

Oral Implantology and Regenerative Dental Medicine

1. Staffs and Students (April 2012)

Professor	Shohei KASUGAI	
Associate Professor	Makoto SHIOTA	
Associate Professor (Lecturer)	Noriko TACHIKAWA	
Assistant Professor	Shinji KURODA,	Motohiro MUNAKATA
Clinical Professor (Faculty of Dental)	Toshiro SUGAI	
Clinical Visiting Associate Professor	Kouji HAGINO	
Clinical Visiting Instructor	Tunezi OKADA	
Visiting Lecturer (Graduate School)	Hideaki KATSUYAMA,	Takashi OTSUKA,
	Yuzou TAKAHASHI,	
Visiting Lecturer (Faculty of Dental)	Sawako YOKOYAMA,	Tatsuya FUJIMORI,
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	Hidemichi KIHARA,	Toru KANAI,
	Maho OZEKI,	Katsuichiro MARUO,
	Daisuke SATO,	Yuki DATE
Dentists in Dental Implant Clinic	Hideemi NAKATA,	Aoi SAKUYAMA,
	Takahiro NAKAMURA,	Hiroshi KOBAYASHI,
	Maho AKATSUKA,	Kazuhisa TSURUMI,
	Ai YAMAMOTO,	Kei FUCHIGAMI,
Specially Appointed Assistant Professor		Osama ZAKARIA
Graduate Students	Shang GAO,	Masahiro SHIMOGISHI,
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	Marwa MADI Ibrahim,	Maiko YAMAMOTO,
	Kaori TAKAYA,	Zayar LIN,
	Miao YU,	Pluemsakunthai WARUNEE,
	Yu YAMASHITA,	Yuki KUSUMOTO,
	Minoru SANDA,	Taiji HAMADA,
	Hiroki MAEDA,	Munemitsu MIYASAKA,
	Kui ZHANG,	You-kyoung KIM,
	Kuppusamy MAHESWARI,	Mizuki SATO,
	Masaki SHIBASAKI,	Tsuyoshi MATSUURA,
	Songtao Wu,	Xin WANG,
	Khaing Nyein Soe,	Moe Htet
Clinical research Student	Shuichi KOYAMA,	Takayuki KOMATSU,
	Hitoshi SAITO,	Tadamasa YOSHIDA,
	Takaaki KITAZUME,	Toshimitu SHIGEMATSU,
	Toshihiko MORIKAWA,	Kazuhiko INOUE,
	Takeshi WATANABE,	Noriko OSADA,
	Kensuke FUKUTOMI,	Shuuko TAKEYAMA,
	Hiroko HAYASHI,	Arihiro IWATA,
	Kilwoo AHN,	Narumi SATO,
	Yoshiko YOKOYAMA,	Haruka KUBOTA,
	Chiharu IMAKITA,	Masahiro ISHIWATA,
	Tomoya MATSUMOTO,	Hidekazu KOTAKE,
	Haruka ITOH,	Gou INOUE,
	Seiji OHARA,	Akihiro SUZUKI,
	Tatsuya HOTTA,	Norio AKINO,
	Tomoko NAGAYAMA,	Masaki FUJII,
	Akiko FURUICHI,	Takayuki MIYAHARA,
	Ding LIN	
Foreign research Student	Hao JIA	

Registration Specialist Trainee	Yuki SHIMIZU,	Yuko OOHABU,
	Yoshiyuki SASAKI,	Tomoto TERAMAE,
	Yoko YAMAGUTI,	Youta IIDA

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 9 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 2012. Patients with some clinical problems, who are treated in other clinics, are increasing and this is a great concern.

5. Publications

Original Articles

1. Noritake K, Kuroda S, Kasugai S : Guided Bone Regeneration: Membrane Characteristics and Future Perspectives. *Nano Biomedicine*. 4(1): 42-46, 2012.
2. Kimura J, Shiota M, Kon K, Fujii M, Sato H, Kasugai S : Effect of Hydroxyapatite Fiber Material with Autogenous Bone Graft on Vertical Bone Augmentation. *J Oral Tissue Engin* 9 (3):136-146 2012.
3. Date Y, Yokoyama Y, Kondo H, Kuroda S, Ohya K, Ota MS, Iseki S, Kasugai S. : Restricted expression of chromatin remodeling associated factor Chd3 during tooth root development. *J Periodontal Res*. 47(2):180-7, 2012.
4. Hao J, Kuroda S, Chen K, Noritake K, Rodriguez R, Pluemsakunthai W, Aoki H, Kasugai S : Bacterial Adhesion Behavior and Bone Formation Effect Of Zoledronic Acid (ZOL) Immobilized Sputtered Hydroxyapatite Implant. *Journal of Bio-Integration* 2(1):103-109, 2012.
5. Madi M, Zakaria O, Noritake K, Fuji M, Kasugai S : Ligature-induced periimplantitis surrounding thin sputtered HA-coated implants. An experimental study in dogs. Clinical and radiographic evaluations. *Journal of Bio-Integration* Vol.2 No.1, 111-117, 2012.
6. Rungsriyanont S, Dhanesuan N, Swasdison S, Kasugai S : Evaluation of biomimetic scaffold of gelatin-hydroxyapatite crosslink as a novel scaffold for tissue engineering: Biocompatibility evaluation with human PDL Fibroblasts, human mesenchymal stromal cells, and primary bone cells. *Journal of Biomaterials Applications* 27(1):47-54, 2012.
7. Bhargava S, Doi H, Kondo R, Aoki H, Hanawa T, Kasugai S : Effect of sandblasting on the mechanical properties of Y-TZP zirconia. *Biomedical and Material Engineering* 22(6):383-98, 2012.
8. Umehara K, Iimura T, Sakamoto K, Lin Z, Kasugai S, Igarashi Y, Yamaguchi A : Canine oral mucosal fibroblasts differentiate into osteoblastic cells in response to BMP-2. *The Anatomical Redord* 295(8):1327-35, 2012.
9. Zakaria O, Madi M, Kasugai S : Induced osteogenesis using a new periosteal distractor. *Journal of Oral Maxillofacial Surgery* 70(3):225-34, 2012.
10. Murakami I, Murakami Y, Clifford DK, Palacci P, Kasugai S : Panoramic implant notation sytem – A mothod to

denote implant position and prosthodontic modalities. *Journal of Prosthodontic Research* 56(1):65-9, 2012.

11. Zakaria O, Kon K, Kasugai S : Evaluation of a biodegradable novel periosteal distractor. *Journal of Biomedical Materials Research: Part B - Applied Biomaterials* 2012 Apr;100(3):882-9.
12. Zakaria O, Madi M, Kasugai S : A novel osteogenesis technique: The expansible guided bone regeneration. *Journal of tissue engineering*.2012;3(1): 2012 Apr 4.
13. Miyahara T, Dahlin C, Galli S, Parsafar S, Koizumi H, Kasugai S : A novel dual material mouthguard for patients with dental implants. *Dent Traumatol.* 2012 Jul 31.
14. Miyahara T, Nyan M, Shimoda A, Yamamoto Y, Kuroda S, Shiota M, Akiyoshi K, Kasugai S : Exploitation of a novel polysaccharide nanogel cross-linking membrane for guided bone regeneration (GBR). *Journal of Tissue Engineering and Regenerative Medicine* 6(8):666-72, Aug 2012.
15. Madi M, Zakaria O, Noritake K, Fuji M, Kasugai S : Ligature-induced peri-implantitis surrounding thin sputtered HA-coated implants. An experimental study in dogs. Clinical and radiographic evaluations. *Journal of Bio-Integration* Vol.2 No.1 p.111-117, Oct 2012.
16. Nyan M, Hao J, Miyahara T, Noritake K, Rodriguez R, Kasugai S : Feasibility of Alpha Tricalcium Phosphate for vertical bone augmentation. *J Investig Clin Dent.* 2012 Dec 17.
17. Chou J, Green DW, Singh K, Hao J, Ben-Nissan B, Milthorpe B : Adipose Stem Cell Coating of Biomimetic β -TCP Macrospheres by Use of Laboratory Centrifuge. *BioResearch Open Access.* Dec 2012.
18. Kamiyama Y, Nakamura S, Abe T, Munakata M, Nomura Y. Measurement accuracy of dental CT images obtained by 64-slice multi-detector row CT: the effects of mandibular positioning and pitch factor at CT scanning. *Implant Dentistry* 21(6):496-501,2012.
19. Kuroda S, Sumner D, Virdi A : Effects of TGF- β 1 and VEGF-A transgenes on the osteogenic potential of bone marrow stromal cells in vitro and in vivo. *Journal of Tissue Engineering.* 3(1): 2041731412459745, 2012.
20. Madi M, Zakaria O, Kasugai S : Coated vs. Uncoated Implants: Bone Defect Configurations after Progressive Peri-implantitis in Dogs. *Journal of Oral Implantology.* doi:http://dx.doi.org/10.1563/AAID-JOI-D-12-00089

6. Conference Presentation

1. Inoue K, Shiota M, Sato T, Kato R, Imai S, Hanada N, Kasugai S : Microbiologic effects of irrigation with function waters in pri-implant sulcus. *ICOI Asia-Pacific Section Congress, 22-24, June, Ho Chi Minh, Vietnam.*
2. Madi M, Zakaria O, Noritake K, Fujii M, Kasugai S : Progression of Ligature-induced Peri-implantitis around Thin Sputtered HA-coated Implants. *Academy of Osseointegration 27th Annual Meeting, 2012.3.1-3, Phoenix, USA.*
3. Chen K, Hao J, Noritake K, Yamashita Y, Zayer L, Kuroda S, Kasugai S : Effects of Low-intensity Pulsed Ultrasound Stimulation on Bone Healing in A Rat Calvarial Defect Model. *Academy of Osseointegration 27th Annual Meeting, 2012.3.1-3, Phoenix, USA.*
4. Madi M, Zakaria O, Noritake K, Fujii M, Kasugai S : Progression of Ligature-induced Peri-implantitis around Thin Sputtered HA-coated implants. *Academy of Osseointegration 27th Annual Meeting, 2012.3.1-3, Phoenix, USA.*
5. Kasugai S : Novel strategy for bone augmentation: Respecting “mother nature”. *The 11th Stomatology Conference of West China 2012.4.20-23 Chengdu Convention Center, Chengdu (成都) China.*
6. Kasugai S : New approach to bone augmentation: Respecting endogenous key players and providing space for regeneration. *The 15th ICOI Asia Pacific Section Congress 2012.6.23 Intercontinental Hotel, Ho Chi Minh City, Vietnam*
7. Hao J, Chen K, Achaya A, Kuroda S, Kasugai S, Lang N.P. : Synthesis and Evaluation of a novel Strontium Apatite-Gelatin Membrane for Guided Bone Regeneration (GBR). *The 100th Anniversary FDI Annual World Dental Congress, 2012.8.29-9.1, Hong Kong.*
8. Furuichi A, Tachikawa N, Kasugai S : Evaluation of the biologically activity of a novel ozonated solution. *100th The FDI Annual World Dental Congress in 2012. 8.29-9.1, Hong Kong.*
9. Madi M, Zakaria O, Kasugai S : Assessment of peri-implantitis bone defects configuration around implants with different surface treatments in a canine model. *100th The FDI Annual World Dental Congress in 2012. 8.29-9.1, Hong Kong.*
10. Kon K, Shiota M, Ozeki M, Kasugai S : Alteration of occlusal force in unilateral free-end and intermediate missing cases by implant prosthesis. *Annual Scientific Meeting of the European Association of Osseointegration. 10-13 October 2012, Copenhagen, Denmark.*
11. Kusumoto Y, Kon K, Munakata M, Nakamura T, Tachikawa N, Shiota M, Kasugai K : Clinical outcome of sinus bone augmentation without graft; radiological analysis. *Annual Scientific Meeting of the European Association of*

Osseointegration. 10-13 October 2012, Copenhagen, Denmark.

12. Yukawa K, Tachikawa N, Akino N, Kon K, Takaya K, Kusumoto Y, Kasugai S : The cell kinetic with porous poly-DL-lactic acid –anatomical insight- . Annual Scientific Meeting of the European Association of Osseointegration. 10-13 October 2012, Copenhagen, Denmark.
13. Bhargava S, Kuroda S, Aoki H, Ohya K, Kasugai S. : Osteoblast differentiation on surface modified zirconia - an in vitro study. Annual Scientific Meeting of the European Association of Osseointegration. 10-13 October 2012, Copenhagen, Denmark.
14. Zakaria O, Madi M, Kasugai S : A Novel guided bone regeneration technique. Annual Scientific Meeting of the European Association of Osseointegration. 10-13 October 2012, Copenhagen, Denmark.
15. Miyahara T, Parsafar S, Dahlin C, Pluemsakunthai W, Palmquist A, Akiyoshi K, Thomsen P, Kasugai S : Novel dry type of cholesterol-bearing pullulan nanogel cross-linking membrane for guided bone regeneration (GBR). Annual Scientific Meeting of the European Association of Osseointegration. 10-13 October 2012, Copenhagen, Denmark.
16. Kasugai S : How to augment bone effectively, safely and less costly. Bangkok Implant Sympoium 2012 2012.11.28-30 Pullman Hotel, Bangkok, Thailand.
17. Sato D, Kanazawa M, Minakuchi S, Baba K, Kasugai S, Ozeki M : CAD/CAM Template-Guided flapless surgery for Immediate loading of 2 freestanding implants. mandibular overdentures 40th Indian Prosthodontic Society and 8th Asian Association of Prosthodontics Conference, Chennai, India, December 2012.