

Periosteal pedicle graft for the treatment of gingival recession: A viable alternative to sub-epithelial connective tissue graft

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Core tip: The periosteal pedicle graft (PPG) is an emerging technique to treat gingival recession defects and has advantages over subepithelial connective tissue graft (SCTG). The technique not only provides a viable treatment option to manage gingival recessions without involving two surgical sites and additional cost but also produced results which have raised the question whether PPG can replace SCTG in near future?

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Abstract

Treating gingival recessions is important to satisfy the functional and aesthetic needs of the patients. Among various available techniques to treat gingival recessions, the subepithelial connective tissue graft technique is still considered to be the best despite its inherent disadvantages. The recent innovation utilising periosteum as a pedicle graft to treat gingival recession defects has drawn considerable attention and may provide a viable alternative to subepithelial connective tissue graft.

Key words: Periosteal pedicle graft; Gingival; Recession;

INTRODUCTION

Gingival recession defect (GRD) is among the most common condition for which the patients seek professional dental care. If neglected, gingival recession may not only result in functional problems like dentinal hypersensitivity and root caries but may also lead to unaesthetic facial appearance. The consequences of gingival recession defects are well recognized by the dental professionals and numerous treatment options have been suggested to resolve GRD. Among all the techniques utilised to treat GRD, ranging from restorative to prosthetic to surgical measures, the mainstay of treatment is still the periodontal plastic surgery. The surgical techniques applied to cover denuded root surfaces mainly utilize soft tissue autografts, which may be either free or pedicle and

harvested adjacent to the GRD or from the palate. Although many techniques have been proposed for the treatment of GRD, a detailed review of the scientific literature clearly rates the Sub-epithelial connective tissue graft (SCTG) better than all other techniques owing to the excellent post treatment aesthetic outcomes and sustained long term results associated with the SCTG^[1]. Despite the fact that SCTG is considered to be the gold standard for the treatment of GRD the search for a technique which eliminates the inherent limitations associated with SCTG (two surgical sites, increased patient trauma, postoperative complications) is still on. The use of acellular dermal matrix graft and GTR membranes has also been proposed to improve patient centred outcomes in addition to clinical outcomes but the techniques have failed to gain the popularity due to the associated increased cost of treatment and uncertain predictability of these procedures^[2]. Recently, the use of periosteum has been suggested for the treatment of GRD and has drawn considerable attention^[3]. Although the use of periosteum in regenerative therapies is not new and it has been used successfully in the treatment of bony defects by the oral and maxillofacial surgeons, orthopaedicians and periodontal surgeons^[4,5] but the idea to utilize the periosteum as a pedicle graft for treatment of soft tissue defects like GRD is innovative and interesting. The detailed technique utilizing the periosteum as a pedicle and the term "Periosteal Pedicle Graft (PPG)" for the treatment of single tooth GRD were first published in the Australian dental journal in 2009^[3] and later the technique was successfully used to treat adjacent multiple gingival recession defects for the first time in 2011^[6].

Since the invention of the PPG technique multiple studies have been done and have shown encouraging results both in terms of root coverage and patient satisfaction^[7-11], the reasons suggested for the successful treatment outcomes include: (1) PPG can be harvested adjacent to the GRD eliminating the use of second surgical site thus minimising intra-operative trauma and postoperative complications; (2) There is no limitation to the amount of the graft that can be harvested in case of PPG hence PPG can be used effectively to treat multiple adjacent gingival recession defects; (3) Since periosteum is highly vascular and PPG is ideal for placement over avascular root surfaces; (4) Owing to the presence of stem cells in the periosteum there is an actual possibility of new attachment during the healing period; and (5)

Patients are more satisfied with procedures which require minimum intra-operative trauma and postoperative complications hence PPG scores better in terms of patient satisfaction over SCTG.

Considering the above facts and current evidence it may be concluded that PPG has emerged as a viable option for the treatment of GRD with a great possibility to regenerate the lost periodontal tissues and form a new attachment at the treated gingival recession site, although it is still uncertain whether it will achieve the status at par with SCTG because for that to happen the technique will have to pass the test of time.

REFERENCES

- 1 **Chambrone L**, Chambrone D, Pustiglioni FE, Chambrone LA, Lima LA. Can subepithelial connective tissue grafts be considered the gold standard procedure in the treatment of Miller Class I and II recession-type defects? *J Dent* 2008; **36**: 659-671 [PMID: 18584934]
- 2 **Rasperini G**, Acunzo R, Limioli E. Decision making in Gingival Recession Treatment: Scientific Evidence and Clinical Experience. *Clinical Advances in Periodontics* 2011; **1**: 1 [DOI: 10.1902/cap.2011.10000]
- 3 **Mahajan A**. Periosteal pedicle graft for the treatment of gingival recession defects: a novel technique. *Aust Dent J* 2009; **54**: 250-254 [PMID: 19709114 DOI: 10.1111/j.1834-7819.2009.01128.x]
- 4 **Skoog T**. The use of periosteal flaps in the repair of clefts of the primary palate. *Cleft Palate J* 1965; **2**: 332-339 [PMID: 5213337]
- 5 **Lekovic V**, Kenney EB, Carranza FA, Martignoni M. The use of autogenous periosteal grafts as barriers for the treatment of Class II furcation involvements in lower molars. *J Periodontol* 1991; **62**: 775-780 [PMID: 1765940]
- 6 **Mahajan A**. Treatment of multiple gingival recession defects using periosteal pedicle graft: a case series. *J Periodontol* 2010; **81**: 1426-1431 [PMID: 20507229 DOI: 10.1902/jop.2010.100134]
- 7 **Mohana K**, Reddy RK, Vijaya M. Periosteal pedicle graft: a promising technique for the treatment of gingival recession defects. *Annals and Essences of Dentistry* 2012; **4**: 38-40 [DOI: 10.5368/aedj]
- 8 **Harshavardhana B**, Rath SK, Mukherjee M. Periosteal pedicle graft - A new modality for coverage of multiple gingival recession defects. *Indian J Dent Adv* 2013; **5**: 1139-1142 [DOI: 10.5866/2013.511139]
- 9 **Shah MP**, Patel AP, Shah KM. Periosteal pedicle graft: A novel root coverage approach. *J Indian Soc Periodontol* 2015; **19**: 99-102 [DOI: 10.4103/0972-124X.145828]
- 10 **Hofmänner P**, Alessandri R, Laugisch O, Aroca S, Salvi GE, Stavropoulos A, Sculean A. Predictability of surgical techniques used for coverage of multiple adjacent gingival recessions--A systematic review. *Quintessence Int* 2012; **43**: 545-554 [PMID: 22670249]
- 11 **Mahajan A**, Bharadwaj A, Mahajan P. Comparison of periosteal pedicle graft and subepithelial connective tissue graft for the treatment of gingival recession defects. *Aust Dent J* 2012; **57**: 51-57 [PMID: 22369558 DOI: 10.1111/j.1834-7819.2011.01648.x]

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