Case Reports in Odontology
ISSN:2410-0412
Journal homepage:
www.casereportsinodontology.org

Free Gingival Graft to Increase the Width of Attached Gingiva for Oral Hygiene Improvement and Aid the Prosthetic Rehabilitation

[PP: **01-07**]

Dr. Navjot Kaur
(MDS Student)
Dr. Sanjeev Kumar Salaria
(Professor & the Head)
Dr. Amit Khunger
(MDS Student)
Dr. Manish Sukhija
(MDS Student)
Department of Periodontology, Surendera Dental college & Research Institute
Sriganganagar, Rajasthan, **India**

Abstract:

The keratinized attached gingiva provides the periodontium with increase resistance to external injury and stabilized the gingival margin against physical forces and helps patients plaque control measurements. Although, its importance has long been debated because few researchers reported that even the complete absence of attached gingiva is compatible with oral health but still certain clinical situations require definitive gingival augmentation. In patients with inadequate width of attached gingiva mucogingival surgeries like connective tissue grafts, free gingival grafts, apically displaced flap etc. have been used to widen the zones of attached gingiva. The free gingival graft (FGG) is predictable surgical techniques often employed to increase the zone of attached gingiva. The present case report showed increased in zone of attached gingiva under different clinical scenarios utilizing free gingival graft (FGG) to aid in oral hygiene maintenance, to halt the progression of gingival recession and prosthetic rehabilitation respectively.

Keywords:	*Attached Gingiva, Compromised Attached Gingiva, Free Gingival Graft, Mucogingival Surgeries, Oral Hygiene*
ARTICLE INFO	The paper received on: **10/12/2017** Accepted after review on: **20/02/2018** Published on: **28/03/2018**

Cite this article as:
Kaur, N., Salaria, S., Khunger, A. & Sukhija, M. (2018). Free Gingival Graft to Increase the Width of Attached Gingiva for Oral Hygiene Improvement and Aid the Prosthetic Rehabilitation. *Case Reports in Odontology. 5(1), 01-07. Retrieved from www.casereportsinodontology.org*

1. Introduction

Attached gingiva (AG) is thought to be desirable component for gingival health maintenance; as it not only help in maintenance of stable position of gingival margin, protect the periodontium from external injury but also aids in dissipating the physiological forces that are exerted by muscular fibers of alveolar mucosa onto the gingiva.[1] Although minimal dimensions of AG to maintain gingival health is still controversial inspite of that different periodontal plastic procedures were routinely practiced by periodontics to increase the width of AG as cited in report of Carnio J et al.[2] The present case report of two different clinical situations (Gingival recession with shallow vestibule and insufficient AG; insufficient anticipated AG after surgical crown lengthening for prosthetic rehabilitation) showed improved

width of AG following free gingival graft (FGG) that not only aid in maintenance of oral hygiene, prevention of progression of existing recession but also in prosthetic rehabilitation.

2. Case Report:

2.1 Case-1

A 28 year female patient reported to the department of Periodontology with a chief complaint of difficulty in maintaining oral hygiene due to the limitations of the tooth brush placement in lower front teeth area since long with mild elongation of lower central teeth. On intraoral examination revealed healthy thin gingival biotype, Miller's class I gingival recession (2 mm) w.r.t teeth no. (#) 31, 41 with a shallow vestibule and compromised attached gingiva were observed (**Figure 1A, Table 1**).

2.2 Case-2

A 16 year female patient referred to the department of Periodontology for crown lengthening w.r.t 31, 41, 42. On clinical examination there was thin gingival biotype, class I Miller's gingival recession of 2mm, PD 2mm with 4mm CAL w.r.t tooth no # 41 with gingival frenal attachment were observed. Surgical crown lengthening procedure as advised may elicit compromised width of attached gingiva so prior to surgical crown lengthening. **(Figure 3A, 3B, Table 2)**

The main objective of this case report is to increase the width of attached gingiva, vestibular depth, halt the gingival recession by gingival augmentation in order to improve the effectiveness of the oral hygiene procedures and before proceeding for crown lengthening.

3. Surgical Procedure (Figure 1, 2(case1) & Figure 3, 4(case 2)

3.1 Preparation of recipient site: The surgical site was anesthetized with local anesthesia by using 2% lidocaine hydrochloride followed by root planing; horizontal incision (split thickness) was given with 15 no. surgical blade at mucogingival junction extending minimal 5-6 mm on both ends of surgical site (to be planned for FGG) followed by sharp split thickness dissection to be carried out towards the alveolar mucosa to prepare the recipient bed whereas in case two in addition , frenal muscle fibres attachment dissection also done.(Figure 1B,3C)

3.2 Harvesting FGG: The area between first, second premolar and molar which had greater thickness was selected; FGG was harvested using 15 no. blade by preserving 2mm of marginal gingiva and interdental dental papilla(Figure 1C); any glandular or fatty tissue remnants etc., if present were removed and 2mm homogenous thickness of FGG was obtained.(Figure 1C,3D)

3.3 Graft Placement and Stabilization: FGG was then placed at the recipient bed and holding 4-0 vicryl sutures were given at the lateral borders of FGG followed by periosteal retention sutures for graft adaptation whereas margins of lip mucosa was sutured with periosteum of vestibule depth. Sterile tin foil adapted at surgical site followed by coe pak application.(Figure 1D,4A)

3.4 Postoperative Care: Oral Hygiene instructions (not to brush the treated site for 2 weeks, Chlorhexidine Gluconate (0.2%) twice daily rinses for 30 sec with 10ml of solution for 4 weeks) and symptomatic use of ibuprofen 400 mg was advised.

3.5 Recall visits: 10 days post operatively (Figure 2A, 4B), the grafted site was gently irrigated with normal saline and sutures were removed if not resorbed; at 1, 3 and 6 month post operatively for AG evaluation.

3.6 Result: Increased in vestibule depth (VD) , 5-7mm gain in width of attached

gingiva (WAG) and halt in gingival recession progression were observed (Figure 2C,2D,4C,4D) where as other parameters remained stationary as shown in (Table 1,2) in both the cases.

4. Discussion:

For many years, the presence of an ‘‘adequate’’ amount of gingiva was considered a keystone for the maintenance of periodontal health.[3-6]. Although, least amount of AG for periodontal health maintenance is still controversial but in spite of that certain site related factors such as gingival recession alone or in combination with reduced /compromised/ missing AG, thin gingival biotype etc. were indicated for gingival augmentation.[7,8] As gingival recession sites were susceptible to additional displacement of marginal gingival tissue.[7] American Academy of Periodontology suggested several indications for gingival augmentation procedures: to prevent soft tissue damage in the presence of alveolar bone dehiscence during natural or orthodontic tooth eruption; to halt progressive marginal gingival recession; to improve plaque control and patient comfort around teeth and implants; and to increase the insufficient dimension of gingiva in conjunction with fixed or removable prosthetic dentistry.[8] As in present case 1 : patient is having difficulty in maintaining in oral hygiene with GR & shallow vestibule whereas Case 2: compromised width of AG was anticipated prior to crown lengthening for prosthetic rehabilitation ,Therefore , gingival augmentation (FGG) was planned in the present case report .

Numerous surgical procedures have been reported in literature such as pedicle graft (lateral position flap (LPF), apically repositioned flap (ARF), sub epithelial connective tissue graft (SCTG), FGG etc., to achieve the normal dimensional and morphologic relationship of gingiva and alveolar mucosa.[9,10]

SCTG although considered as gold standard for root coverage procedures especially indicated when esthetics is the main concern but due to more invasive and technique sensitive and time consuming procedure[11] it was not opted in the present case report ,secondly as esthetic is not the prime concern in the present cases.

Laterally positioned pedicle graft require at least 3mm width of keratinized oral tissue in the donor site and should not be used in the area with a shallow vestibule or an insufficient amount of keratinized tissue[9] that is why this technique is not advised.

ARF was although indicated to increase the width of AG but are associated with certain disadvantages such as more difficult to perform than other mucogingival surgeries, if small amount of gingiva exist preoperatively it is difficult to handle and sutured the flap precisely.[12] As in present case report of both cases presented with thin gingival biotype and gingival recession already existed therefore, looking after the disadvantages of ARP as well as to prevent further recession and other associated sequel, it was not planned.

Free gingival graft has some advantage like i) it is relatively easy and fast to perform; ii) applicable on single and multiple recessions; iii) not dependent on adjacent sites for donor tissue and iv) not dependent on the depth of the vestibule[13,14] but also associated with disadvantage like unaesthetic outcome. As in our present cases the operative sites i.e lower anterior mandibular region does not influencing the esthetic of individuals. That’s Why we opted for FGG.

The Results of present case report showed increase in the width of attached gingiva and depth of vestibule following FGG which is in accordance with the reports of Agudio G et al (2008)[15] and Borasi P et al (2016),[13] also halted gingival recession progression which is in accordance with the report of Agudio G et al (2008).[15]

Patient is highly pleased with the outcome of the therapy and under gone second stage surgery for crown lengthening and shown willingness for further gingival recession coverage procedure.

5. Conclusion:

It was concluded that free gingival graft procedure is highly effective technique to gain the width of attached gingiva (keratinized tissue) and to increase the vestibule depth in the sites deficient of same as well as halt the progression of gingival recession but further long term randomized controlled clinical trial FGG on large sample size is the further recommended before reaching final conclusion.

Reference:

1. Carnio J, Camargo PM, Passanezi E. Increasing the apico-corono dimension of attached gingiva using the modified apically repositioned flap technique: A case series with a 6-month follow-up. J Periodontol. 2007;78(9):1825-30.
2. Carnio J, Camargo PM, Pirih FQ. Surgical technique to increase the apicocoronal dimension of attached gingiva: A 1-year comparison between the free gingival graft and the modified apically repositioned flap. Int J Periodontics Restorative Dent. 2015;35(4):571-8.
3. Nabers CL. Repositioning the attached gingiva. J Periodontol. 1954;25(1):38-9.
4. Ochsenbein C. Newer concept of mucogingival surgery. J Periodontol. 1960;31(3):175-85.
5. Friedman L, Levine HL. Mucogingival surgery: Current status. J Periodontol. 1964;35(1):5-21.
6. Carranza FA, Carraro JJ. Mucogingival techniques in periodontal surgery. J Periodontol. 1970;41(5):294-9.
7. Serino G, Wennstrom JL, Lindhe J, Eneroth L. The prevalence and distribution of gingival recession in subjects with a high standard of oral hygiene. J Clin Periodontol. 1994;21(1):57-63.
8. Consensus report. Mucogingival therapy. Ann Periodontol. 1996;1(1):702-6.
9. Goldstein M, Brayer L, Schwartz Z. A critical evaluation of methods for root coverage. Crit Rev Oral Biol Med. 1996;7(1):87-98.
10. Bouchard P, Malet J, Borghetti A. Decision-making in aesthetics: Root coverage revisited. Periodontol 2000. 2001;27:97-120.
11. Nelson SW. The subpedicle connective tissue graft. A laminar reconstructive procedure for the coverage of denuded root surfaces. J Periodontol. 1987;58(2):95-102.
12. Friedmen N. Mucogingival surgeries: apically repositioned flap. J Periodontol. 1962;33(4):328-40.
13. Borasi P, Kamble P. Free gingival grafts to increase keratinized tissue: A case series. Int J Healthcare Sci. 2016;3(2):25-31.
14. Miller PD. Root coverage using the free soft tissue autograft following citric acid application, III: A successful and predictable procedure in areas of deep-wide recession. Int J Periodontics Restorative Dent. 1985;5(2):14-37.
15. Agudio G, Nieri M, Rotundo R, Cortellini P, Prato GP. Free gingival grafts to increase keratinized tissue: A retrospective long-term evaluation (10 to 25 years) of outcomes. J Periodontal. 2008;79(4):587-94.

Cite this article as: Kaur, N., Salaria, S., Khunger, A. & Sukhija, M. (2018). Free Gingival Graft to Increase the Width of Attached Gingiva for Oral Hygiene Improvement and Aid the Prosthetic Rehabilitation. *Case Reports in Odontology. 5(1), 01-07. Retrieved from www.casereportsinodontology.org*

Figures & Legends:

Case: 1

Figure 1 A: Pre-operative picture showing probing Depth of 2 mm w.r.t 41 interfere with MGJ with shallow vestibule w.r.t tooth no.31, 32, 41, 42

Figure 1 B: Preparation of recipient bed extending from MGJ w.r.t 31,32,41,42

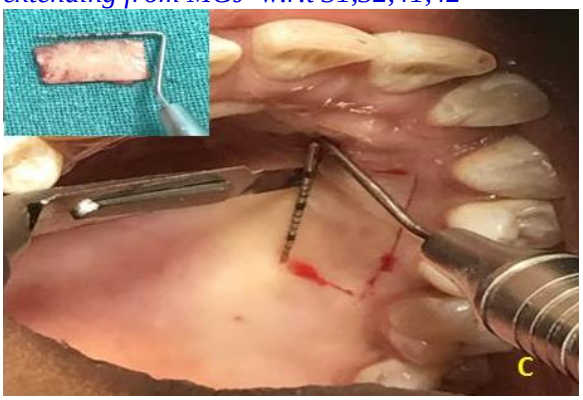

Figure 1 C: Harvesting FGG from Donor palatal site& harvested FGG on left upper corner

Figure 1 D: Graft placement at Recipient site and sutured

Figure 2 A: 10 days follow -up showed graft acceptance

Figure 2 B: 3 month follow up showed complete healing of graft

Cite this article as: Kaur, N., Salaria, S., Khunger, A. & Sukhija, M. (2018). Free Gingival Graft to Increase the Width of Attached Gingiva for Oral Hygiene Improvement and Aid the Prosthetic Rehabilitation. *Case Reports in Odontology. 5(1), 01-07. Retrieved from www.casereportsinodontology.org*

Figure 2 C: 7mm vertical gain in attached gingiva at 6th month follow up

Figure 2 D: 17 mm horizontal gain in attached gingiva w.r.t 31,32,41,42 at 6th month follow up

Case: 2

Figure 3 A: Pre-operative picture showing Grade I gingival recession w.r.t 41 and insufficient attached gingiva w.r.t #31, 32.

Figure 3 B: Showing probing depth of 2mm w.r.t #32

Figure 3 C: preparation of recipient bed w.r.t#31,32,41,42

Figure 3 D: Harvested FGG measuring >15mm in length X 10 mm width

Cite this article as: Kaur, N., Salaria, S., Khunger, A. & Sukhija, M. (2018). Free Gingival Graft to Increase the Width of Attached Gingiva for Oral Hygiene Improvement and Aid the Prosthetic Rehabilitation. *Case Reports in Odontology. 5(1), 01-07. Retrieved from www.casereportsinodontology.org*

Figure 4 A: Graft placement at recipient site and sutured

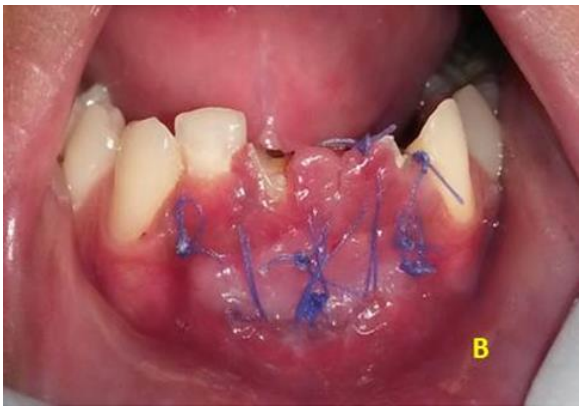

Figure 4 B: 10 days follow up showed graft acceptance with papillary inflammation

Figure 4 C: 3rd month follow up showed gain in attached gingiva w.r.t #31, 32, 41, 42.

Figure 4 D: 6th Month follow up showed prosthetic rehabilitation w.r.t#31, 32, 41 with improved attached gingiva.

Tables:

Table 1: Clinical records of case 1

Case 1								
Parameters	**Baseline values**				**6th month post op**			
Tooth no.	42	41	31	32	42	41	31	32
PD	3mm	2mm	2mm	3mm	3mm	2mm	2mm	3mm
CAL	-	4mm	4mm	-		4mm	4mm	
Visible GR	-	2mm	2mm	-	-	2mm	2mm	-
Vestibular depth	Shallow	Shallow	Shallow	Shallow	Deep	Deep	Deep	Deep
Attached gingiva	Negligible	Negligible	Negligible	Negligible	6mm	7mm	7mm	6mm

Table 2: Clinical records of case 2

Case 2						
Parameters	**Baseline values**			**6th month post op**		
Tooth No.	41	31	32	41	31	32
PD	2mm	2mm	2mm	2mm	2mm	2mm
CAL	4mm	2mm	2mm	4mm	2mm	2mm
Visible GR	2mm	-	-	2mm	-	-
Vestibular depth	Deep	Deep	Deep	Deep	Deep	Deep
Attached gingiva	Negligible	Negligible	Negligible	6mm	6mm	6mm

Cite this article as: Kaur, N., Salaria, S., Khunger, A. & Sukhija, M. (2018). Free Gingival Graft to Increase the Width of Attached Gingiva for Oral Hygiene Improvement and Aid the Prosthetic Rehabilitation. *Case Reports in Odontology. 5(1), 01-07. Retrieved from www.casereportsinodontology.org*