

Delayed Implant Placement after Extraction Socket Reconstruction and Ridge Augmentation using Autogenously Tooth Bone Graft Material: Case Reports

Dr. Young-Kyun Kim, Department of Oral and Maxillofacial Surgery, Section of Dentistry, Seoul National University Bundang Hospital
E-mail: kyk0505@snuh.org

Abstract

When the extraction site has insufficient bone height or volume for an implantation, an autogenously tooth bone block for a socket reconstruction and bone graft can be implemented. In these case studies, we obtained outstanding treatment outcomes using autogenously tooth bone block reconstructing extracted socket and ridge augmentation. This study presents its clinical and radiological findings together with reviews of related literature.

Keywords: Autogenously tooth bone block; Extraction socket graft; Ridge augmentation

Introduction

It has been reported that implant therapy for the posterior edentulous area is widely being used and its long term prognosis is outstanding. However, when the bone quality of the implant placement site is poor or the amount of residual bone is insufficient, bone graft is inevitable. In such situations, autogenously, allogeneic, xenogeneic and synthetic bone can be utilized as bone graft materials, and each of them has its strengths and weaknesses [1]. Allogeneic and xenogeneic bone has a risk of infectious contamination. Xenogeneic and synthetic bone show healing through osteoconduction despite of their relatively affordable prices. Autogenously bone is regarded as the "gold standard" of bone graft due to its biocompatibility; it does not have immune rejection response and displays every function of bone formation, ontogenesis, osteoinduction and osteoconduction, and it also offers high stability and low rate of complications after bone graft. However, the weaknesses of autogenously bone are that the collection of it is limited, additional surgery is required in the donor site and the desorption amount after grafting is high [1-3]. Today, autogenously tooth bone graft material is often used as an alternative bony substitute and its excellence has been proved through many studies [4-10]. We installed the implant after grafting using autogenously tooth block in the patients whose residual bone to inferior alveolar nerve canal was significantly insufficient. The satisfactory clinical outcomes were obtained. We present case reports with literature review.

Materials and ways

This study has been approved by the University of Golden State, metropolis (UCSF) Committee on Human analysis. Development of the

informative and Clinical Curriculum: A 10-week interprofessional medical specialty oral health course for college students in medicine, nursing, medicine, associate degreed pharmacy was administered by an knowledge base school team. This course enclosed weekly 1-h lectures for 10 weeks. Four lectures were delivered via pre-recorded on-line lectures, and six lectures (including case shows and discussion session) were delivered in-class. The topics of those lectures enclosed introduction on children's oral health, oral health disparities, and clinical assessment and follow.

Results

For the masticatory loading (chewing condition, FE analysis is carried out as discussed in the previous section. The solid models Are imported from Solid Edge software to ANSYS Workbench and

Material properties are assigned as per the Table 1. Load of 1000 N is Applied. They are solved to get the final solution. The contour plot of 'Von misses stresses' and 'strain' was separately obtained for all the three Appliance models as well as the jaw model without the device. The final Deformation is plotted with the result of 'von miss stresses' and 'strain' Calculations and shown in Figures 7A-7C for the band and loop, Nance Appliance and Trans-palatal arch respectively

Discussion

Kim et al. have been performing studies of producing bone graft material with extracted human teeth since 1993. However, these studies focused on making powder and block type bone graft materials after burning teeth at high temperatures in order to suppress immune rejection response. These researches have been made with the aim to replace synthetic bones [11-16]. In 2008, Kim et al. developed a method named "autogenously tooth bone graft" which grafted for the patient after extracted tooth of the patient was fabricated into the particulate bone graft material and put to practical use it for clinical application. Autogenously tooth bone graft material was found to possess functions of osteoinduction and osteoconduction both of which display outstanding

Conclusions

The Nance-appliance shows the lesser deformation than band and Loop and trans-palatal arch. This model can be preferred where the Stresses developed by the space-maintainers are critical provided the Appliance is indicated in the clinical situation. Further, this methodology Could facilitate optimization and understanding of biomedical devices Prior to animal and human clinical trials.