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## **Patient Satisfaction With Acellular Dermal Matrix Graft In The Treatment Of Multiple Gingival Recession Defects - A Clinical Study**

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# Patient Satisfaction With Acellular Dermal Matrix Graft In The Treatment Of Multiple Gingival Recession Defects - A Clinical Study

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## Abstract

**Background:** The aim of the present study was to evaluate Acellular Dermal Matrix Graft in terms of patient satisfaction in the treatment of multiple gingival recession defects.

**Methods:** Patients ( 2 females and 3 males ) with multiple gingival recession in relation to labial aspect of selected teeth were treated using Acellular Dermal Matrix Graft under a coronally positioned flap. Patient's satisfaction was assessed using a three point rating scale.

**Results :** After six months sites treated with Acellular Dermal Matrix Graft had mean defect coverage of 89.14%.

**Conclusion:** Findings of the present study highlighted the fact that patient satisfaction should be recognized as important as other clinical health measures when evaluating perioplastic aesthetic procedures.

## Introduction

Successful coverage of exposed roots for aesthetic and functional reasons has been the objective of various mucogingival procedures. Multiple techniques have been developed to obtain predictable root coverage[1-3]. The purpose of developing newer and newer methods for root coverage is to increase predictability, reduce patient discomfort, number of surgical sites, and improve patient comfort together with need to satisfy the patient's esthetic demands, which include final color and tissue blend of the grafted area. Acellular Dermal Matrix Graft is a human soft tissue chemically processed to remove all epidermal and dermal cells(antigenic cells)while preserving the remaining bioactive dermal matrix composed of collagen, elastin, blood vessel channels that support revascularization, cell repopulation and tissue remodelling which facilitates its integration into the periodontal tissue. Although there are numerous studies suggesting that Acellular Dermal Matrix Graft can be used predictably to treat multiple gingival

recession defects with fewer surgical procedures and less surgical trauma [4], there are no studies describing patient satisfaction with the treatment utilizing Acellular Dermal Matrix Graft. The aim of the present study was to evaluate Acellular Dermal Matrix Graft in terms of patient satisfaction in the treatment of multiple gingival recession defects.

Alloderm (Lifecell Corp.) Branchburg NJ.

## Methods

Patients (2 females and 3 males) in age group 25-35 years (mean age 27.2 years) were randomly selected from the outpatient Department of Periodontics, U.P. King George's University of Dental Sciences, Lucknow with multiple gingival recession defects in relation to labial aspect of selected teeth. Cases were chosen based on the following inclusion criteria: non-compromised systemic health and no contraindication for periodontal surgery, Miller Class I or II recession defect >2mm in upper and/or lower anterior teeth, the involved tooth should be well aligned in the dental arch and should be free of periapical pathology. Exclusion criteria were: smokers and chewers of tobacco, endodontically treated test or control sites, root surface restorations on test or control sites, pregnant and lactating women, use of fixed orthodontic or removable appliances and a previous root coverage procedure at test sites.

### **Clinical PARAMETERS:**

Patient's satisfaction was assessed using a three point rating scale: fully satisfied, satisfied, and unsatisfied in which the patient was questioned about his/her satisfaction with regard to the following patient centered criteria:

1. Root coverage attained.
2. Relief from dentinal hypersensitivity.
3. Color of gums.
4. Shape and contour of gums
5. Intraoperative pain and discomfort
6. Duration of procedure
7. Postoperative pain and discomfort.
8. Operator's behavior and patient handling.
9. Cost-effectiveness.
10. Overall-satisfaction.

**The Following scores were given by the patients:**

Patients Satisfaction Score

Fully Satisfied 3

Satisfied 2

Unsatisfied 1

All the measurements were recorded preoperatively i.e. 0 day (just before surgery) and postoperatively at 6 months with a calibrated UNC-15 probe (HU Friedy Co. USA).

**Pre-surgical Management:**

A general assessment of Patients was made through their history, clinical examination and routine laboratory investigations. All the selected Patients received phase-I therapy, which included oral hygiene instructions, scaling and root planing by both ultrasonic and hand instruments.

**Surgical Management:**

Prior to surgery the consent form was signed by the Patients. One month after phase-I therapy, the Patients were subjected to surgical procedure. The facial skin all around oral cavity was scrubbed with 7.5% povidone iodine solution and intra oral surgical site was painted with 5% povidone iodine solution.

**Surgical Procedure :**

All cases were operated under local anesthesia with a solution of 2% Lignocaine with 1:100,000 adrenaline. The surgical protocol used for the Acellular Dermal Matrix Graft group was based on the technique described in detail by Dodge et al<sup>5</sup> and Haim Tal.<sup>6</sup> The coronally positioned flap used was based on a design described by Bernimoulin et al.<sup>7</sup> The Acellular Dermal Matrix Graft was placed against the root surfaces with its connective tissue side facing the overlying gingival flap and was sutured using a sling suture technique with a synthetic 5-0 bioabsorbable suture<sup>¶</sup>. After placement of the Acellular Dermal Matrix Graft, the flap was coronally positioned and sutured using a sling suture technique with a non-resorbable 4-0 silk suture. The releasing incisions were closed with interrupted sutures. Postoperative instructions were given to the Patients. Doxycycline was prescribed in antimicrobial dosage (100 mg twice on first day, then 100 mg once daily) for 2 weeks. Nimesulide 100mg twice daily and vitamin B-complex, 1 capsule daily was also prescribed for 2 weeks. During the recovery phase of the wound the patient was recommended to follow scrupulously all the normal oral postoperative hygiene instructions. Patients were instructed not to brush the operated tooth for two weeks and were advised to rinse the oral cavity with chlorhexidine (0.2%) mouthwash daily for at least two weeks. After 1 week, the periodontal dressing and sutures were removed and the surgical area was flushed with antimicrobial solution. Patients

were recalled after every one week for the first 4 weeks, then every 2 weeks for the next 8 weeks and monthly until the end of the study.

Ethicon Division of Johnson And Johnson Ltd.

## Results

At the end of the present study sites treated with Acellular Dermal Matrix Graft had mean defect coverage of (89.14%). Significant reduction in gingival recession length was noticed at the end of the study (illustration 1). illustration 2 depicts scores given by the patients to rate the treatment. illustration 3 shows the weighted average for various satisfaction criteria.

## Discussion

Improving the quality of patient care is vital. Over the years various studies have been done to obtain predictable root coverage in patients with gingival recession defects [1-15]. Previous research was only focused on the evaluation and comparison of various techniques and the results were evaluated only in terms of objective clinical parameters (eg.percent root coverage, change in width of keratinized gingiva ). Data regarding patient satisfaction with the treatment is lacking, therefore in our study we attempted to assess Acellular Dermal Matrix Graft in terms of patient satisfaction.

Despite the small number of Patients treated for recession defects, significant findings emerged after 6 months evaluation. Sites treated with Acellular Dermal Matrix Graft had mean defect coverage of 89.14%. The result is comparable to the previous results obtained by 96%<sup>[5]</sup>, 94.3%<sup>[8]</sup>, 95.8%<sup>[9]</sup>, 93%<sup>[10]</sup>, 83.2%<sup>[11]</sup>, 83.3%<sup>[12]</sup>, 91.7%<sup>[13]</sup>, 89.1%<sup>[14]</sup>, 93.4%<sup>[15]</sup>. At the end of the study all the patients were satisfied with the treatment in terms of all the criteria except "duration of the procedure, post operative discomfort and cost effectiveness." Patients found the procedure to be "lengthy", this may be attributed to the time taken by the operator to suture the membrane over multiple teeth simultaneously. Some patients were not pleased with the postoperative phase and reported of pain and swelling which lasted for four to five days, this might be attributed to the initial reaction of the body to a foreign graft material. Also the fact that Acellular Dermal Matrix Graft was derived from human cadaveric skin was a cause of concern for two patients who were little hesitant to get the material grafted into their oral cavity. Cost of the material was a "major" factor which was a cause of concern for all the

patients treated in this study and three patients enquired for some other affordable and economical graft material.

In conclusion the findings of the present study highlighted the fact that Acellular Dermal Matrix Graft may be an excellent material from a operator's point of view but when it comes to patient satisfaction there are still some areas which need improvement, hence patient satisfaction should be recognized as important as other clinical health measures and is a primary means of measuring the effectiveness of perioplastic aesthetic procedures.

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## Illustrations

### Illustration 1

Pre and Post operative Recession for each of 14 Teeth in Five Cases

#### Pre and Post-operative Recession for each of 14 teeth in five Cases

PATIENT NUMBER	Tooth number	Pre operative recession defect	Post operative recession defect	Change in recession after 6months	Percentage root coverage
<b>Mean</b>		<b>2.8;SD:0.66</b>	<b>0.35;SD:0.49</b>	<b>2.5;SD:0.51</b>	<b>89.14;SD:15.36</b>
1	13	3	0	3	100
1	14	3	0	3	100
1	15	2	0	2	100
1	16	3	0	3	100
2	13	3	1	2	66
2	14	3	1	2	66
3	31	4	1	3	75
3	41	3	1	2	66
4	11	2	0	2	100
4	21	2	0	2	100
4	22	2	0	2	100
4	23	3	0	3	100
5	43	3	0	3	100
5	44	4	1	3	75

## Illustration 2

Patient's rating of criteria in terms of his/her satisfaction

Patient No.	Root Coverage	Relief from Dental Hyper-sensitivity	Colour of Gums	Shape and Contour of Gums	Duration	Intraop pain and discomf	Post op pain and discomf	Cost effectiveness	Operator's behavior and handling	Overall satisfaction
1	3	3	3	3	3	3	2	2	3	3
2	3	3	3	3	2	3	2	2	2	2
3	3	3	3	3	2	2	2	2	3	2
4	2	3	3	2	2	3	3	2	3	3
5	3	2	3	3	2	3	2	2	2	2

**Patient's rating of criteria in terms of his/her satisfaction**

### Illustration 3

Weighted average for the various satisfaction criteria

**Weighted average for the various satisfaction criteria**

SATISFACTON CRITERIA	Number of Fully satisfied patients	Number of satisfied patients	Number of unsatisfied patients	Weighted average
Root Coverage	4	1	0	2.8
Relief from Dentinal Hyper-sensitivity	4	1	0	2.8
Color of Gums	5	0	0	3
Shape and Contour of Gums	4	1	0	2.8
Duration	1	4	0	2.2
Intraoperative pain and discomfort	4	1	0	2.8
Post operative pain and discomfort	1	4	0	2.2
Cost effectiveness	0	5	0	2
Operator's behavior and handling	3	2	0	2.6
Overall satisfaction	2	3	0	2.4

## Illustration 4

Example 1: Pre-operative gingival recession defects from 13 to 16



## Illustration 5

Example 1: Post-operative results after 6 months



## Illustration 6

Example 2: Pre-operative gingival recession defects from 11 to 23



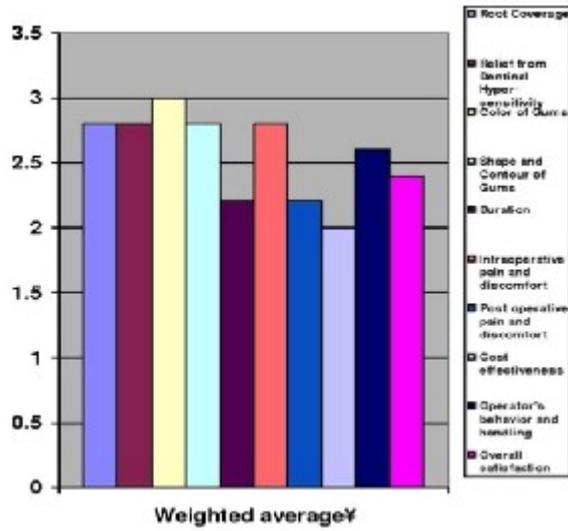
## Illustration 7

Example 2: Post-operative results after 6 months



## Illustration 8

Comparisons of weighted averages for various satisfaction criteria



Y The higher the value the better the patient satisfaction

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