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College of Dentistry**



**Comparative Study Between Flapped and Flapless
Surgical Techniques in Dental Implant Stability
According to Resonance Frequency Analysis
(Clinical Study)**

A thesis

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partial fulfillment of requirement for the degree of Master of Science in
Oral and Maxillofacial Surgery

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Abstract

Background: Dental implant science is continuously developing from its beginning till now. One aspect of that development was the surgical procedure. Recent surgical approach aims to cause less trauma, invasiveness and pain as much as possible and to reduce patient and surgeon discomfort, time of surgery and time needed for functional implant loading. Flapless surgical techniques considered recently as one of the most popular techniques that may achieve these aims especially enhancing osseointegration and subsequently implant stability within less time than the traditional flapped surgical technique. Although there is some controversial about this technique due to some of visual limitation, gathering flapless surgical technique with bone (ridge) mapping method may reduce this drawback.

Aim of the study: To make a comparison between flapped and flapless surgical techniques in resulted implant stability according to RFA within three months intervals following surgery. Also to make a general comparison between both techniques in regarding to duration of surgical operation and the early survival rate of dental implants.

Materials and Methods: from December 2013 to December 2014 a total of 26 patients (10 males and 16 females) with 41 implants (one implant in the study group failed so it was excluded from the statistical analysis except in the analysis of survival and failure rates) were randomized into two groups: control group which involved 20 implants inserted by conventional flapped surgical approach and study group which involved 20 implants inserted by flapless surgical approach. Preoperative clinical and radiographic assessment were done for all patients and estimation of alveolar bone was done for study group by bone (ridge) mapping

procedure. Two implant systems were utilized in the study (Dentium Co., Ltd., Korea and Nucleoss Co., Turkey). Implant stability and duration of surgical operation for each implant were measured. The stability was measured by RFA test utilizing Osstell™ ISQ (Goteborg, Sweden) with its smart pegs type 6 (UK) at three time intervals (at surgery, two months and three months after surgery).

Results: There was no significant difference between study (flapless) and control (flapped) groups in the mean of primary stability (stability at surgery). The difference was (0.53) ISQ ($P > 0.05$), after two months the mean of implant stability of the study group became insignificant higher than that of the control group (3.47) ISQ, while after three months the mean implant stability of the study group achieved significant higher implant stability ($P < 0.05$) and the difference elevated to (5.05) ISQ. There was no significant effect of gender and jaw involved on implant stability with insignificant higher values of implant stability for implants placed in mandible than maxilla. According to the time of surgical operation, implants in the study group were consumed about third of the time required for implants of the control group with highly significant difference ($P < 0.01$).

Conclusions: The study concludes that implants placed with flapless surgical technique can produce high implant stability in shorter time compared to those placed with conventional flapped technique. Also flapless technique could consume prominently shorter time for surgical operation in comparison with the flapped one.