Single step root coverage with modified bridge flap technique: A pilot study

Sandeep J. N., Jaspreet Kaur, Sushama R. Galgali

ABSTRACT

Introduction: Marginal tissue recession is a condition commonly encountered in clinical practice and is characterized by displacement of gingival margin. To overcome the limitations of original bridge flap technique which demands adequate attached gingiva apical to recession, a modification of this technique is imposed to cover the denuded root with insufficient attached gingiva.

Case Series: Three patients with either Millers class I or class II recession were treated with this technique and followed six months postoperatively. An average of 76% of root coverage was obtained with this modified technique.

Conclusion: The present technique reported an excellent postoperative outcome showing great coverage of exposed root surface with vestibular deepening in single step and can be performed in areas with inadequate attached gingiva apical to recession defect.

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Keywords: Attached gingiva, Bridge flap, Gingival recession, Modified bridge flap

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INTRODUCTION

Mucogingival problems form a definitive diagnosis that includes an array of clinical findings, namely gingival recession (GR), shallow vestibule, inadequate width of attached gingiva (AG) and aberrant frenum [1]. Surgical endeavor by Goldman [2] for the correction of three specific problems, namely periodontal pockets that extend beyond mucogingival junction reaching the alveolar mucosa, an abnormal traction of the frenum that can transmit tension for the gingival margins causing recession, and the functional condition of a shallow vestibule that promotes a decrease of the attached gingiva levels, initiated the era of mucogingival surgery that has motivated other clinicians to develop numerous refinements.

Multiple techniques have been developed to obtain predictable root coverage. “Margaff” in 1985 proposed bridge flap technique to cover gingival recession [3]. However, this technique requires adequate attached gingiva apical to recession. So to overcome this limitation, the present technique modified the original bridge flap technique to cover the denuded root in patients with inadequate attached gingiva apical to recession.

CASE HISTORY

Three patients either with Millers class I and II recession, otherwise systemically healthy in an age group of 20–30 years were selected after phase I therapy. The study was conducted in accordance with local ethical committee and written informed consent was obtained

from those who agree to participate. The following parameters were recorded using UNC-15 probe at the baseline and six months after procedure (Figures 1 and 3).

- Recession width (RW)
- Recession height (RH - distance between fixed reference point on acrylic stent to gingival margin)
- Width of keratinized gingiva (GW)

Surgical technique

This technique presents a combination of coronally repositioned flap and a modification of original bridge flap. After administering local anesthesia (2% lignocaine hydrochloride with 1:80000 epinephrine), the following incisions were made (Figure 2):

- First oblique incision made slightly coronal to the CEJ at distal and mesial papilla of recession.
- Secondly, two vertical incisions were made from the line angles of adjacent teeth to recession and extends beyond mucogingival junction till the labial mucosa.

Figure 1: Preoperative photograph showing recession on teeth 31, 32, 41 and 42 along with insufficient attached gingiva.

Figure 2 :Intraoperative photograph showing multiple (with a combination of vertical, horizontal and sulcular) incisions to raise modified bridge flap.

- After giving sulcular incision partial thickness flap was elevated
- Then the horizontal incision given in the labial mucosa to connect two vertical incisions and the flap was mobilized coronally till it covers the denuded root. After de-epithelialising the papilla, the flap was secured using individual sling sutures. Periodontal dressing was given followed by postoperative instructions.

Patients were prescribed antibiotics (novamox 500 mg thrice daily for 5 days) and analgesic (dicloron-P twice daily for 3 days). Chlorhexidine mouthwash (0.2%) was prescribed for four weeks after surgery. Sutures were removed after 10 days. All procedures were performed by same clinician and both preoperative and postoperative measurements were recorded by same individual.

RESULTS

The present technique reported an excellent postoperative outcome showing average of 76% coverage of exposed root surface (Table 1).

DISCUSSION

A wide variety of periodontal plastic surgical procedures have been described to correct mucogingival problems and to cover the denuded root surface [4]. An evaluation of adequate width of attached gingiva in patients with multiple recessions is an important factor before deciding on any procedure for root coverage [4] an unresolved controversy still exists in literature regarding the adequate attached gingiva for periodontal Health maintenance [5] the contemporary opinion suggests that the regions with less than 2 mm attached gingiva and thin gingival tissue are at increased risk of gingival recession and facilitate subgingival plaque formation because of incomplete pocket closure [1]. Hence, mucogingival

Figure 3: Postoperative photograph (six months) with marked increase in width of the attached gingiva.

Table 1: Preoperative and Postoperative clinical measurements with average % of root coverage

Case no.	Millers classification	Tooth no	Preoperative			Postoperative (6 months)			% of root coverage
			RW	RH	GW	RW	RH	GW	
I	Class1	31	3	12	14	0	10	14	71.3
	Class1	32	3	12	14	0	10	14	71.3
	Class1	41	3	14	15	2	11	14	64.6
	Class2	42	4	12	14	2	10	14	71.3
II	Class1	31	3	11	14	2	10	14	79.9
	Class2	41	3	12	15	0	11	15	79.7
III	Class2	34	4	13	17	0	11	19	71.6
	Class1	35	5	12	14	0	10	16	71.3

Abbreviations: RW=Recession width, RH=Recession height, GW= Width of keratinized gingiva

therapy should be advocated for gingival augmentation and to create adequate vestibular depth in areas with insufficient attached gingiva [6, 7].

Contrary to the reports of Margaff et al. 1985, Romanos et al. 1993 and vijayalakshmi et al. 2008, who all stressed very little on the gain of width of attached gingiva by bridge flap technique [3, 8, 9] study we have modified original bridge flap technique by giving two vertical incision extending beyond mucogingival junction till labial mucosa. The purpose of this technique is to eliminate donor site surgery, to increase predictability, better patient compliance, to satisfy patient's esthetic demands and to match the tissue color of grafted area. This technique is indicated when a single surgical procedure is desired to predictably cover the denuded root surfaces, in cases where inadequate keratinized gingiva apical to recession is available, and also to increase the width of attached gingiva with vestibular deepening at one step. We kept our study cases limited to the mandibular arch to get unbiased results as well as to be able to treat multiple mucogingival problems at the same time. The present technique presents a cost-effective single-step entity to correct mucogingival problems at a time with less morbidity to donor tissue.

CONCLUSION

The present technique reported an excellent postoperative outcome showing great coverage of exposed root surface with vestibular deepening in single step and can be performed in areas with inadequate attached gingiva apical to recession defect. It also offers additional advantages like less surgical trauma, less postoperative complications and better patient's satisfaction.

Author Contributions

Sandeep J. N. – Substantial contributions to conception and design, Acquisition of data, Analysis and

interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Jaspreet Kaur – Substantial contributions to conception and design, Acquisition of data, Revising it critically for important intellectual content, Final approval of the version to be published

Sushama R. Galgali – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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