Poster Presentation Abstracts

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Clinical Study on Peri-implant Bone Levels Before and After Occlusal Loading with Different Implant-abutment Connection

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Purpose: The primary objective of this study was to investigate the influence of external, internal, and Mores-tapered implant-abutment connections on peri-implant bone levels prior to and after function of the restoration clinically. Materials and Methods: Periapical radiographs taken in the Department of Dentistry, China Medical University Hospital from 2002 to 2010 were collected, digitized, standardized, and implant-abutment connection types classified into categories including: (1) external hexed (Brånemark MK IV, Nobel Biocare, Sweden); (2) internal octagon (Submerged Atlas Cowellmedi Co., Busan, South Korea) and (3) Morse-tapered (Ankylos Implant, Friadent, Mannhein, Germany). Implants used in this study were placed at the crestal bone level. Radiographs were taken at T0: first stage surgery; T1: delivery of fixed partial denture or crown; T2 and T3: 3 and 6 months after occlusal loading respectively. Amounts of peri-implant bone loss were calculated for different phases containing (1) biological phase (T0-T1) (2) loading phase I and loading phase II (T1-T2 and T2-T3). The Image J (NIH, Bethesda, MD, USA), a bio-image processing and analysis software, was used to measure the bone level at different time phases. The generalized estimating equation method (GEE) was used for overall test, Wald Chi-square test for regression and post hoc multiple comparison by Bonferroni test. Results and Conclusion: The mean amount of crestal bone resorption in the first year for three different implant-abutment connection systems examined in this study were all within 1 mm (< 0.8 mm). There was no statistical significance in the amount of bone loss by comparing different implant-abutment connection types in the same time phases. Interestingly, the amount of bone loss was significantly greater in biological phase than those in either loading phase I or loading phase II. The rate of bone loss in different implant-abutment connection types at different time phases also showed statistical significance.

Table 1. Mean bone loss (mesial and distal) in different connection type during different time phases

	T_{Mean0}-T_{Mean1}			T_{Mean1}-T_{Mean2}			T_{Mean2}-T_{Mean3}		
	n	mean	SD	n	mean	SD	n	mean	SD
Branemark	27	-0.4477	0.1852	22	-0.2124	0.1266	18	-0.1268	0.0596
Ankylos	36	-0.3767	0.1373	25	-0.1866	0.1071	16	-0.162	0.1079
Cowell	33	-0.4446	0.1491	29	-0.1848	0.122	22	-0.1716	0.1053

T_{Mean0}: first stage surgery;
T_{Mean1}: delivery of fixed partial denture or crown;
T_{Mean2}: 3 months after occlusal loading;
T_{Mean3}: 6 months after occlusal loading.

Table2. The Model effect test of generalized estimating equation method (GEE)

	Wald test	df	*p*-value
Implant type	0.118	2	0.943
Time phase	68.304	2	<0.001
Implant type × Time phase	10.749	4	0.030

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Use of Free Soft Tissue Grafts in Two Flapless Immediate Maxillary Anterior Implants: A Case Report

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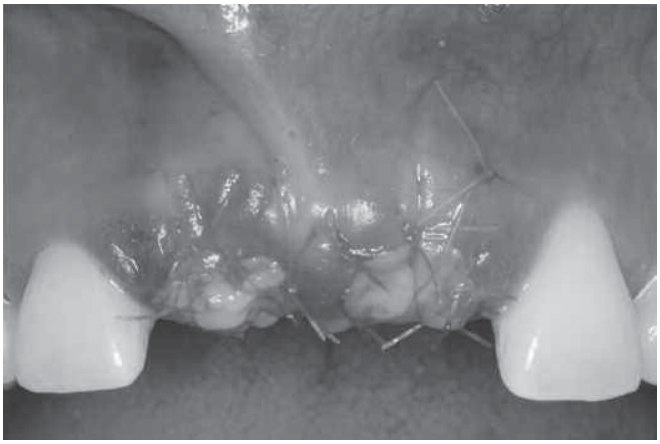
INTRODUCTION: In order to preserve the maximum hard and soft tissue volume following flapless placement of immediate implants, bone grafting of the peri-implant "gap" is usually indicated, at which time, there is a lack of primary soft tissue closure. The following case presents the use of free soft tissue grafts to cover 2 immediate implant placement sites. METHODS: The patient presented for extraction and immediate implant replacement of severely carious maxillary central incisors, #8 and 9. The teeth were extracted atraumatically and flapless placement of two 4.0 x 11mm implants was performed. The implants were placed toward the palatal aspect of the sockets, leaving a gap of 2.5-3.0mm, which was grafted with DBBM. Two socket-sized free gingival grafts were harvested from the adjacent palatal tissue and sutured over the implant sites. A removable vacuform provisional was delivered. RESULTS: One week post-operatively, the free soft tissue grafts appeared avascular and necrotic, although the surrounding tissues appeared non-inflamed and free of infection. The grafts were still retained by sutures and were left in place. The donor sites healed uneventfully and the patient reported minimal discomfort associated with the procedure. At two weeks post-operatively, the necrotic graft tissue was easily detached during suture removal, which revealed new connective tissue and epithelium beneath. By four weeks post-operatively, the sites had gone on to heal completely with full soft tissue coverage. CONCLUSION: When placing a free soft tissue graft over an immediate implant site, the recipient bed for the graft may be largely avascular (consisting of titanium and particulate bone graft), and thus give questionable survivability for the graft itself. However, the success of the implant procedure does not appear to depend on re-vascularization of the graft. In the presented case, despite the eventual necrosis of the soft tissue graft, it served the function of protecting the implant site from the oral environment and allowed undisturbed healing beneath it.



Immediate post-operative.

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Preliminary Biomechanical and Histological Evaluations of Implants with Different Surfaces in an Ovine Model

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Introduction: Various modifications of implant surface have been proposed to enhance osseointegration. The purpose of this study was to investigate bone response to dental implants with 3 different surfaces in an ovine model. Methods: A total of 45 implants with 3 different surfaces, (1)microtextured (MT), (2)highly crystalline HA-coated (HA), and (3)chemically modified, sand blasted and acid-etched (cmSLA), were randomly placed bilaterally in the femoral condyles of ovine (6 implants per ovine). Implant stability was evaluated at 0 and 3 weeks by measuring resonance frequency (ISQ), insertion torque value (ITV) and reverse torque value (RTV). Further analysis of bone response to the surfaces was conducted by histologic and histomorphometric evaluations, including bone-to-implant contact (BIC) and bone volume over available total volume (BV/TV) of the region of interest (ROI). Results: Mean ISQ values at insertion (n=15) were 69±7 for MT, 68±3 for HA, and 70±4 for cmSLA. Three