors and expansion of the arch expansion are associated with greater risk of gingival recession [17].
Improperly Designed Partial Dentures	The partial dentures which have been

	maintained or designed which cause the gingival trauma and aid in the plaque retention have the tendency to cause gingival recession [18].
Smoking	The people who smoke have more gingival recession than non-smokers. The recession sites were found on the buccal surfaces of maxillary molars, premolars, and mandibular central incisors [19].
Restorations	Subgingival restoration margins increase the plaque accumulation, gingival inflammation, and alveolar bone loss [20].
Chemicals	Topical cocaine application causes gingival ulcerations and erosions [21].

TREATMENT

Correction of faulty tooth brushing

Relieving high frenal attachment by frenectomy: When the recession is caused by frenal pull in those cases, frenectomy is advised. If appropriate hygiene aids do not enable the patient to maintain the area plaque free, then frenectomy is advised to give ease to entrance to the site [22].

Restorations, Crowns, and Veneers: Crowns may be placed to widen the clinical crown which may camouflage the exposed root surface

Construction of Gingival Mask: Patients who have several teeth with recession may have unaesthetic appearance because of black triangles. In these cases, where surgical procedure is not appropriate, silicone flexible gingival veneer or mask may be used.

Surgical Root Coverage Techniques:

- ✓ Free epithelialised gingival graft [23].
- ✓ Subepithelial connective tissue graft [24].
- ✓ Semilunar flap [25].
- ✓ Coronally advanced flap [26].
- ✓ Guided tissue regeneration [GTR] [27,28].

CONCLUSION

For thousands of years men and women have been obsessed with beauty and attractiveness. An important element of dental and, in turn, facial attractiveness is the appearance of the periodontal tissues, in particular the gingivae. Gingival recession is one of the main esthetic complaints of patients characterized by the loss of the periodontal connective tissue fibres along the root cementum. Although it results in tooth loss rarely, marginal tissue recession is associated with thermal and tactile sensitivity, esthetic complaints, and a tendency toward root caries. The etiology of gingival recession is multifactorial, and is always the result of more than one factor acting together. Adequate awareness and education in oral hygiene maintenance prove to be useful.

REFERENCES

1. Townsend CL. Resective surgery: An esthetic application Quintessence Int. 1993;24:535–42.
2. Tugnait A, Clerehugh V. Gingival recession- its significance and management. Review J Dent. 2001; 6: 381-94.
3. Armitage G.C. Development of a Classification System for Periodontal Diseases and Conditions. Ann Periodontol. 1999; 4: 1-6.
4. Miller Jr PD. A classification of marginal tissue recession. Int J Periodontics Restorative Dent.1985; 5 (2): 8-13.
5. Miller PD. Root coverage using a free soft tissue autograft following citric acid application. III. A successful and predictable procedure in areas of deep- wide recession. Int Journal of Period and Rest Dent. 1985; 5: 15-37.
6. Miller AJ, Brunelle JA, Carlos JP, Brown LJ, Löe H. Oral Health of United States Adults. The National Survey of Oral Health in U.S. Employed Adults and Seniors: 1985-1986. Bethesda, MD: National Institutes of Health. NIH Publication No. 1987; 87–2868.
7. Albandar JM, 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(1):30–43.
8. Van Palenstein Helderman WH, Lembariti BS, Van Der Weijden GA, Van't Hof MA. Gingival recession and its association with calculus in subjects deprived of prophylactic dental care. Journal of Clinical Periodontology. 1998; 25(2):106–111.
9. Loe H, Anerud A, Boysen H. The natural history of periodontal disease in man: prevalence,severity and extent of gingival recession. J Periodontol. 1992; 63:489–95.
10. Goldstein M, Nasatzky E, Goultschin J, *et al.,* Coverage of previously carious roots is as predictable a procedure as coverage of intact roots. J Periodontol. 2002; 73:1419–26.
11. Lindhe J, Socransky SS, Nyman S, *et al.,* Dimensional alteration of the periodontal tissues following therapy. Int J Periodontics Restorative Dent. 1987; 7:9–21.
12. Agudio G, Pini Prato G, Cortellini P, *et al.,* Gingival lesions caused by improper oral hygiene measures. Int J Periodontics Restorative Dent. 1987; 7:52–65.
13. Marini MG, Greghi SLA, Passanezi E, Sant"ana ACP. Gingival recession: prevalence, extension and severity in adults. J Appl Oral Sci. 2004; 12 (3): 250-5.
14. Khocht A, Simon G, Person P, Denepitiya JL. Gingival recession in relation to history of hard toothbrush use. Journal of Periodontology. 1993; 64(9):900–905.
15. Trott JR, Love B. An analysis of localized gingival recession in 766 Winnipeg High School students. The Dental Practitioner and Dental Record. 1966; 16(6):209–213.
16. Zachrisson BU. Orthodontics and periodontics. In: Lindhe J, editor. Clinical Periodontology and Implant Dentistry. 3rd edition. Copenhagen, Denmark: Munksgaard; 1998; 741–793.
17. Årtun J, Krogstad O. Periodontal status of mandibular incisors following excessive proclination A study in adults with surgically treated mandibular prognathism. American Journal of Orthodontics and Dentofacial Orthopedics. 1987; 91(3):225–232.
18. Wright PS, Hellyer PH. Gingival recession related to removable partial dentures in older patients. The Journal of Prosthetic Dentistry. 1995; 74(6):602–607.
19. Gunsolley JC, Quinn SM, Tew J, Gooss CM, Brooks CN, Schenkein HA. The effect of smoking on individuals with minimal periodontal destruction. Journal of Periodontology. 1998; 69(2):165–170.
20. Parma-Benfenati S, Fugazzato PA, Ruben MP. He effect of restorative margins on post—surgical development and nature of periodontium. The International Journal of Periodontics & Restorative Dentistry. 1985; 5:31–51.
21. Quart AM, Butkus Small C, Klein RS. The cocaine connection. Users imperil their gingiva. The Journal of the American Dental Association. 1991; 122(1):85–87.
22. Wennström JL. Mucogingival therapy. Annals of Periodontology. 1996;1(1):671–701.

23. Sullivan HC, Atkins JH. Free autogenous gingival grafts. I. Principles of successful grafting. Periodontics. 1968; 6(3):121–129.
24. Langer B, Langer L. Subepithelial connective tissue graft technique for root coverage. Journal of Periodontology. 1985; 56(12):715–720.
25. Tarnow DP. Semilunar coronally repositioned flap. Journal of Clinical Periodontology. 1986; 13(3):182–185.
26. Sumner CF., III Surgical repair of recession on the maxillary cuspid: incisally repositioning the gingival tissues. Journal of Periodontology. 1969; 40(2):119–121.
27. Pini Prato G, Tinti C, Vincenzi G, Magnani C, Cortellini P, Clauser C. Guided tissue regeneration versus mucogingival surgery in the treatment of human buccal gingival recession. Journal of Periodontology. 1992; 63(11):919–928.
28. Pradeep K, Rajababu P, Satyanarayana D, Sagar V. Gingival recession: review and strategies in treatment of recession. Case Rep Dent. 2012; 2012:563421.