

The Effect of Early Versus Delayed Loading on The Stability of Implants placed by Transalveolar Augmentation Using PRGF In Partially Edentulous Maxilla

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INTRODUCTION

Two main different protocols are aiming to decrease the time till the loading of the final prosthesis. Immediate loading within the first two weeks after surgery or early loading after at least one month and before six months period ⁽¹⁾ Platelets' from plasma rich in growth factors (PRGF) release various wound healing cytokines and growth factors that have a great role in the process of wound healing, increased vascularity and bone regeneration. ⁽²⁾

This study aimed to compare the effect of early and delayed loading protocols on the stability of implants placed after transalveolar augmentation with PRGF mixed with bone graft in partially edentulous maxilla unilateral free end saddle. Implant stability was measured using Osstell at the time of insertion, loading, three months after loading and six months after loading.

METHODOLOGY

This study had been done in Prosthodontics Department, Faculty of Dentistry, Ain shams University. Fourteen maxillary Kennedy class II patients were selected between the ages of 35 to 55 years. The patients were randomly divided into two equal groups according to the loading time: Group I: consists of seven patients who received the prosthesis after six weeks following early loading protocol. Group II: consists of seven patients who received the final prosthesis after 24 weeks following delayed loading protocol. Construction of preoperative radiographic template was done. PRGF Preparation was done by collecting patient's blood and PRGF plug was prepared. Transcrestal sinus lifting was done by a motor-driven surgical kit for transcrestal sinus lifting to elevate the sinus floor and membrane two mm from their previous level. Bone graft was mixed with PRGF (Fig 1D, 1E) and introduced by the mucoperiosteal elevator to the osteotomy then condensed in the osteotomy with the help of the osteotomes to the desired implant length (Fig 1F). The implant was introduced into the osteotomy and screwed till the implant levelled crestal without exceeding 35 Ncm and suturing was done. Prosthesis construction was done after six weeks in the first group and 24 weeks in the second group. The patients were recalled at the scheduled appointments to measure the implant stability at the planned time intervals.

RESULTS AND DISCUSSION

The results showed an increase in implant stability throughout the study period. This difference was statistically significant as the p-value was 0.0003. The post hoc Tukey test revealed a statistically significant difference

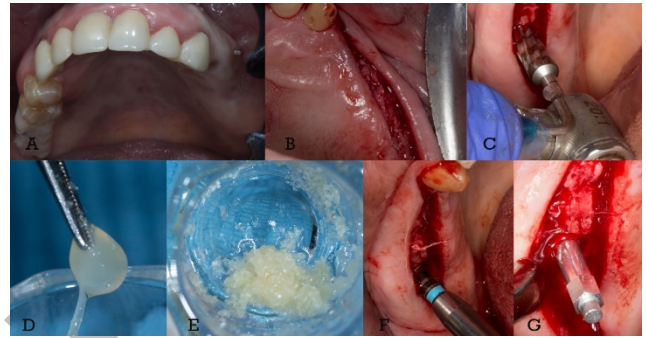


Figure 1A) pre-operative view of the posterior partial edentulous maxilla. B) Flap retraction C) Osteotomy was done using sequential drills below sinus floor about 2 mm D) PRGF plug E) PRGF plug mixed with bone graft. F) Implant was introduced into the osteotomy

in implant stability values at the time of implant insertion and three months after loading. Similarly, there was a statistically significant difference in implant stability values at the time of implant insertion and six months after loading. However, there was no statistically significant difference between three months after loading and six months after loading. On the other hand, there was a statistically significant difference in implant stability values at the time of implant insertion and at loading time 24 weeks post-surgically. Similarly, there was a statistically significant difference in implant stability values at the time of implant insertion and three months after loading. As well as, a statistically significant difference in implant stability values at the time of implant insertion and six months after loading.

CONCLUSION

Taking this study's limitations into consideration and based on the favourable clinical and radiographic performance, the early loading protocol showed comparable clinical efficacy to the commonly used delayed protocol with great emphasis on restoring the posterior maxilla with implant-supported partial overdenture.

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