

Evaluation Of Flap Procedures Done With And Without Grafting

Research Article

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Abstract

Periodontal surgical procedures leads to the elimination of soft tissue of periodontal pockets and creation of new epithelial attachment. In recent years the use of regenerative procedures has become a common method for recovering lost periodontal support structures. However the need for the use of regenerative materials in all flap procedures is not well known. The aim of this study is to evaluate the number of flap procedures done with and without grafting. It is a university setting study. 388 patients who underwent flap procedures were included in the study. These patients were then evaluated to check if grafting was done or not. The data was entered in SPSS and analyzed using Chi Square test. From the results it was observed that grafting was done only in 26.2% of the patients who had undergone flap procedures. 30.2% of the grafting procedure was done in the age group of 36 to 50 years and more commonly in males (61.7%). Within the limitations of the current study, it can be concluded that grafting was not done in the majority of the flap procedures. Grafting was more commonly done in males in 36 to 50 years of age.

Keywords: Flap Procedures; Grafting; Periodontal Surgery; Regenerative Methods.

Introduction

Periodontitis is characterized by an infection of all structures around the teeth [1]. During the development of periodontal disease, complex and irreversible mechanisms of alveolar bone resorption occur [2, 3]. One of the most important goals of periodontal therapy is the elimination of deep periodontal pockets [4, 5].

Periodontal therapy includes removal of plaque, individual approach to education and motivation for oral hygiene, scraping and root polishing, and periodontal surgical therapy [6]. The primary goal of periodontal surgery is to remove necrotic cementum and epithelial tissue through flap elevation [7].

Most periodontal surgical procedures lead to the elimination or reduction of soft tissue of the periodontal pocket, and the creation of a new epithelial attachment [8, 9]. To access it, a flap-like

incision is made in the gum tissue. This allows diseased tissue to be removed from inside the pocket, and provides access to the teeth's root surfaces for a thorough cleaning, which helps to eliminate harmful plaque and calculus (tartar). Afterward, the "flap" is closed, sealing the area [10]. This begins the healing process, which takes place rapidly.

In recent years, the use of regenerative procedures has become a common method for recovering the lost support structures of the periodontium [11]. A variety of techniques may be used to accomplish this, including high-tech methods of bone grafting and chemicals referred to as growth factors [12]. These approaches help restore the gums to their normal form and function, and promote the healthy and secure anchoring of teeth [13].

Guided tissue/bone regeneration (GTR/GBR) is a surgical procedure aimed at the regeneration of periodontal tissues, which can overcome some of the constraints of conventional therapy,

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i.e. open flap surgery. Various forms of treatment include the use of bone substitutes of different origins like autotransplants, allografts, and alloplastic material [1].

Even though grafting technique in periodontal therapy is growing, the advantages of this procedure over flap procedure done without grafting is not well known. Also, very few studies are done based on whether all flap procedures need grafting or not. Previously our team has a rich experience in working on various research projects across multiple disciplines [2-16]. Thus this study was done to evaluate the number of flap procedures done with and without grafting.

Materials And Methods

Study Setting

This is a university setting study conducted in Saveetha Dental College and hospitals. The pros of the study includes flexibility, ease of data collection and less time consumption. Cons of the study includes limited to certain demographic and limited study sample. Population selection was random. 388 patients who underwent flap procedure in Saveetha dental college were evaluated. Approval was obtained from the institutional study committee. 2 examiners were included in the study.

Sampling

It is a retrospective study. Data was collected from June 2019 to March 2020. A total of 388 case sheets were reviewed. Cross verification of data for error was done by presence of additional re-

viewers and by photographic evaluation. Simple random sampling was done to minimize sampling bias. It was generalized to the south Indian population.

Data Collection

Data was collected from the dental hospital management system which has records of all patient details. The data was entered in the system in the methodical manner. For the present study data of patients who underwent flap procedures were reviewed. Periodontal diagnosis, photographs and treatment report of these patients included in the study were reviewed to check if grafting was done or not. The data was entered in excel manually and imported to SPSS for analysis. Incomplete or censored data was excluded from the study.

Analytics

IBM SPSS software was used for data analysis. Independent variables included age and gender. Dependent variables included periodontal flap procedure with and without grafting. Descriptive statistics included frequency of distribution and inferential statistics used was Chi square test. $p < 0.05$ was considered as statistically significant.

Results And Discussion

From this study, it was observed that grafting was done only in 26.2% of the patients who underwent flap procedures while 73.7% of the flap procedures were done without grafting (Figure 1). In the age group of 16 to 35 years, grafting was done in

Figure 1. Bar graph represents the distribution of grafting done and not done in patients who underwent flap procedures. X axis denotes grafting and Y axis denotes the number of patients who underwent flap surgery. Blue colour denotes grafting was done and green colour denotes grafting was not done. This shows that out of 388 patients, grafting was done in 26.2% and was not done in 73.7% of the patients who underwent flap surgery.

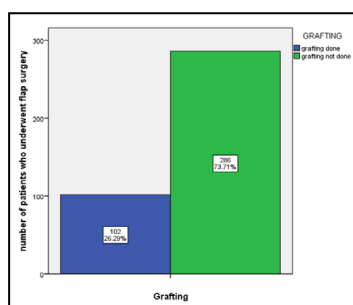


Figure 2. Bar graph depicts the association between age group and grafting. X axis denotes age group and Y axis denotes the number of patients who have undergone flap surgery with and without grafting. It shows that grafting was done in 102 patients who underwent flap procedure out of which 24.4% belonged to the age group of 16-35 years, 30.2% belonged to the age group of 36-50 years and 21.3% of them belonged to the age group of above 50 years. Grafting was not done in 286 patients, out of which 75.6% were in the age group of 16-35 years, 69.8% were in the age group of 36-50 years and 77.7% in the age group of above 50 years. Pearson's Chi square test was done and association was found to be statistically not significant, $p = 0.311$, ($P > 0.05$).

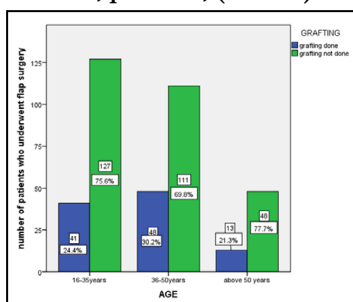
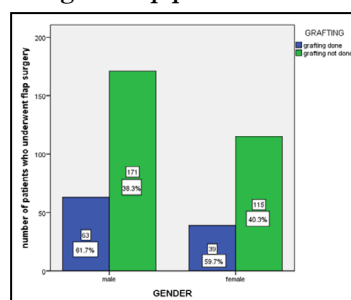


Figure 3. This bar graph depicts the association between gender and grafting. X axis denotes gender and Y axis denotes the number of patients who have undergone flap surgery with and without grafting. Blue colour denotes grafting done and green colour denotes grafting not done. It shows that grafting was done in 102 patients who underwent flap procedure out of which 61.7% of them were males and 38.3% of them were females. Grafting was not done in 286 patients, out of which 59.7% were males and 40.3% were females. Chi-square test was done and association was found to be statistically significant. Pearson's Chi Square, $p = 0.018$ hence proving that there is a statistically significant difference among male and female patients who have undergone flap procedure with and without grafting.



24.4% of the cases, while in the age group of 36 to 50 years it was done in 30.2% of the cases and in the above 50 years age group it was done only in 21.3% of the cases. 36 to 50 years of age showed the highest number of grafting done with flap procedures (figure 2). P value was 0.311. This shows that the difference among patients in different age groups who have undergone flap procedure with and without grafting was statistically not significant ($P > 0.05$). Also, it was observed that grafting was done more in males (61.7%) than females (38.3%) who had undergone flap procedures. P value was 0.018. This denotes that there is statistically significant ($P < 0.05$) difference among male and female patients who have undergone flap procedure with and without grafting.

In the last twenty years, periodontal therapy has progressed significantly, from formerly used resective methods, to principles of preservation and regeneration of periodontal tissues which are used today [17].

Studies based on the number of flap procedures done with and without grafting were very few. However various studies were conducted in order to compare the effectiveness of healing post periodontal procedures with and without grafting. In such a study done by Gojkov et al [18], it was observed that both the groups that is the one where only open flap surgery was done and the other where open flap surgery along with bone grafting was done, showed similar healing results and no significant changes were observed between the two groups. In contrast, a study done by Gokhale et al [17] showed improved results in healing in the group in which bone graft was used. Chhina S, [18] in his study, also observed that improved results were obtained when grafts were used while the research by Khash et al. [19] implementing the use of the bone graft did not show clinically better treatment results. These authors stated that long-term studies with a larger sample is needed to provide significant results based on the effectiveness of the usage of grafts.

Several studies have shown that conventional periodontal therapeutic procedures do not result in regeneration of the supporting tissues, to a predictable degree which is why more research is required to understand the effectiveness of regenerative materials [19-23].

Studies on comparison on usage of graft stated that a technically

well conducted flap operation, during which the root area conditioning is performed with minimal soft tissue damage, creates good preconditions for periodontal healing without the use of bone replacement materials [24-27].

Study done by Mahesh et al [28] concluded that predictability of regeneration is affected by anatomic factors, and host systemic factors like smoking and chronic diseases [29, 30], moreover they stated even with the best regenerative treatments available, it is probably appropriate that every defect can be treated with simpler approaches to controlling diseases [31], which have greater evidences for long term success and grafting material is to be used only in severe conditions in which normal function and aesthetic cannot be restored with flap elevation alone.

Similar to the present study, Bouchard et al [32] and Yukna RA [33] also observed more grafting to be done in the older age group due to more compromised periodontal status causing decreased regeneration potential making bone grafting essential [34]. Our institution is passionate about high quality evidence based research and has excelled in various fields [35-45].

This study could pave way for more research to be done on the requirement of grafting in flap procedures for improved treatment modalities and better results. Limitation of the study includes limited study samples and demographics.

Conclusion

Within the limitations of the current study, it can be concluded that grafting was not done in the majority of the flap procedures. Need for grafting in periodontal flap procedure is based on the clinical condition of the patient and all patients undergoing flap procedure do not need grafting.

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