



## Evaluation Of Connective Tissue Grafts Versus Free Gingival Grafts

Keerthana Baskar<sup>1</sup>, Nashra Kareem<sup>\*2</sup>, Sreedevi Dharman<sup>3</sup>

<sup>1</sup>Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai, Tamil Nadu, India

<sup>2</sup>Department of Periodontology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai, Tamil Nadu, India

<sup>3</sup>Department of Oral Medicine and Radiology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai, Tamil Nadu, India



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### ABSTRACT

Root coverage is one of the important aims of periodontal therapy. The aim of the study was to evaluate the connective-tissue grafts (CTG) and free gingival grafts (FGG) in root coverage procedures. A retrospective study of sample size 32 was conducted. These patients underwent a root coverage procedure done using grafts. The details on which graft was obtained from patient records were reviewed and analysed between June 2019 to March 2020. Excel tabulation was done, analysed and transferred to SPSS for statistical analysis. The p value was set at 0.05. In the study, it was found that CTG was used in 56.25% of the patients and FGG was used in 43.75% of the patients undergoing root coverage procedure. It was found that Free gingival grafts (25%) were placed more commonly in females when compared to connective tissue grafts (18.75%). However, in males, connective tissue grafts (37.5%) were placed more commonly than free gingival grafts. (18.75%) The prevalence of connective tissue graft was more when compared to free gingival graft at 36-55 years of age. Connective tissue graft was done more commonly in the age group of 15-35 years. Prevalence of connective tissue grafts was more in males than in females. Within the limits of the study, it was found that connective tissue graft (CTG) procedures performed more than free gingival graft (FGG) procedures following the gold standard for root coverage in gingival recession treatment.

### \*Corresponding Author

Name: Nashra Kareem  
Phone:  
Email: [nashrak.sdc@saveetha.com](mailto:nashrak.sdc@saveetha.com)

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### INTRODUCTION

Periodontitis is a host mediated chronic inflammation resulting in the destruction of the supporting structures (Ramesh *et al.*, 2016; Khalid, 2016, 2017). It is characterised by chronic inflammation, connective tissue breakdown and alveolar bone destruction, the process being initiated by gram negative organisms (Mootha *et al.*, 2016; Priyanka, 2017). The etiology of periodontitis is multifactorial (Ramesh and Varghese, 2016; Gajendran *et al.*, 2018). The foremost goal of periodontal therapy is to regenerate the diseased tissues if possible (Avinash *et al.*, 2017). Periodontal regeneration is a multi-factorial process (Panda, 2014).

Recession results usually in root sensitivity, aesthetic concern to the patient in the anterior region, predilection to root caries, cervical abrasion, and difficulty creating an esthetic restoration (Allen *et al.*, 1989).

Root coverage is one of the important aims of periodontal therapy. When the gingival margin is apical to CEJ, a gingival recession occurs which results in exposed root surface with loss of both marginal tissue and attachment. The most common aetiological factors that cause gingival recession are inflammatory periodontal disease, traumatic tooth brushing, inadequately attached gingiva dimension and iatrogenic factors (Shin, 2007).

Periodontal surgery to restore aesthetics, comfort and function is one of the most common surgeries performed in clinical practice (Al-Zahrani and Bissada, 2005). To obtain root coverage, a variety of surgical techniques had been developed and described. However, it has been determined that the gingival recession can be treated successfully, regardless of the technique used (de Sanctis and Zucchelli, 2007). Free gingival grafting (FGG), connective tissue grafts (CTG), coronally advanced flaps (CAF) and a combination of CTG, CAF, and guided tissue regeneration (GTR) have been introduced with a high degree of predictability in Miller Class I and II recession defects (Henriques *et al.*, 2011).

A recent study on CTG, FGG and CAF demonstrated that these are effective in reducing gingival recession with significant improvements in attachment level (Shin, 2007). Another systematic review demonstrated that the CTG procedure optimises results in root coverage and width of keratinised tissue (Rocuzzo *et al.*, 2002).

Previously, many clinical trials (Varghese, 2015; Ramesh *et al.*, 2017; Ravi *et al.*, 2017) have been conducted by our team over the past 5 years. Now, we are focussing on epidemiological studies.

The aim of the study was to evaluate connective tissue graft procedures and free gingival graft procedures (Kavarthapu and Thamaraiselvan, 2018; Ramesh *et al.*, 2019).

## MATERIALS AND METHODS

The study was conducted in Saveetha dental College in a hospital set up. 32 patients who underwent recession coverage procedures were considered for the study. The population selection was random. The case sheets were reviewed from June 2019 to April 2020. Cross verification was done photographically. To minimise sampling bias, all the data was included and no sorting was done.

The case sheets of these patients were reviewed to check if the patient underwent connective tissue graft or free gingival graft procedure for recession coverage. All the incomplete and censored data were excluded from the study. The inclusion criteria were all patients who underwent gingival recession coverage procedure using grafts, and exclusion criteria included those without grafts.

## Ethical approval

Ethical approval was obtained for this study from Saveetha Research Board [SRB]. Ethical approval no. SDC/SIHEC/2020/DIASDATA/0619-0320.

## SPSS Analysis

The case sheets were reviewed and data collected were tabulated in Excel. The data was analysed and transferred to SPSS version 19. Descriptive statistics were used to calculate the correlation between gingival recession coverage and type of graft. The dependent variable was the type of graft and independent Variables were age, gender. The data was important to SPSS and chi-square test was performed. The type of analysis performed was correlation and association. The level of significance was set at 0.05.

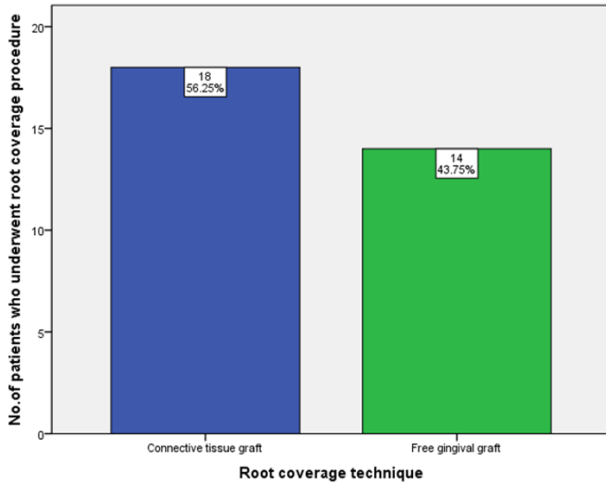
## RESULTS AND DISCUSSION

From the study, it was found that of the 33 gingival recession coverage procedures with grafts, 56.25% was done using connective tissue grafts and 43.75% of them were done using free gingival grafts (Figure 1). It was found that free gingival graft procedures (25%) were performed more commonly in females when compared to connective tissue grafts (18.75%). However, in males, connective tissue graft procedures (37.5%) were done more commonly than free gingival grafts (18.75%)(Figure 2). The prevalence of connective tissue graft procedure was more in comparison to free gingival graft at 36-55 years of age. Free gingival graft and connective tissue graft procedures were done equally in patients in 15-35 years. (Figure 3).

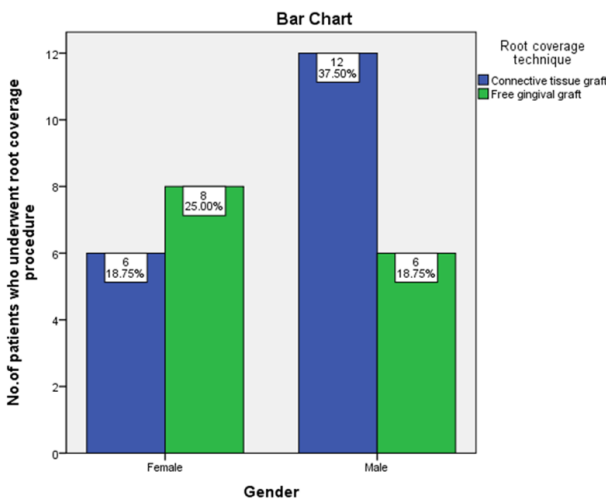
Since the primary purpose of this study was to determine which graft procedure was done more predominantly, the most important finding was that CTG was done more often than FGG.

In a study done by Jhanke *et al.*, it was found that CTG resulted in more root coverage than FGG six months postoperatively (Jahnke, 1993). In a study done by Henriques *et al.*, it was found that deep Miller class II defects can be treated successfully when FGG is combined with CTG (Henriques *et al.*, 2011).

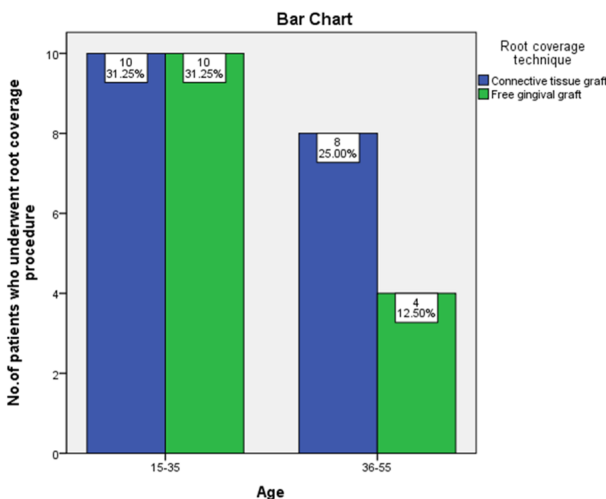
In a study that was carried out by Leandro *et al.*, it



**Figure 1:** This bar graph shows the frequency distribution of root coverage technique.



**Figure 2:** This bar graph shows the association between gender and the type of root coverage procedure done.



**Figure 3:** The above depicted graph shows association between age and the root coverage procedure done.

was found that connective tissue grafts provided significant root coverage, clinical attachment and keratinised tissue gain. Thus it was described as the ‘gold standard procedure’ in the treatment of recession type defects (Chambrone *et al.*, 2008). Certain studies reported that the amount of free gingival coverage for the FGG was lesser compared to others (Miller, 1985; Borghetti and Gardella, 1990).

It has been studied that with the CTG, more predictable and successful root coverage is achieved as the blood supply from the periosteum and the flap that is overlying results in a more rapid re-establishment of circulation within the graft. While in FGG, a fibrin clot provides nourishment for the first two days following healing through plasma circulation (Sullivan and Atkins, 1968). Miller suggested that the blood supply of the free gingival graft to the coronal aspect is related to the width and thickness of interdental papillae (Miller, 1987).

One of the factors that may explain the difference in root coverage is the length of time the grafts were dressed between the two techniques. Root sensitivity was present in patients with FGG as there was no 100% root coverage (Henriques *et al.*, 2011).

The advantages of CTG has been a high success rate and high predictability in achieving root coverage (Thamaraiselvan *et al.*, 2015).

The limitation of the study is that it was carried out using a smaller sample size. The future scope of the study is to involve a larger sample size and assess if the gold standard is followed.

**CONCLUSIONS**

Within the limitations of the study, it was found that connective tissue graft (CTG) was done more commonly than free gingival graft (FGG), thus following the gold standard for root coverage procedures. Further studies with larger sample size can be carried out to evaluate and compare other root coverage procedures and their efficacy and predictability in achieving optimal results.

**Conflict of Interest**

The authors declare that they have no conflict of interest for this study.

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