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Original Research

Comparison of flapless technique and conventional flap technique during dental implant placement

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***ABSTRACT*:**
Background: Implant dentistry has evolved from a traditional conventional flap therapy to a highly esthetic-driven discipline. The present study was conducted to compare flapless technique and conventional flap technique during dental implant placement. **Materials & Methods:** The present study was conducted on 50 patients requiring dental implants of both genders. Patients were randomly divided into two groups of 25 each. Group I was flap technique and group II was flapless technique. A thorough clinical examination was done in all patients. All were subjected to IOPARs. Implant insertion was done following all standardized procedures. Marginal bone loss and pain using visual analog scale (VAS) were assessed. **Results:** Group I patients underwent flap technique and group II patients underwent flapless technique. Each group had 25 patients. The mean difference of marginal bone loss from baseline to 1 month in group I was 0.17 and in group II was 0.021, from baseline to 2 months in group I was 0.23 and in group II was 0.04, from baseline to 3 months in group I was 0.35 and in group II was 0.05, from 1 month to 2 months in group I was 0.07 and in group II was 0.02, from 1 month to 3 months in group I was 0.017 and in group II was 0.03, from 2 months to 3 months in group I was 0.12 and in group II was 0.004. The mean VAS at day 1 in group I was 5.4 and in group II was 2.5, on day 2 in group I was 4.2 and in group II was 1.6, on day 3 in group I was 2.3 and in group II was 1.0, on day 4 in group I was 2.0 and in group II was 0.0, on day 5 in group I was 1.4 and in group II was 0. The difference was significant ($P< 0.05$). **Conclusion:** Authors found that flapless implant surgery results in lesser loss of marginal bone and pain as compared to flap technique.
Key words: flapless, implant surgery, Pain.

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INTRODUCTION

Implant dentistry has evolved from a traditional conventional flap therapy to a highly esthetic-driven discipline.[1] Consequently, clinicians have sought to implement techniques to shorten the treatment with methods such as immediate placement of implants at the time of extraction, immediate loading and flapless surgical procedures.[2] The flapless surgical approach was introduced in the late 1970s by Ledermann to overcome the bone resorption process. Studies comparing the crestal bone height using the flapless and the flap surgical techniques are minimal.[3]

When placing dental implants, a flap is traditionally elevated to better visualize the implant recipient site, providing that some anatomical landmarks are clearly identified and protected.[4] When a limited amount of bone is available, a flap elevation can help implant placement to reduce the risk of bone fenestrations or

perforations.[5] More recently, the concept of flapless implant surgery has been introduced for the patients with sufficient keratinized gingival tissue and bone volume in the implant recipient site. In a flapless procedure, a dental implant is installed through the mucosal tissues without reflecting a flap. The alleged reasons to choose the flapless technique are to minimize the possibility of postoperative peri-implant tissue loss and to overcome the challenge of soft tissue management during or after surgery.[6] The present study was conducted to compare flapless technique and conventional flap technique during dental implant placement.

MATERIALS & METHODS

The present study was conducted in the department of Oral surgery. It comprised of 50 patients requiring dental implants of both genders. All were well informed regarding the study and their consent was obtained. Ethical clearance was obtained prior starting the study. Demographic profile such as name, age, gender etc. was recorded. Patients were randomly divided into two groups of 25 each. Group I was flap technique and group II was flapless technique. A thorough clinical examination was done in all patients. All were subjected to IOPARs. Implant insertion was done following all standardized procedures. Marginal bone loss and pain using visual analog scale (VAS) were assessed. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	Flap technique	Flapless technique
Number	25	25

Table I shows that group I patients underwent flap technique and group II patients underwent flapless technique. Each group had 25 patients.

Table II Assessment of mean marginal bone loss at different time intervals

Time intervals	Group I	Group II	P value
Baseline to 1 month	0.17	0.021	0.04
Baseline to 2 months	0.23	0.04	0.05
Baseline to 3 months	0.35	0.05	0.01
1 month to 2 months	0.07	0.02	0.02
1 month to 3 months	0.017	0.03	0.03
2 months to 3 months	0.12	0.004	0.01

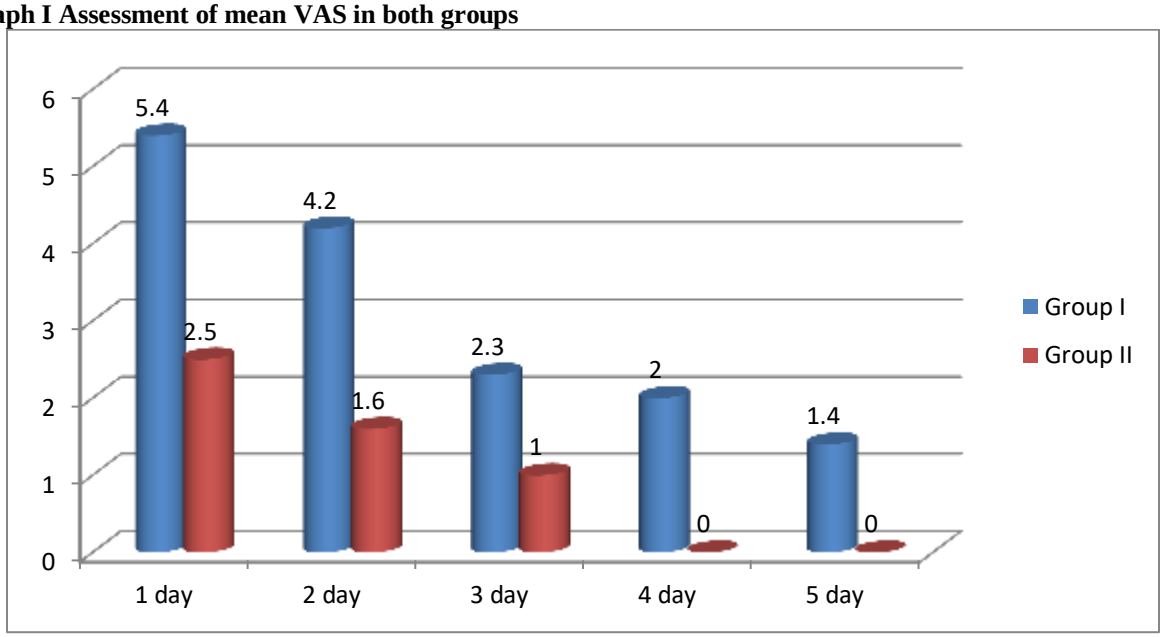
Table I shows that mean difference of marginal bone loss from baseline to 1 month in group I was 0.17 and in group II was 0.021, from baseline to 2 months in group I was 0.23 and in group II was 0.04, from baseline to 3 months in group I was 0.35 and in group II was 0.05, from 1 month to 2 months in group I was 0.07 and in group II was 0.02, from 1 month to 3 months in group I was 0.017 and in group II was 0.03, from 2 months to 3 months in group I was 0.12 and in group II was 0.004. The difference was significant ($P< 0.05$).

Table II Assessment of mean VAS in both groups

Time intervals	Group I	Group II	P value
1 day	5.4	2.5	0.01
2 day	4.2	1.6	0.02
3 day	2.3	1.0	0.04
4 day	2.0	0.0	0.01
5 day	1.4	0.0	0.01

Table II, graph I shows that mean VAS at day 1 in group I was 5.4 and in group II was 2.5, on day 2 in group I was 4.2 and in group II was 1.6, on day 3 in group I was 2.3 and in group II was 1.0, on day 4 in group I was 2.0 and in group II was 0.0, on day 5 in group I was 1.4 and in group II was 0. The difference was significant ($P< 0.05$).

Graph I Assessment of mean VAS in both groups



DISCUSSION

Advantages of the flapless implant surgery include less traumatic surgery, decreased operative time, rapid postsurgical healing, fewer postoperative complications and increased patient comfort.[7] A disadvantage of this technique is that the true topography of the underlying available bone cannot be observed because the mucogingival tissues are not raised, which may increase the risk for unwanted perforations which in its turn could lead to esthetical problems or implant losses. Moreover, there is the potential for thermal damage secondary to reduced access for external irrigation during osteotomy preparation.[8] Researchers have been trying to evaluate whether the insertion of implants by the flapless technique may influence the survival of dental implants. However, some studies may lack statistical power, given the small number of patients per group in the clinical trials comparing the techniques. Thus, we conducted a meta-analysis of previously published clinical studies to investigate whether there are any positive effects of flapless implant insertion surgery on implant failure rates, postoperative infection, and marginal bone loss in comparison with the more traditional open flap technique.[9] The present study was conducted to compare flapless technique and conventional flap technique during dental implant placement.

In present study, group I patients underwent flap technique and group II patients underwent flapless technique. Each group had 25 patients. Divakar et al[10] found that the mean difference in the bone loss for baseline to the third month for the flap group was 0.34 ± 0.05 and for the flapless group was 0.03 ± 0.004. Pain assessment by visual analog scale was statistically significant in all the 5 postoperative days indicating a better patient compliance in the flapless group and there was no statistical difference in the level of swelling between these two groups.

We found that mean difference of marginal bone loss from baseline to 1 month in group I was 0.17 and in group II was 0.021, from baseline to 2 months in group I was 0.23 and in group II was 0.04, from baseline to 3 months in group I was 0.35 and in group II was 0.05, from 1 month to 2 months in group I was 0.07 and in group II was 0.02, from 1 month to 3 months in group I was 0.017 and in group II was 0.03, from 2 months to 3 months in group I was 0.12 and in group II was 0.004. Fortin et al[11] found that pain decreased faster and the number of patients who felt no pain was more in the flapless technique. They suggested that the objective of the flapless procedure is to reduce the invasiveness of surgery thereby reducing the surgical outcomes such as pain, edema and hematoma.

Flapless implant surgery is considered to offer advantages over the traditional flap approach, since bleeding is minimized, surgical time is shorter, and patient pain is reduced. However, studies contrasting patient outcome variables in support of these assumptions are lacking. Only one comparison has been made of flapless versus conventional flapped implant placement. Therefore, the present study sought to explore patient pain/discomfort, using a subjective visual analog scale (VAS) to compare dental implant placement achieved by means of an atraumatic flapless technique with placement done with a conventional full-thickness flap technique.[12]

CONCLUSION

Authors found that flapless implant surgery results in lesser loss of marginal bone and pain as compared to flap technique.

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