



## RESEARCH ARTICLE

### CLINICAL EVALUATION OF SURGICAL VERSUS NON-SURGICAL THERAPY IN REDUCTION OF PERIODONTAL POCKETS: A COMPARATIVE STUDY

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#### ABSTRACT

**Aim:** The purpose of this randomized split mouth clinical trial was designed to compare the effectiveness of non-surgical periodontal therapy through plaque control, scaling and root planing with the surgical one using Modified Widman's flap, in reduction of periodontal pockets 5 - 8 mm in depth. **Material and Methods:** Seventeen patients males and females with advanced periodontal diseases who were recruited. Full mouth scaling, polishing and root planing applied to all patients followed by oral hygiene instructions. One month later, Modified Widman's flap procedure applied to one sextant which was randomly selected. Periodontal parameters measurements were taken again at days 1 month, 3 month and 6 months. **Results:** For both surgical and non-surgical treated sites, the Mean and Standard deviations of periodontal Parameters, Plaque index (PI), Gingival index (GI), Probable pocket Depth (PPD) and Gingival recession showed significant reduction. **Conclusion:** Both Surgical therapy using Modified Widman's Flap and Non-surgical treatment by scaling and root planing are equally effective in the reduction of periodontal pockets (5 - 8 mm) depth.

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#### INTRODUCTION

Periodontal disease is a major problem affecting the human dentition. It is an infectious inflammatory destructive disease initiated by microbial biofilm in a susceptible host (Loe, 1965). Early diagnosis and evaluation of the results of periodontal therapy is important in controlling the disease. Oral hygiene procedures combined with supra and sub gingival scaling and root planing are effective methods in the treatment of periodontal disease and maintaining a healthy periodontal condition (Socransky, 1998). On the other hand surgical procedures for periodontal pocket elimination and plaque control are indicated to gain access to the sub gingival surfaces for proper debridement and to create anatomical configuration of the periodontal tissues that facilitate patient home care. The first comparative study between different periodontal therapies was done by Ramfjord., et al. (1968) (Ramfjord, 1986; Ramfjord, 1987).

#### MATERIAL AND METHODOLOGY

A Split mouth randomized single blind study was carried out in the Department of Periodontics Govt Dental College and Hospital Srinagar. Case control study was applied on the same patients without sex predilection and with age range 35 - 45 years. Patients have had at least two sextants

with periodontal pockets 5 - 8 mm, healthy without systemic diseases and did not take an antibiotic in the last one month. Females were neither pregnant nor taking oral contraceptives. Approval and informed consent have been obtained. For all patients included in the study the following parameters were recorded at days zero (first visit), 1 month, 2 months, 3 months. The Parameters were Plaque index (PII), Loe and Sillness (1963), Gingival index (GI), Sillness and Loe (1964), Probable Pocket Depth (PPD) in mm and Gingival recession in mm. Then full mouth scaling, polishing and root planing with manual scalars were applied. Any ultrasonic scaling was followed by manual scaling sometimes local anesthesia was needed. After one month the Modified Widman's flap applied to one sextant which was randomly allocated. Parameters measurements were taken again at days 1 month, 2 months, 3 months.

#### RESULTS

The mean age for the study populations consisting of patients with advanced periodontitis was (38.53 ± 3.47) years. The mean Plaque index for surgically treated sites was significantly reduced from (1.41 ± 0.62) to (1.33 ± 0.58). For the non-surgically treated sites PI was also reduced from (1.41 ± 0.71) to (1.67 ± 0.58). The mean

Gingival index of surgically treated sites showed reduction from  $(2.00 \pm 0.35)$  to  $(2.00 \pm 0.00)$ . Whereas the non-surgically treated sites showed the same reduction of the mean of GI from  $(1.94 \pm 0.34)$  to  $(2.00 \pm 0.00)$ . The three months observations of Probable pocket depth showed an overall reduction in pocket depth for both groups. The reduction was greater for the non-surgically treated sites from  $(5.18 \pm 0.95)$  to  $(5.00 \pm 2.65)$  however no statistical insignificant difference between the surgical treated sites that was reduced from  $(5.71 \pm 0.99)$  to  $(5.33 \pm 1.53)$  and the Non-surgical groups was observed. The surgical technique chosen seems to have limited influence upon changes in clinical attachment gain. The mean and standard deviation measurements of Gingival recession was greater in the surgically treated sites from  $(1.35 \pm 0.87)$  to  $(2.33 \pm 3.21)$  compared to non-surgical treated sites  $(2.00 \pm 1.22)$  to  $(2.33 \pm 4.04)$ , but there was no statistical significant difference between the two groups.

**Table 2. Means and standard deviations of Plaque Index among participants at different visits**

Days	Surgical X±SD	Non-surgical X±SD	p-value
0	1.41 ± 0.62	1.41 ± 0.71	1.00
1 month	1.11 ± 0.60	1.22 ± 0.44	0.66
3 month	1.33 ± 0.58	1.67 ± 0.58	0.52

**Table 3. Means and standard deviations of Gingival Index among participants at different visit**

Days	Surgical X±SD	Non-surgical X±SD	p-value
0	2.00 ± 0.35	1.94 ± 0.43	0.67
1 month	1.98 ± 0.33	2.00 ± 0.00	0.58
3 month	2.00 ± 0.00	2.00 ± 0.00	0.3

**Table 4. Means and standard deviations of Probable Pocket Depth in (mm) among participants at different visits. X ± SD.**

Days	Surgical X±SD	Non-surgical X±SD	p-value
0	5.71 ± 0.99	5.18 ± 0.95	0.12
1 month	5.22 ± 1.64	4.89 ± 1.36	0.65
3 month	5.33 ± 1.53	5.00 ± 2.65	0.86

**Table 5. Means and standard deviations of Gingival Recession in (mm) among participants at different visits**

Days	Surgical X±SD	Non-surgical X±SD	p-value
0	1.35 ± 0.87	2.00 ± 1.22	0.20
1 month	1.78 ± 1.20	1.56 ± 1.24	0.70
3 month	2.33 ± 3.21	2.33 ± 4.04	1.00

## DISCUSSION

The present study showed reduction in mean pocket depth at non-surgically treated sites from  $(5.18 \pm 0.95)$  to  $(5.00 \pm 2.65)$ . However no statistical insignificant difference between the surgical treated sites that was reduced from  $(5.71 \pm 0.99)$  to  $(5.33 \pm 1.53)$  was observed. Cercek et al. in 1984 when evaluated the effects of oral hygiene and surface root planing in a two years study, they concluded that bulk of effects of therapy were derived from surface root planing SRP. More over this study resulted in no statistical difference between surgical and non-surgical treated groups in reduction of periodontal pockets depth and CAL gain however Becker W., et al. (1988) in their longitudinal study

comparing surface root planing with Modified Widman's flap, osseous surgery and APF they concluded that both surgical procedures were equally effective while surface root planning was less effective in reducing periodontal pockets depth.

On the other hand the results of this study were similar to the studies done by Rosling, 1983, who compared the effectiveness of surgical and non-surgical treatments using MWF. They concluded that surgical treatment resulted in more reduction of PD and CAL gain than surface root planing in two years duration (Lindhe, 1982; Lindhe, -1984; Rosling, 1976). However a five years follow up studies by Lindhe., et al. (1986) showed no statistical difference in PD reduction and CAL gain was observed between the surgical and non-surgical treated groups.

## Conclusion

Both Surgical and Non-surgical scaling and root planing are equally effective in the reduction of periodontal pockets (5 – 8 mm) depth. Gingival recession is apparent following the surgical treatment. surgery, should be limited to cases where non-surgical treatment failed. If the success of the periodontal therapy is to be insured. If a pronounced reduction in pocket depth is required the Modified Widman's Flap procedure may not be the appropriate treatment and more definitive surgical procedures should be applied.

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