

Oral Implantology and Regenerative Dental Medicine

1. Staffs and Students (April 2010)

Professor	Shohei KASUGAI	
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Assistant Professor	Shinji KURODA,	Motohiro MUNAKATA
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Dentists in Dental Implant Clinic	Yoko YAMAGUCHI,	Hidemi NAKATA,
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	Takahiro NAKAMURA,	Yuki SHIMIZU,
	Daisuke SATO	
Graduate Students	Malik ISMAIL,	Junichi KIMURA,
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	Takayuki MIYAHARA,	Rojbani, HISHAM,
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	Srilatha BHARGAVA,	Tokuo AKINO,
	Tomoko NAGAYAMA,	Masaki FUJII,
	Akiko FURUICHI,	Osama ZAKARIA,
	Shang GAO,	Masahiro SHIMOGISHI,
	Kang CHEN,	Yasunobu HADA,
	Ken YUKAWA,	Marwa MADI,
	Maiko YAMAMOTO,	Kaori TAKAYA,
	Zayar LIN,	Miao YU,
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2. Purpose of Education

Currently, oral rehabilitation with dental implant is very effective and predictable. It is absolutely important for the dental student to understand dental implant treatment compared to other modalities. Nine hours lectures for the 5th year dental students are the introduction part. Each of these students has a chance to see patient examination process and several steps of treatment planning for half a day in the dental implant clinic. Furthermore, each of the 6th year students have a chance to see surgical procedures, prosthodontic treatments and maintenance procedures. In the residential program, we accepted 20 dentists and teach them more advanced contents of dental implant treatment.

In the doctoral course of Implantology, biomaterial sciences, structural engineering, anatomical structures, diagnosis and technical innovations are overviewed. In the doctoral course of Regenerative Dental Medicine, tissue engineering concept, regeneration of soft tissue and bone and recent technological advancements in these field are overviewed

3. Research Subjects

- Materials and structures of dental implant prostheses
- Implant design and surface modification of dental implant
- Dental implant and its surrounding tissues
- Regeneration of soft tissues
- Regeneration of bone

4. Clinical Services

In Dental Implant Clinic in the dental hospital, we treat partially or fully edentulous patients with dental implants. If soft tissue management and/or bone augmentation procedures are required, we also do these surgeries. Number of patients in Dental Implant Clinic is increasing every year and approximately 120 patients per day are treated, which is extremely over our capacities. Approximately 2,000 implants were installed in 2010. As dental implant clinic of TMDU, patients with some problems, who are treated by other dentists, are increasing and this is a great concern.

5. Publications

Original Articles

1. Ozeki M, Kuroda S, Kon K, Kasugai S. Differentiation of bone marrow stromal cells into osteoblasts in a self-assembling peptide hydrogel: in vitro and in vivo studies. *J Biomater Appl* 25(7):663-84, 2011
2. Hudieb M, Kasugai S. Biomechanical effect of crestal bone osteoplasty before implant placement: a three-dimensional finite element analysis. *International Journal of Oral Maxillofacial Surgery* 40(2):200-6, 2011
3. Hudieb M, Wakabayashi N, Suzuki T, Kasugai S Morphologic classification and stress analysis of the mandibular bone in the premolar region for implant placement. *Int J Oral Maxillofac Implants.* 25(3):482-90, 2010
4. Nyan M, Miyahara T, Noritake K, Hao J, Rodriguez R, Kuroda S, Kasugai S. Molecular and tissue responses in the healing of rat calvarial defects after local application of simvastatin combined with alpha tricalcium phosphate. *Journal of Biomedical Materials Research Part B; Applied Biomaterials* 93(1):65-73, 2010
5. Kuroda S, Goto N, Suzuki M, Kaneda K, Ohya K, Shimokawa H, Kasugai S. Regeneration of bone and tendon/ligament-like tissue induced by gene transfer of bone morphogenetic protein-12 in a rat bone defect. *Journal of Tissue Engineering* Apr 15;2010:891049, 2010
6. Maruo K, Sato D, Machida T, Kasugai S. Effects of alpha-tricalcium phosphate containing simvastatin on alveolar ridge augmentation. *Journal of Oral Tissue Engineering* 7(3):143-152, 2010
7. Machida T, Nyan M, Kon K, Maruo K, Sato H, Kasugai S. Effect of hydroxyapatite fiber material on rat incisor socket healing. *Journal of Oral Tissue Engineering* 7(3):153-162, 2010