analysis. The deflections of the prostheses at the time of the loading were also measured. In the single crown test, the cement-retained crowns transferred less stress. In two unit fixed partial denture test, there were no differences between the two different prostheses. In the two implant supported distal cantilevered prostheses, the screw-type prosthese developed more stress around the apex of both implants.

OIV-5 A Mixture of Platelet-Rich Plasma and Bovine Bone Mineral(Bio-Oss): Evaluation of Osteogenic Potential in Calvarial Defects

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Several techniques have been described to generate new bone to fill the gap between the bone defects in implant dentistry. It is important that the bone graft or bone substitute results in a bone volume and hardness sufficient for implant function prior to second surgery. Furthermore, increasing the rate of bone formation, it is possible to shorten the total treatment period.

Platelet-rich plasma(PRP) is an autologous source of cytokines(platelet derived growth factor and transforming growth factors etc.) involved in bone regeneration. Marx introduced that adding platelet rich plasma to autogeneous cancellous marrow graft increased the rate of bone formation and enhanced the density of the new bone.

The purpose of this study is to evaluate the osteoinductive or osteoconductive potential of the mixture of platelet-rich plasma and natural cancellous bovine bone mineral(Bio-Oss®) in the bony defects.

In adult rabbits, round segment of calvarial bone was excised to produce defects greater than the critical size defect for spontaneous bone repair(16mm). One group received natural cancellous bovine bone mineral (Bio-Oss®) without added autologous PRP. In the second group, the bony gap was filled with PRP added into the bovine bone mineral (Bio-Oss®) and applied topically after the mixture into the defects. The author examined the fluorochrome labeled specimen, measured the bone mineral dentistry(BMD), and assessed the hardness of the bone newly formed at 4 and 8 weeks.

OIV-6 Effects of Bone Engagement Types & Length of Implant Body on Stress Distribution by Using 3-D FEA Method

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Finite element analysis method can be utilized to analyze stress and strain fields when complicated geometries are being considered. This method has been employed and accepted in the field of orthopedics as both an analysis and design tool. In implant dentistry this method has been used to investigate and compare the stress transfer at the implant-bone interface in various implant designs. The three dimensional implant model (Nobel Biocare) was fabricated and Ansys 5.5 finite element program was utilized as an

interpreting tool. 6 cases of unicortical bond model(5, 7, 10, 13, 15, 16.5mm) and 3 cases of bicortical bond model (10, 13, 18mm) were used to analyze stress distribution in this study.

Following conclusion were drawn from this study.

1. Maximum stress was shown at the top of cortical bone area regardless of bone engagement types. 2. Longer the implant fixture length, less the stress on cortical bone area, however cancellous bone showed different stress distribution. 3. Bicortical engagement showed less stress accumulation when compare to unicortical case overall.

OIV-7 An Experiment Investigation between Osseointegration and Stability of Implants Used as Orthodontic Anchorage in Dogs

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Objective : The purpose of this study was to investigate osseointegration and stability of three kinds of implants used as orthodontic anchorage in dogs.

Methods : HA-coated, titanium coated, and uncoated titanium implants were inserted into each femur of two dogs. After heal period of three months, the orthodontic force of 200g was applied by means of Ni-Ti springs, which were connected to the two adjacent implants, for two months. The position change of implant was firstly measured and then caculated. The shear bond strength of the interface between implant and bone was measured with push-test. After the test the fracture surface at the interface observed with scanning electronic microscope.

Results : All implants were stable, without mobility. The highest bond strength and mature bone compactness showed at the interface between HA-coated implant and bone. The other two were found no significance in bond strength.

Conclusion : Although the bond between HA-coated implant and bone is the firmist, the osseointegration was found at the interface between all three kinds of implants and bone and no movement of them occured during the application of clincal orthodontic force.

OIV-8 Osseous Microbial Invasion Associated with a Failed Dental Implant

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Biomaterial implants not biological inert, although they are inaminate. All implants devitalized tissues are foreign bodies, and their extrusion, by inflammatory responses, macrophage activation, and cytokines cascades is programmed by evolution (1). Dental implants can be an ideal substrate for bacterial colonization and are readily infected by smaller microbial inoculi. The adherence of plaque-forming bacteria was found to be reduced more than fivefold on titanium compared with enamel (2). We present in this presentation, information regarding dental implant design-making a point that design characteristic can lead to microbial