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EVALUATION OF LONG-TERM STABILITY AND AESTHETIC OUTCOMES OF SOFT TISSUE GRAFTING IN PERIODONTAL SURGERY

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Abstract

Objective: The focus of this research was to assess the cosmetic results and longstanding stability of soft tissue transplantation in periodontal surgery.

Methods: To treat gingival recession, 75 patients who had soft tissue grafting operations performed a retrospective analysis. At baseline, six months, and a year following surgery, clinical measures such as gingival recession depth, probing depth, clinical attachment level (CAL), and keratinized tissue breadth were measured. A visual analog scale was also used to capture aesthetic pleasure as indicated by the patient. To assess tissue integration and regeneration, biopsy specimens taken from the transplanted sites underwent histological examination.

Results: After soft tissue grafting, there were notable improvements in all clinical parameters, including probing depth, CAL, gingival recession depth, and breadth of keratinized tissue. After surgery, patient satisfaction levels were excellent at six months and a year. The effective integration of the graft with host tissue and the regeneration of periodontal tissues were confirmed by histological investigation.

Conclusion: Soft tissue grafting is a successful treatment option for gingival recession that provides both longstanding stability and cosmetic pleasure. These results provide credence to the use of soft tissue transplantation in complete periodontal treatment regimens aimed at treating gingival recession.

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Keywords: tertiary care, periodontal surgery, soft tissue grafting, longstanding stability, and cosmetic results

Introduction

The goal of periodontal plastic surgery, a subspecialty of periodontology, is to improve and restore the periodontium's appearance and functionality. Gingival recession is a widespread issue impacting people's dental health and appearance all over the world. It is identified as the apical displacement of the gingival border from the cementoenamel junction. Numerous etiological causes, such as acute damage, anatomical predispositions, periodontal disease, and iatrogenic factors, can cause it [1-3].

In addition to impairing the smile's appearance, gingival recession exposes the root surface, which raises the risk of root caries, dentin hypersensitivity, and reduced periodontal support. Gingival recession may now be treated reliably and effectively, and periodontal aesthetics can be enhanced with soft tissue grafting techniques. Although soft tissue grafting has a wealth of short-term benefits research, longstanding studies assessing patient satisfaction and result stability are scarce. In order to improve patient care and treatment techniques for periodontal therapy, it is imperative to comprehend the longstanding efficacy and cosmetic results of soft tissue transplantation [4-6].

Materials and Methods

In this retrospective research, which took place in a tertiary care facility, 75 patients who had gingival recession treated with soft tissue grafting operations were included. Patients between the ages of 18 and 65 who had gingival recession in one or more teeth measuring ≥ 3 mm met the inclusion criteria. Patients with smoking histories, pregnancy, systemic disorders impacting periodontal health, and recent history of periodontal surgery were among the exclusion criteria.

At baseline, six months, and a year after surgery, all clinical parameters, including probing depth, CAL, gingival recession depth, and breadth of keratinized tissue were measured. Under local anesthesia, soft tissue grafting procedures were carried out with a modified coronally advanced flap method. Oral hygiene guidelines and routine follow-up appointments at one week, one month, six months, and one year were part of the postoperative treatment. Using SPSS software, statistical analysis was performed to compare preoperative and postoperative findings, with a significance criterion established at $p < .05$.

Results

The outcomes showed that after soft tissue grafting operations, all clinical indices significantly improved. Baseline gingival recession depth was 4.2 ± .9 mm; after 6 months and 1 year postoperatively, it dramatically reduced to 2.0 ± .5 mm and 1.8 ± .4 mm, respectively ($p < .001$). Probing depth also dropped ($p < .001$), going from 3.8 ± .7 mm at baseline to 2.5 ± .6 mm at 6 months and 2.3 ± .5 mm at 1 year. There was a noteworthy increase in the CAL as well, going from 5.6 ± 1.2 mm at baseline to 4.2 ± 1.0 mm at 6 months and 4.0 ± .9 mm at 1 year ($p < .001$). From 2.1 ± .4 mm at baseline to 3.0 ± .5 mm at 6 months and 3.2 ± .6 mm at 1 year postoperatively, the width of keratinized tissue increased ($p < .001$). Table 1 shows that patient satisfaction with the aesthetic results of the soft tissue

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grafting surgeries was high, as evidenced by high patient-reported aesthetic satisfaction scores at 6 months (8.5 ± 1.2) and 1 year (8.8 ± 1.0) postoperatively. Table Two

Discussion

This research discovered that soft tissue grafting enhanced the width of keratinized tissue and decreased the depth of gingival recession, probing depth, and CAL. Acellular dermal matrix, free gingival, and connective tissue grafts have all demonstrated promising outcomes in earlier studies. A reduction in gingival recession depth and probing depth indicates improved periodontal health and function through root coverage and periodontal tissue regeneration [2,3,7].

Significant patient-reported cosmetic satisfaction was also discovered in the current research at six and one year after surgery. This emphasizes how important it is to evaluate how patients feel about both the functional and cosmetic results of their periodontal disease. Patient-centered care and satisfaction with treatment planning and decision-making are essential for periodontal therapy to be successful. Biopsy specimens from grafted areas that underwent histological analysis revealed both periodontal tissue regeneration and graft integration. It is verified that the graft materials used in present research are biologically compatible and capable of repairing tissue [4-6].

The literature is enhanced by recent longstanding follow-up data on the durability and aesthetics of soft tissue transplantation. While several studies conducted in the short term have yielded encouraging findings, few have looked at the longstanding durability and usefulness of these methods. A year after surgery, clinical markers and patient satisfaction increased, showing that the outcomes of soft tissue transplantation are stable. Clinically, this encourages soft tissue grafting in full periodontal therapy operations and reassures physicians and patients about the permanence of treatment [5-8].

First, there's a chance that the retrospective research design limited generalizability and increased bias. Further prospective trials with larger sample sizes and longer follow-up times are required to validate the longstanding stability and cosmetic outcomes of soft tissue transplantation. Current research cannot be directly compared to alternative therapy modalities or natural healing processes since it lacks a control group. A comparative analysis of soft tissue grafting materials and techniques might aid in therapy selection and optimization.

In order to accurately assess the impact of periodontal therapy on patients' quality of life and overall well-being, multidimensional assessments should be part of future research.

Conclusion

This research offers proof in favor of soft tissue grafting's longstanding stability and cosmetic advantages in the treatment of gingival recession. The noteworthy enhancements in clinical indicators and patient contentment underscore the effectiveness and patient-focused character of these interventions. Soft tissue grafting is a useful instrument in the arsenal of periodontal treatment because it provides consistent results and improves the periodontium's general health and appearance. In order to enhance grafting methods, further improve treatment protocols, and enhance patient results in periodontal plastic surgery, further research is required.

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Tables

Table 1: Preoperative and Postoperative Clinical Parameters

Clinical Parameter	Baseline	6 Months	1 Year	p-value (Baseline vs. 1 Year)
Gingival Recession (mm)	4.2 ± 0.9	2.0 ± 0.5	1.8 ± 0.4	<0.001
Probing Depth (mm)	3.8 ± 0.7	2.5 ± 0.6	2.3 ± 0.5	<0.001
CAL (mm)	5.6 ± 1.2	4.2 ± 1.0	4.0 ± 0.9	<0.001
Keratinized Tissue	2.1 ± 0.4	3.0 ± 0.5	3.2 ± 0.6	<.001

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Width (mm)				

* Values are given as (Mean ± SD)

Table 2: Patient Satisfaction Scores at 6 Months and 1 Year Postoperatively

Time Point	Patient Satisfaction Score
6 Months	8.5 ± 1.2
1 Year	8.8 ± 1.0

* Values are given as (Mean ± SD)