



Gingival Recession A Literature Aback And Its Management Using Coronally Advanced Flap – A Case File

Dr. Sourav Chowdhury¹, Dr. Kashif Ahmed¹, Dr. Varma Malti Sanjeev Kumar², Dr. Arnika Atam³, Dr. Anand Kishore⁴

1,2-Pg Student (JR II&1), 3-B.D.S Lecturer ,4-Head of Department
Department of Periodontology, Chandra Dental College & Hospital, Barabanki, India

***Corresponding Author:**

Dr. Sudhanshu Agrawal

Associate Professor, Department Of Periodontology, Chandra Dental College & Hospital, Barabanki, India

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

One of the most common esthetic concerns associated with the periodontal tissues is gingival recession. Gingival recession is the exposure of root surfaces due to apical migration of the gingival tissue margins; gingival margin migrates apical to the cemento-enamel junction. Although it rarely results in tooth loss, marginal tissue recession is associated with thermal and tactile sensitivity, esthetic complaints, and a tendency toward root caries. This paper views the etiology, consequences, and the available surgical procedures for the coverage of exposed root surfaces, including two case reports.

Keywords: gingival recession, Coronally positioned flap

Introduction

Gingival recession is defined as the displacement of the marginal tissue apical to the cemento-enamel junction [1]. The most common factors that influence gingival recession are alveolar bone dehiscence, high muscle attachment, frenal pull, iatrogenic factors, hard tooth brush, traumatic tooth brushing habits, orthodontic tooth movements and periodontal disease [2]. Recession has been clinically related to a higher incidence of root caries, periodontal attachment loss, hypersensitivity, unaesthetic gingival appearance and cervical wear [3].

The periodontium has been described as having two basic forms are thin and scalloped or thick and flat. Olsson & Lindhe referred to these as periodontal biotype. He found the thick and flat periodontal biotype to be more prevalent than the thin and scalloped form (85 to 15 %). Each biotype has its own characteristics which impact on the clinical outcome. The highly scalloped gingivally complex is greater

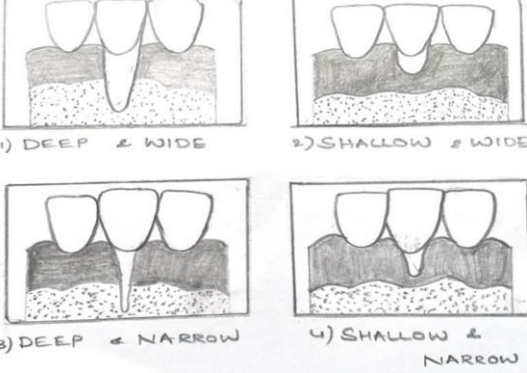
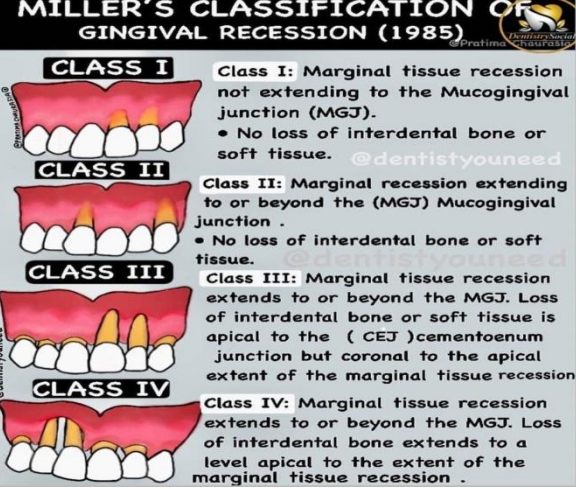
than 5mm interproximally and therefore is the most difficult to maintain postsurgically. Care must also be excised during tissue retraction and placement of crown margins within the sulcus to prevent recession. The stability of the osseous crest and position of the free gingival margin are directly proportional to the thickness of the bone and gingival tissue [4].

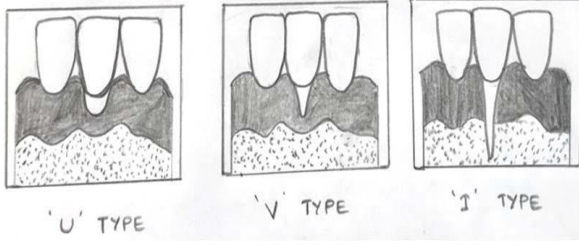
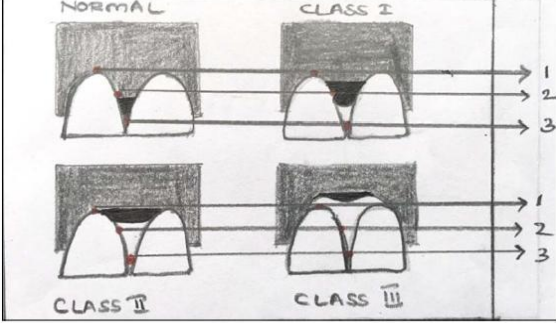
The surgical modalities assessed include Connective Tissue Graft (CTG), Free Gingival Graft (FGG), Guided Tissue Regeneration (GTR) and the Coronally Advanced Flap (CAF). Reports of surgical root coverage procedures have shown conflicting rates of success and predictability and have led to the development of number of surgical techniques from the time, Grupe and Warren introduced lateral sliding flap for root coverage. Bjorn is frequently quoted as having introduced the free soft tissue autograft, but a detailed description of the technique was published by Sullivan and Atkins [3,5,6,7,8,9,10,11,12].

Norberg(1926) introduced Coronally positioned flap procedure [13]. The Coronally positioned flap is one of the valid surgical options in the treatment of Millers class I and class II gingival recession. Coronally positioned flap was more commonly used

as a means of gaining root coverage and has varying degree of success. The advantage is that it is not technique sensitive and also discriminates the need to harvest donor tissue and minimize the morbidity of donor areas.

Classification Of Recession A Literature Review:

SR. NO.	CLASSIFICATION SYSTEMS	DETAILS/DIAGRAMS
1.	Sullivan And Atkins Classification [13]	 <p>1) DEEP & WIDE 2) SHALLOW & WIDE 3) DEEP & NARROW 4) SHALLOW & NARROW</p>
2.	Millers's Classification 1985	 <p>MILLER'S CLASSIFICATION OF GINGIVAL RECESSION (1985)</p> <p>CLASS I Class I: Marginal tissue recession not extending to the Mucogingival junction (MGJ). • No loss of interdental bone or soft tissue. @dentistyouneed</p> <p>CLASS II Class II: Marginal recession extending to or beyond the (MGJ) Mucogingival junction . • No loss of interdental bone or soft tissue.</p> <p>CLASS III Class III: Marginal tissue recession extends to or beyond the MGJ. Loss of interdental bone or soft tissue is apical to the (CEJ)cementoenum junction but coronal to the apical extent of the marginal tissue recession</p> <p>CLASS IV 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 .</p>
3.	Mlinek et al. (1973)	Shallow narrow: Recession <3 mm Deep wide: Recession >3 mm.
4.	Liu and Solt (1980)	<ul style="list-style-type: none"> • Visual: Measured from CEJ to soft tissue margin • Hidden: Loss of attachment within the pocket that is apical to tissue margin.
5.	Bengue et al. (1983)	<ul style="list-style-type: none"> • U-type - poor prognosis • V-type - fair prognosis • I-type - good prognosis. [5]

		
<p>6. Smith (1990)</p>		<ul style="list-style-type: none"> • Score 0 - No clinical evidence of root exposure. • Score 1 - No clinical evidence of root exposure and there is also a subjective awareness of dentinal hypersensitivity in response to air blast is reported, and/or there is clinically detectable exposure of the CEJ for up to 10% of the estimated mid-mesial to mid-distal distance. • Score 2 - Horizontal exposure of the CEJ more than 10% but not exceeding 25% of the estimated mid-mesial to mid- distal distance . • Score 3 - Exposure of the CEJ more than 25% of the mid-mesial to mid- distal distance but not exceeding 50% • Score 4 - Exposure of the CEJ more than 50% of the mid-mesial to mid- distal distance but not exceeding 75% • Score 5 - Exposure of the CEJ more than 75% of the mid-mesial to mid- distal distance up to 100%.
<p>7. Nordland WP and Tarnow DP (1998)</p>		 <ol style="list-style-type: none"> 1. The interdentary contact point 2. The apical extent of the facial CEJ 3. The coronal extent of the proximal CEJ
<p>8. Mahajan (2010)</p>		<ul style="list-style-type: none"> • Class I: Gingival recession defect not extending to the MGJ . • Class II: Gingival recession defect extending to the MGJ/ beyond it . • Class III: Gingival recession defect with bone or soft tissue loss in the interdental area up to cervical 1/3 of the root surface and/or malpositioning of the teeth. • Class IV: Gingival recession defect with severe bone or soft tissue loss in the interdental area greater than cervical 1/3 of the root

		surface and/or severe malpositioning of the teeth.
9.	Cairo et al. (2011)	<ul style="list-style-type: none"> • Type 1: Gingival recession with no loss of interproximal attachment. • Type 2: Gingival recession associated with loss of interproximal attachment. • Type 3: Gingival recession associated with loss of interpromal attachment.
10.	Rotundo et al. (2011)	<p>Classified gingival recession taking into consideration both soft and hard dental tissues.</p> <p>For this classification, specific taxonomic variables have been considered,</p> <ol style="list-style-type: none"> 1. the amount of keratinized tissue (KT = 2 mm); 2. the presence/absence of noncarious cervical lesion (NCCL), with a consequent unidentifiable CEJ; 3. and the presence/absence of interproximal attachment loss. <p>Considering these variables, the following method of assessment is suggested:</p> <ol style="list-style-type: none"> 1) $KT \geq 2$ mm , NCCL – absent <ul style="list-style-type: none"> • Interproximal attachment loss – absent. 2) $KT < 2$ mm , NCCL – present <ul style="list-style-type: none"> • Interproximal attachment loss – present As a consequence, the following classes may be identified within the population: • $KT \geq 2$mm –noNCCL–no interproximal attachment loss (AAA) • $KT \geq 2$ mm – NCCL – no interproximal attachment loss (ABA) • $KT \geq 2$ mm – no NCCL – interproximal attachment loss (AAB) • $KT \geq 2$ mm – NCCL – interproximal attachment loss (ABB) • $KT < 2$mm –no NCCL–no interproximal attachment loss (BAA) • $KT < 2$ mm – NCCL – no interproximal attachment loss (BBA) • $KT < 2$ mm – no NCCL – interproximal attachment loss (BAB) • $KT < 2$ mm – NCCL – interproximal attachment loss (BBB)
11.	Kumar and Masamatti (2013)	<ul style="list-style-type: none"> • Class I: There is no loss of interdental bone or soft tissue. This is sub classified into two categories: • ClassIA: Gingival margin on F/L aspect lies apical to CEJ, but coronal to MGJ with attached gingiva present between marginal gingiva and MGJ. • Class IB: Gingival margin on F/L aspect lies at or apical to MGJ

		<p>with an absence of attached gingiva between marginal gingiva and MGJ. ^[10]</p> <p>Class II: The tip of the interdental papilla is located between the interdental contact point and the level of the CEJ midbuccally/midlingually. Interproximal bone loss is visible on the radiograph.</p> <p>This is sub-classified into three categories:</p> <ul style="list-style-type: none"> • Class IIA: There is no marginal tissue recession on F/L aspect • Class IIB: Gingival margin on F/L aspect lies apical to CEJ but coronal to MGJ with attached gingiva present between marginal gingiva and MGJ • Class IIC: Gingival margin on F/L aspect lies at or apical to MGJ with an absence of attached gingiva between marginal gingiva and MGJ. <p>Class III: The tip of the interdental papilla is located at or apical to the level of the CEJ midbuccally/midlingually. Interproximal bone loss is visible on the radiograph. This is sub-classified into two categories:</p> <ul style="list-style-type: none"> • Class IIIA: Gingival margin on F/L aspect lies apical to CEJ, but coronal to MGJ with attached gingiva present between marginal gingiva and MGJ • Class IIIB: Gingival margin on F/L aspect lies at or apical to MGJ with an absence of attached gingiva between marginal gingiva and MGJ. ^[11]
12.	Prashant et al. (2014)	<p>1: Marginal tissue recession on palatal aspect with no loss of interdental bone or soft-tissue</p> <p>1 A: Marginal tissue recession ≤ 3 mm from CEJ</p> <p>1 B: Marginal tissue recession of >3 mm from CEJ</p> <p>2: The tip of the interdental papilla is located between the inter-dental contact point and the level of the cement enamel junction mid-palatally. Interproximal bone loss is visible on the radiograph.</p> <p>2 A: Marginal tissue recession ≤ 3 mm from CEJ</p> <p>2 B: Marginal tissue recession of >3 mm from CEJ</p> <p>3: The tip of the interdental papilla is located at or apical to the level of the cement enamel junction mid-palatally. Interproximal bone loss is visible on the radiograph.</p> <p>3 A: Marginal tissue recession ≤ 3 mm from CEJ</p> <p>Marginal tissue recession of >3 mm from CEJ</p>

Case File:

Periodontal plastic surgery and non-surgical treatments for gingival recession have been reviewed in the dental literature. The aim of this paper is to assess the validity, use of surgical treatment and to evaluate the outcome of Coronally advanced flap for gingival recession.

The clinical trial was conducted on 2 patients, selected from those attending the out patients unit of post graduate Department of periodontology Chandra Dental College and Hospital Safedabad Barabanki. The patients were treated for bilateral Miller Class I gingival recessions by using Coronally Positioned Flap technique. The patients were informed about the study and a written informed consent was obtained from them.

Clinical Measurements

Width of the Defect (WD):

The width was recorded at a level of 1mm apical to the Cemento-enamel junction. (WD)

Depth of the Defect (DD):

Distance between Cemento-enamel junction and gingival margin.

Width of the Keratinized Tissue (WKT):

Distance between gingival margin (GM) and Mucogingival junction (MGJ).

Relative Clinical Attachment Level (RCAL):

Calculated as Relative Recession + Probing depth (PD).

Pre- Surgical Preparation

- Initial therapy consisting of scaling and root planing was carried out.
- Occlusal adjustment was done.




Procedure













After obtaining adequate anesthesia (Lignocaine 1:80,000) the exposed root surface was scaled and planed using hand and ultra sonic instruments. A horizontal intra crevicular incision was made at the recession and extended with two vertical releasing incision in correspondence to the line angles. The interdental papilla was preserved as much as possible. Their facial portion was deepithelialized to create a connective tissue bed. Full thickness flap was elevated. Horizontal incision was placed at the base of the flap to ensure tension free coronal displacement of the flap. The flap was then Coronally positioned to completely cover the defect and secured using continuous sling suture (No 5-0 bioabsorbable polyglactin material). Vertical releasing incisions were approximated using interrupted suture technique.

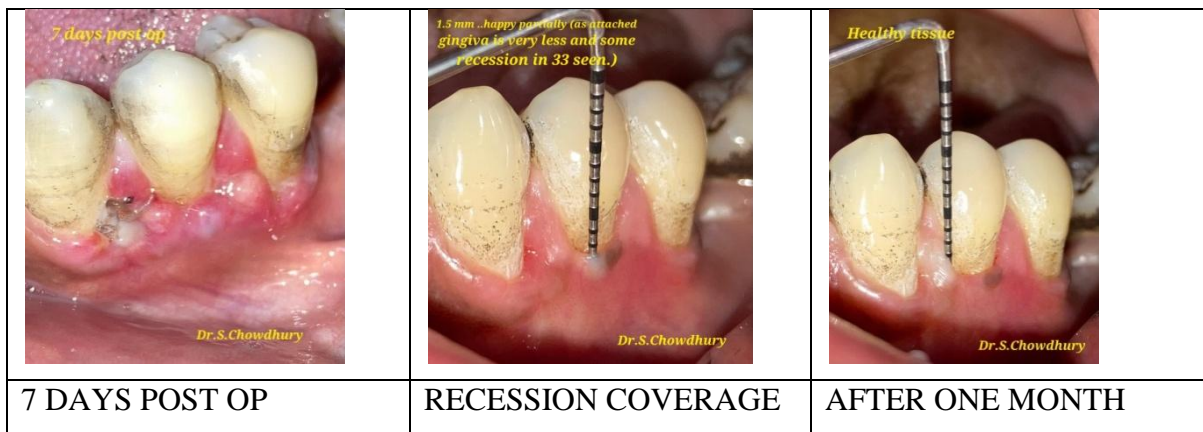
Post Surgical Care

Immediately following surgery, use of icepacks was recommended intermittently for three hours. [Pini Prato [16], Pagliaro, Baldi et al]. All patients were instructed to discontinue tooth brushing around the surgical site and advised to use 0.12% chlorhexidine gluconate mouthrinse for four weeks. Systemic antibiotics were prescribed (Amoxicillin-500 mg, three times daily for five days) along with analgesics.

Case Presentation

		
PRE OPERATIVE CLINICAL VIEW	PRE OPERATIVE PROBING DEPTH MEASUREMENT	PRE OPERATIVE CAL MEASUREMENT

 <p>Healthy Dr. S. Chowdhury</p>	 <p>External Bevel for excision Dr. S. Chowdhury</p>	 <p>External Bevel Dr. S. Chowdhury</p>
EXTERNAL INCISION		BEVEL
 <p>GCT flap Dr. S. Chowdhury</p>	 <p>Infected Cementum removal Dr. S. Chowdhury</p>	 <p>6 mm Dr. S. Chowdhury</p>
ROOT PLANING		
 <p>Root debridement Dr. S. Chowdhury</p>	 <p>Flap design for CAF Dr. S. Chowdhury</p>	 <p>15c in action Dr. S. Chowdhury</p>
 <p>release for mobilization Dr. S. Chowdhury</p>		 <p>Suture (5-0) Dr. S. Chowdhury</p>
CORONAL ADV FLAP		5-0 SUTURE



Results

There was reduction in the recession width, and recession depth at first month, third month and sixth month from baseline, and there was gain in Relative Clinical Attachment Level at first month, third month and sixth month, there was increase in Width of Keratinized Tissue at first month, third month and sixth month from baseline following treatment with Coronally Positioned Flap.

Discussion

High rate of gingival recession defects among the general population, it is imperative that dental practitioners have an understanding of the etiology, complications and treatments of the condition. The aim of this paper has been to elucidate the current body of research in a manner that is clinically applicable and relevant, the findings of the present study indicated that acceptable root coverage can be achieved in class I gingival recessions when treated with Coronally positioned flap.

The present study aimed at treating Millers Class I recessions, with a mean initial recession height of 3-4 mm . This type of defect could be treated with many variations of three basic approaches: 1) pedicle soft tissue grafts; 2) free soft tissue grafts; or 3) combinations of the two. Among the pedicle grafts, the Coronally positioned flap is one of the valid surgical options to cover exposed root surfaces. It has many advantages over other surgical procedures used to treat gingival recessions: it does not require a separate surgical site to obtain a graft, the tissue of the pedicle provides a perfect color/contour match with the surrounding tissue, the procedure is simple to perform, and does not require an extended surgical or recovery time. The true benefits for the patient are

improved esthetics and the stability of the results overtime.

In addition it is important to consider the patients tooth brushing technique for the long-term maintenance of the clinical outcomes achieved by any root coverage surgical procedure. Anatomical factors such as root prominence, depth of the vestibule, soft tissue quality must also be considered.

Longitudinal studies with a longer duration and histological analysis have to be done for evaluating the success and stability of the surgical procedure.

Conclusion

Maintaining good oral hygiene and using the appropriate oral hygiene aids and cleaning techniques should be reviewed. Patients with recession should always be made aware of the possibility that such areas can be surgically repaired. Before undertaking surgical or non- surgical forms of therapy for gingival recession, we must address the etiology of the problem. It goes without saying, that therapeutic interventions will be undermined in the long run if the cause of the problem is not removed. Once the etiology of the condition has been uncovered and addressed, we may proceed to plan a treatment to arrest or reverse the gingival recession. The treatment plan will be based on the severity of symptoms, the goal of the patient and the body of knowledge in the current literature.

References

1. The American academy of periodontology Glossary of periodontal terms. Third edition Chicago, 1992.

2. Haeri, Francis G, Serio, “*Mucogingival surgical procedures: A review of the literature*”, *Quintessence Int* , 30 475-483, 1999.
3. Paolantonio M, Di Murro C, Cattabrigo, “*Subpedicle connective tissue graft versus free gingival graft in the coverage of exposed root surfaces*”, *J Clin Periodontol* 24, 51-56, 1997.
4. Atlas of cosmetic and reconstructive periodontal surgery: Edward S. Cohen - 3rd edition.
5. Edward P. Allen, Preston D Miller, “*Coronal positioning of existing gingiva*”, *J Periodontol*, 60,315-319, 1989.
6. Tarnow DP, “*Semilunar coronally repositioned flap*” *J Clin Periodontol*; 13, 182, 1986.
7. Jan Lindhe, Thorkild Karring,” *Clinical Periodontology and implant dentistry*” 5th Edition.
8. Harris RJ, Harris AW, “*The coronally positioned pedicle graft with inlaid margins: A predictable method of obtaining root coverage of shallow defects*”. *Int J Periodontics Restorative Dent* 1994; 15, 229, 1986.
9. Phillippe Bouchard, Daniel Etienne, Jean-Pierre Ouhayoun, “*Subepithelial connective tissue grafts in the treatment of gingival recessions: A comparative study of 2 procedure*”, *J Periodontol*, 65,929-936, 1994.
10. Harris RJ, “*The connective tissue and partial thickness double pedicle graft: A predictable method of obtaining root coverage*”, *J Periodontol*; 63, 477-486, 1992.
11. Kavitha.J “*Soft Tissue Ridge Augmentation Using Acellular Dermal Matrix Graft: Case Report*”, *Dental Research Journal*, Issue II May 2011”.
12. Kavitha.J “*Treatment Of Gingival Recession Associated With Non Carious Cervical Lesion Using Coronally Positioned Flap With Or Without Resin Modified Glass Ionomer Restoration*” - A Clinical Study”, *Journal of International Academic research for multidisciplinary*, Vol 1 (8), Sep 2013.
13. Vincent J, “*Root Coverage techniques*”, *Periodontal abstracts* Vol 43, 1995.
14. Sullivan H. C, Atkins J. H “*Free autogenous grafts. Utilization of grafts in the treatment of gingival recession*” *Periodontics*, 6,152- 160, 1968.
15. Miller P.D, “*A classification of marginal tissue recession*”, *Int J Periodontics Rest Dent*, 5(2): 8-13, 1985.
16. Tinti C, Vincenzi G, Cortellini P, Pini Prato. “*Guided tissue regeneration in the treatment of human facial recessions. A 12 case report*”. *J Periodontol* 1992, 63,554-560, 1985.