



A GLIMPSE IN TO GINGIVAL RECESSIOIN : A REVIEW

Dental Science

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ABSTRACT

One of the most important and common esthetic concerns associated with the periodontal tissues is gingival recession. The etiology is multifactorial. Complete information on marginal tissue recession is essential for diagnosis, prognosis, treatment planning, and for communication between clinicians. This article reviews etiology, classification, consequences and the available treatment modalities for the coverage of exposed root surfaces.

KEYWORDS

Gingival Recession, Classification, Surgical Treatment options, FGG, SETG, VISTA Techniques.

INTRODUCTION:

Esthetics represents an entangled part of the dental treatment. Gingival recession (GR) is the term that label the oral exposure of the root surface due to a displacement of the gingival margin apical to the cemento-enamel junction (CEJ).^{1,2} It is the most common and inadmissible condition of the gingiva and its prevalence commonly increases with age.^{3,4} Gingival recession is displacement of marginal tissue apical to the cemento-enamel junction.⁵ The term "marginal tissue recession" is considered to be more accurate than "gingival recession," since the marginal tissue may have been alveolar mucosa.^{6,7} The prevalence, extent and severity of gingival recession increases with age and are more prevalent in males. Recession refers to location of the gingiva and not its condition. Receded gingiva can be inflamed but may be normal except for its position. Recession may be localized to one tooth or a group of teeth, or it may be generalized throughout the mouth.

Etiology:

1. Anatomical / Developmental Factors:
 - a. Dehiscence / fenestrations
 - b. Tooth malposition
 - c. Lack of attached gingiva
 - d. Thin gingival biotype
 - e. Root-bone angle
 - f. Mesio-distal curvature of the tooth surface

2. Pathological factors: a. Periodontal disease b. Trauma from occlusion has been suggested in the past, but its mechanism of action has never been demonstrated. c. Abnormal frenum attachment. d. Smoking / tobacco chewing / mishri application. e. Chronic gingival inflammation

3. Iatrogenic dentistry: a. Pressure from a poorly designed partial denture, such as an illfitting denture clasp, can cause gingival trauma and recession. b. Overhanging dental restorations c. Placing restorative margins within the biologic width. d. Improper orthodontic treatment

4. Oral hygiene habits:

- a. Faulty tooth brushing technique (gingival abrasion),
- b. improper use of interdental cleansing aids.

5. Other factors: a. Friction from soft tissues (gingival ablation).

Classification of Gingival Recession:

Classification is important for communication between clinicians as well as used for both diagnostic and prognostic tools for root coverage procedures.

- a. **Sullivan and Atkins 1968:** It was 1st classifications proposed for gingival recession. The basis for the classification was depth and width of the defect. The four categories are: Deep wide, Shallow wide, Deep narrow, Shallow narrow. This classification though simple is subjected inter-examiner variability and therefore it is

not reproducible.^[8]

- b. **Mlinek et al. 1973 :** Shallow narrow: Recession 3 mm. This modification reduced subjective variation, but it does not specify the landmark for horizontal measurement as variable measurement may be present at variable distances. ^[9]
- c. **Bengue et al. 1983 :** Based on prognosis after root coverage procedure: 1. U-type - poor prognosis 2. V-type - fair prognosis 3. I-type - good prognosis. ^[10]
- d. **Miller 1985:** proposed a classification which is the most widely used today.

Primarily this classification of gingival recession is based on following aspects:

- A. Extent of gingival recession defects
- B. Extent of hard and soft tissue loss in interdental areas surrounding the gingival recession defects. It is useful in predicting the final amount of root coverage following a free gingival graft procedure.

Class I: Marginal tissue recession not extending to the mucogingival junction (MGJ). No loss of interdental bone or soft tissue. 100% root coverage can be anticipated.

Class II: Marginal recession extending to or beyond the MGJ. No loss of interdental bone or soft-tissue. 100% root coverage can be anticipated.

Class III: Marginal tissue recession extends to or beyond the MGJ. Loss of interdental bone or soft-tissue is apical to the CEJ, but coronal to the apical extent of the marginal tissue recession or there is a mild malpositioning of the tooth, this prevents the attempting 100% of root coverage.

Class IV: Marginal tissue recession extends to or beyond the MGJ. Loss of interdental bone extends to a level apical to the extent of the marginal tissue recession or malpositioning of tooth is so severe that root coverage cannot be anticipated.

Classification of Palatal Gingival Recession: The position of interdental papilla is the basis of classifying gingival recession on palatal aspect of maxillary arch as there is absence of MGJ on palatal aspect.¹¹

Palatal recession I There is no loss of interdental bone or soft tissue.

This is sub-classified into two categories:

Palatal recession-IA (PR-IA): Marginal tissue recession d³ mm from CEJ.

PR-IB: Marginal tissue recession >3 mm from CEJ.

Palatal recession II The tip of the interdental papilla is located between the interdental contact point and the level of the CEJ mid-palatally. Interproximal bone loss is visible on the radiograph.

This is sub-classified into two categories:

PR-IIA: Marginal tissue recession d"3 mm from CEJ.

PR-IIB: Marginal tissue recession >3 mm from CEJ.

Palatal recession III The tip of the interdental papilla is located at or apical to the level of the CEJ mid-palatally. Interproximal bone loss is visible on the radiograph. This is sub-classified into two categories.

PR-IIIA: Marginal tissue recession d"3 mm from CEJ.

PR-IIIB: Marginal tissue recession >3 mm from CEJ.

Surgical Management of Gingival Recession:**Criteria For Selection of Mucogingival Techniques:**

1. Surgical site should be free of plaque, calculus, and inflammation.
2. Adequate blood supply to the donor tissue.
3. Anatomy of the recipient and donor sites should be considered.
4. Stability of the grafted tissue to the recipient site should be maintained.
5. There should be minimal trauma to the surgical site.

Surgical Techniques:

A. Pedicle grafts: They are so called because they maintain their connection to the donor site after placement at the recipient site.

- a Laterally repositioned flap
- b Double papilla flap
- c Oblique rotational flap

B. Free grafts: They are so called because that are completely deprived of their connection with the donor area.

- a Epithelialized gingival grafts:
- b Sub epithelial connective tissue graft
- c Guided Tissue Regeneration (GTR)
- d Laterally Repositioned Flap: ¹² This flap was described by Gruppe and Warren in 1956.

C. Oblique Rotational Flap: This is a variation of the laterally positioned ap (Pennel et al. 1965). The pedicle is rotated obliquely (90°) and sutured to the underlying connective tissue bed.

D. Coronally Advanced Flap: ¹³ Bernimoulin et al. (1975) first reported the coronally positioned graft succeeding grafting with a free gingival autograft. This was a two-stage procedure.

- a In 1986, Tarnow described the semilunar coronally positioned ap. This was a one-stage, no-suture, coronally repositioned ap aimed at correcting mild gingival recessions.
- b In 1989, Allen and Miller reported the use of a one stage, coronally positioned ap associated with citric acid root conditioning aimed at correcting shallow marginal recessions (2.5–4.0 mm).
- E. Free Gingival Autograft: The Classic Technique: Described by Bjorn.

a Variant Technique:

b Accordion Technique: Described by Rateitschak and colleagues it attains expansion of the graft by alternate incisions in opposite sides of the graft.

c Strip technique: Developed by Han and associates. Two or three strips of gingival donor tissue about 3- to 5-mm wide and long to cover the entire length of the recipient site. These strips are placed side by side to form one donor tissue and sutured on the recipient site. The advantages of this technique are the rapid healing of the donor site.

F. Sub Epithelial Connective Tissue Graft: ¹⁴ It was described by Langer and Langer in 1985 A variant of the sub epithelial connective tissue graft, called a Subpedicle Connective Tissue Graft, was described by Nelson in 1987. This technique uses a pedicle over the connective tissue that covers the denuded root surface. The blood supply is increased over the donor tissue.

G. Guided Tissue Regeneration: ¹⁵ Guided tissue regeneration (GTR) is proposed by the American Academy of Periodontology as a procedure attempting to regenerate lost periodontal structures through differential tissue responses. (American Academy of Periodontology 1996). It involves the use of resorbable or non-resorbable membranes to exclude epithelial and connective tissue cells from the root surface during wound healing period.

H. Vista Technique: ¹⁶ The VISTA technology is invented by the professor Zadeh combined with SCTG to treat gingival recession ¹⁶. This is a minimally invasive modified coronally advanced tunnel technique. The main purpose of this esthetic surgery is to obtain the coverage of root surface and the amount of buccal soft tissue and reduce the complications caused by surgical techniques, such as the destruction of blood supply of soft tissue flap and gingival papilla caused by traditional coronally advanced flap. Unlike the common tunnel technique, the surgical incision approach is very small, located in the vestibular sulcus. This approach can avoid gingival damage caused by repeated traction and other operations during the process away from the thinnest gingival margin of soft tissue defect, while the soft tissue is lifted and separated from the bone surface, which created a stable space for the graft and kept the gingival papilla and blood supply beneath undestroyed. Good blood supply not only is the basis of graft survival but also provides favorable conditions for the prognosis of the operation. This coronally advanced tunnel gingival tissue is suspended, sutured and fixed on the tooth surface, which is the promoting factor for the relative stability of soft tissue and promote formation of attachment after surgery.

CONCLUSION:

Management of recession and its outcome is based on the detailed assessment of the etiological factors and the degree of involvement of the tissues. Once the diagnosis of the condition has been uncovered and labeled, a treatment plan to arrest or alter the gingival recession should be planned. The initial part of the management of the patient with gingival recession should be preventive and the degree of gingival recession should be monitored for further signs of progression. In recent times conservative & preventive therapy in the form of proper dietary and oral hygiene instruction should be the first line of treatment against gingival recession. Prevention can be supplemented with scaling, polishing and root planing at appropriate intervals based on patient risk factors. Due to their invasive nature, surgeries are a last source of treatment, and should be used in patients who present with severe recession and/or extensive sensitivity and esthetic concerns. Surgical root coverage is a potentially useful therapy when esthetics is the priority and when periodontal health is good. Careful case selection and surgical management are critical if a successful outcome is to be attained.

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