20TH ANNIVERSARY

COLLEGE OF DENTISTRY
GANGNEUNG-WONJU NATIONAL UNIVERSITY

International Symposium for 20th Anniversary of College of Dentistry, Gangneung-Wonju National University

Program Book

September 12th~13th, 2014

Dentistry Hall 1, Gangneung-Wonju National University

Convention center, Lakai Sandpine Resort

Co-hosted by the College of Dentistry and Research Institute of Oral Sciences,
Gangneung-Wonju National University

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Welcome Message

Seong-Hee Ko, DDS, PhD.
Dean
College of Dentistry, Gangneung-Wonju National University

First of all, I would like to welcome you all who have gathered here to participate in the International Symposium for 20th Anniversary of College of Dentistry, Gangneung-Wonju National University. It is great pleasure to welcome you all to this beautiful city.

This is a special symposium for the College of Dentistry, GWNU as we are celebrating our 20th anniversary!

And, I would like to express my special gratitude to Dr. Sugiatno, Dr. Wanachantararak and Dr. Gerber who are representatives of our sister college for your participation in this event.

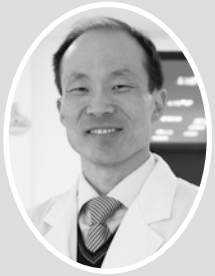
In this symposium, we have 4 speakers for the dental education section, 5 speakers for special talk and poster presentations. I hope that this symposium serves as a venue for enhancing interest and understanding of dental education and acquiring new knowledge of clinical dentistry.

My thanks to speakers, chairs, and committee members who contributed much time and effort to make exciting meetings.

Once again, I would like to express my special gratitude and extend my heartiest welcome to the participants of this event, I do hope you have much more enjoyable and memorable time.

Thank you!

Welcome Message



In-Woo Park, DDS, PhD.
Director
Research Institute of Oral Science, Gangneung-Wonju National University

It's my pleasure to welcome you to the International Symposium for 20th Anniversary held in Gangneung-city from the 12th to the 13th of September.

With the theme ' Dental Education System ', this symposium has been organized. Also, 4 special lectures (free clinical theme), an educational change report of our college, hands-on workshop and poster presentations were prepared for you.

This symposium provides all participants an opportunity to exchange knowledge and share new ideas.

I'd love to extend my appreciation to speakers, chairs, committee members, sponsors and staff members. Also, I want to extend my gratefulness to the all participants of this event.

I would like to invite everyone to participate in this important international event for celebrating our 20th Anniversary. I look forward to welcoming you to the historic and beautiful Gangneung-city.

Thank you !

SCIENTIFIC PROGRAM SCHEDULE

September 12th	Dentistry Hall 1, Gangnueng-Wonju National University
12:00 ~ 13:00	Registration
13:00 ~ 13:10	Opening Ceremony
13:10 ~ 13:30	Messages of Congratulation
13:30 ~ 17:30	Poster Presentation
17:30 ~ 18:00	Poster Awards Ceremony

September 13th	Convention center, Lakai Sandpine Resort	Speaker
08:30 ~ 09:00	Registration	
09:00 ~ 09:10	Welcome Messages	
		Chairperson : Seong-Hee Ko
09:10 ~ 09:40	Dental education system in Indonesia	Erwan Sugiatno
09:40 ~ 10:10	Dental education system in Thailand	Sitthichai Wanachantararak
10:10 ~ 10:40	Coffee Break	
		Chairperson : Kyung-Nyun Kim
10:40 ~ 11:10	Dental education system in Hungary	Gábor Gerber
11:10 ~ 11:40	Dental education system in Korea	Jae il Lee
11:40 ~ 13:00	Lunch Break	
		Chairpersons : Deuk-Sang Ma, Heung-Sik Um
13:00 ~ 14 00	Topical fluoride application in dental clinic	Seung-Hwa Jeong
*14:00 ~ 15:00	Various histomorphometric analysis of bone augmentation	Yong-Gun Kim
15:00 ~ 15:30	Coffee Break	
		Chairpersons : Jin-Woo Kim, Bong-Kuen Cha
15:30 ~ 16:30	Infection control of dental light curing units	Hoon-Sang Chang
*16:30 ~ 17:30	Headgear: to the Teeterboard	Seung-Youp Lee
		Chairperson : Hee-Su Lee
17:30 ~ 18:00	Changes of curriculum at Department of Dentistry in Gangneung-Wonju National University	Hang-Moon Choi
18:00 ~ 19:00	Closing Ceremony, General Meeting of Alumni Association	
19:00 ~ 22:00	The 20th Anniversary Ceremony of College of Dentistry	

* 14:00 ~ 15:00, 16:30 ~ 17:30 Hands-on Workshop Jin-Woo Kim

Dental education system in Indonesia

Erwan Sugiatno

Dean, Faculty of Dentistry, Universitas Gadjah Mada, Indonesia

Faculty of Dentistry Universitas Gadjah Mada is the oldest faculty of dentistry in Indonesia. Currently we have 12 study program include Dentist study program, Dental Nursing study program, Master Program in Dental Sciences, Doctoral Program in Dental Sciences, Master Program in Clinical Dentistry, and 7 Dental specialization Programs. All of the study programs are based on the latest version of the Indonesian National Higher Education Curriculum which established by Directorate of Higher Education of the Ministry of Education and Culture of the Republic of Indonesia. An academic year is divided into two semesters, odd semester (August- January) and even semester (February- July). Semester is a unit of time activities consisting of 16 to 18 weeks of lectures including a 2-3 week evaluation activities. Learning System implemented Student Centered Learning (SCL) method by using collaborative-cooperative learning approach.

Dentist study program has strong commitment to generate dentist which have five star dentist competence. Five star dentist implies that dentist graduated from Faculty of Dentistry UGM has the capability as care provider, decision maker, communicator, community leader and manager in dentistry. To achieve that competence, we formulated competence based curriculum which is implemented through constructive approach, students centered, integrative, problem based, community-based, and early clinical exposure. Dentist study program has an academic phase leading to a Bachelor (SKG Indonesian language) degree and a professional phase leading to a dentist (DDS, drg Indonesian language) degree. The Indonesian National Higher Education Curriculum determines the academic phase and professional phase for Dentist should take not less than four year (or 8 semester) and 1.5 year (3 semester), respectively. Total Semester Credit Units (credits) for the academic level is 146 credits and 30 credits for professional phase. One credit equivalent to educational activities for three hours per week which composed by one hour for lecture in the classroom, two hour left for structured activities (take home assignment) and self-study activities. The academic phase consists of study of basic and clinical medicine, basic and pre-clinical dentistry, research thesis and student community service-community empowerment. The professional phase is composed clinical work at pediatric dentistry, conservative dentistry, oral maxillofacial surgery, dental public health, orthodontics, prosthodontics, periodontics, oral pathology, clinical radiology laboratory and hospitalization. All of the clinical work is done in the dental hospital, community health center and general hospital. After fulfill the entire requirement at the professional phase, they have to pass the national examination which included computer based test and objective structured clinical examination to get the dentist certificate.

Dental education system in Thailand

Sitthichai Wanachantararak

Dean, Faculty of Dentistry, Chiang Mai University, Chiang Mai, Thailand

Thailand has 12 dental schools. Four government dental schools and two private dental school are located in Bangkok. Four government dental schools are located in the northern part of Thailand, and the remaining two dental schools are located in north-eastern part and southern part of Thailand.

To gain entrance to university from high school, students must pass either a direct examination conducted by each university or a national entrance examination. They can select a faculty and university according to their preference. There is high competition to enter the Faculty of Dentistry of every university. Once students graduate, they receive The Doctor of Dental Surgery degree (D.D.S.).

The curriculum for this degree is a six-year plan. The first year of the program is for general education: science, social sciences, and the humanities. The second and third years are for preclinical study, including basic medical sciences and basic dental sciences. The last three years are for clinical study, including clinical dentistry (clinical practice with patients), community dentistry (community field work), and hospital dentistry (dental work in the hospital system).

Dentists need a dental license from the Thai Dental Council to be able to legally practice in Thailand. The two requirements for the license are passing the national license examination and graduating from a dental school which has been approved by Thai Dental Council. The national license examination has two parts: preclinical sciences and clinical sciences. For Thai students, the examinations takes place after finishing the third and fifth years of the program. Moreover, the students need to collect cases and two thousands practice hours to meet the criteria as well. This regulation also applies to those who graduate from abroad.

Around 650 dentists graduated and enlisted as new members of the Thai Dental Council this year. This number is expected to be increase as the number of dental schools increases. There is a prediction that 1,100 students will become first-year dental students in the year 2018.

Dental education system in Hungary

Gábor Gerber

Vice Dean, Faculty of Dentistry, Semmelweis University, Budapest, Hungary

There are four universities in Hungary which offer dental degree programme. Three of these have separate Faculty of Dentistry and one operates within the Faculty of Medicine. The Faculty of Dentistry at Semmelweis University is the oldest founded in 1955 and the largest educating annually more dentists than the three other schools combined. The dental training programmes are rather similar and overseen by the Hungarian Accreditation Committee.

Undergraduate Training

The training period at the Faculty of Dentistry comes to a total of ten semesters (5 years), and requires a minimum of 300 credits. In the first four terms, students learn basic medical subjects. The curriculum is identical to that of general med students. In addition, dental students are required to participate in special dental preclinical courses such as Dental Propedeutics, Dental Materials, and Odonto-technology. Beginning in the fifth semester, special dental subjects and a number of general theoretical and clinical medical courses are taught. These include: Oral Biology, Oral Pathology, Oral Microbiology and Oral Medicine, and preclinical “phantom head” courses. General medical clinical subjects (i. e. Internal Medicine, Surgery, Neurology, Dermatology, Ophthalmology, and Otolaryngology) are taught from the sixth semester on all the way to graduation. These subjects are covered by the departments of the Faculty of Medicine. Theoretical and practical courses in clinical dentistry occupy the major part of the last four semesters. After graduation, students receive a Doctor of Dental Medicine degree (D.M.D., equivalent to a Master of Science degree) signifying full professional competence and allowing them to perform independently and set up their own practice.

Specialty Masters Programs (Residency Programs)

In 2004, a new three-year postgraduate specialization program was introduced to dental science. As a result, specialized postgraduate programmes are now available for persons holding a dental degree. These programmes consist of basic training and specialist training in Prosthetic Dentistry, Conservative Dentistry, Paediatric Dentistry, Orthodontics, Dento-Alveolar Surgery, and Periodontology. The basic, theoretical part covers all fields of dentistry including practice management, legal requirement studies and first-aid training. The practical elements are a combination of theoretical courses, seminars and practical work. Training is held either at the university’s clinics or in extramural polyclinics accredited

by the institution. The school specifies the amount and the types of work required. Residents work under the supervision of a tutor and the whole programme is supervised and coordinated by mentors appointed by the university. During the programme residents are required to take exams for every dental subject, and at the end of the 36-month programme must have satisfactorily completed both the theoretical and practical part of the course in order to be eligible for the specialty exam.

Continuing Education

As a result of the credited Continuing Education system, dentists must accrue 250 credits within each five-year period in order to maintain their license.

Ph. D. Studies

T he Faculty of Dentistry's Ph. D. programme, called "Dental Research", is organized and supervised by the School of Ph.D. Studies.

Dental education system in Korea

Jae il Lee

Dean, School of Dentistry, Seoul National University, Seoul, Korea

In Korea, Dentistry is not a long-established profession. Dentistry was first introduced by foreign missionaries in the 19th century, at the earliest, and Korean dentists started treatment around the beginning of the 20th century. The official history of Korean dental education dates back to 1922, when the Kyeongseong dental school was established. The structure of dental education at the time had the basic skeleton of modern dental and medical education. They taught basic medical sciences and clinical dentistry. In 1960 it was changed to a 6-year education program. Through 1967 to 1992, 10 Dental Colleges were newly established, completing the current 11 institutions. This system continued without major changes until the 2000s.

In 2001, the government (Ministry of Education) announces the implementation of the new medical and dental education system. They introduced graduate-entry education system, which is well-established in Northern America. The implementation of the system was not only the change of educational system but has to accompany changes in the overall medical/dental education. But it was a unilateral, government-driven process to unprepared universities, lacking appropriate evaluation of the existing education and time for preparation. This exposed a lot of problems since the early stages of the implementation of the system. Like any other profession, the resilience of the medical school, very self-righteous and negative to change, was great. This was possibly the biggest factor that continuously prevented a steady settlement of the system,

In accordance with the initial promises of the government, the operation of graduate-entry system spanning around 10 years was asked the choice of schools regarding the system. Most of the medical and dental schools rolled back to the past system, undergraduate dental education for 6 years.

Throughout the course of the 10-year educational experiment, amid competition and debate between undergraduate and professional graduate medical (dental) school regarding the system. Educational investment has increased surprisingly and in-depth discussion regarding education system has been conducted, with both sides emphasizing the importance of education. As a result, the change in traditional medical training method, which had already raised much issue, occurred rapidly. Maybe the implementation process of this system and the argument during the process caused more actual

results than obtained by the introduction of the new system. Although the beginning of the problem was external, provoking internal concerns led to positive results, bringing changes in medical and dental education that did not seem likely to occur.

The discussions on dental education accreditation are leading the establishment of the Korean Institute of Dental Educational and Evaluation (KIDEE) in 2008. The National Competency of Korean Dentists (2010) and Korean Dental Education Standards (2009, 2014) were published. Dental schools are rushing to prepare to respond to such changes and requirements. The majority of dental schools in Korea previously had provided a very traditional, curriculum-based education. Many faculty members still consider it is standard. But outcome-based, integrated education and self-directed learning became new issue for the dental education.

Now, the paradigm of education is changing in all areas, including dentistry. The shift from teacher-centered to learner-centered education has long been, but now learning is becoming personalized. Individual students receiving training at the same institution with the same content has different results. In the outcome-based education, dental school must define the competencies of the its graduates, and provide personalized education accordingly. Personalized education does not simply refer to one on one education, but one that ensures the achievement of the learner in terms of educational institutions, through elaboration of educational design and evaluation methods, based on the scientific understanding of learning ability and achievement, utilizing a variety of learning methods.

In the perspective of the patient's health, dental profession requires conservative and carefulness, but in the prospect of dental education making a person who serving people, it is necessary to be more proactive about attempting educational experiment that accommodate the latest results of research in education.

Dental microscope in endodontics : Hands On Workshop

Jin Woo KIM

Department of Conservative Dentistry. Gangneung-Wonju National University,
Gangneung, Korea

In the last two decades, the use of magnification has become an accepted practice worldwide in the endodontic fields. Even in other dental specialties, more and more users are becoming excited about the possibilities offered by microscopes. When magnifying equipment is correctly used and adapted to the operator, it becomes a powerful tool in your practice while still allowing an ergonomically correct posture that is unparalleled. In summary, all procedures within endodontics and dentistry can be done more efficiently, accurately, and to a higher standard with the visualization provided by the dental microscope.

In this course, dentists new to microscopy will experience the revelation of first time use. Experienced users will learn to improve ergonomics and efficiency in endodontic treatment and to improve patient communications.

Topical fluoride application in dental clinic

Seung-Hwa Jeong

Department of Preventive Dentistry, School of Dentistry, Pusan National University,
Pusan, Korea

Widespread use of fluoride has been the major factor of caries-preventive strategies since the introduction of water fluoridation in the 1940s. Many experts believe that main reason explaining the caries decline seen in economically developed countries were topically fluoride use rather than diet control, plaque control, and sealants.

Fluoride has several caries-prevention mechanism of action. It is now understood that the primary mode of action of fluoride in inhibiting caries is post-eruptive (topical), in that low levels of fluoride in plaque and saliva enhance the remineralization of demineralized enamel and inhibit the demineralization of sound enamel. Fluoride also inhibits metabolic activity of oral bacteria by affecting the glycolysis and a reduction in the production of extracellular polysaccharides and acids. This understanding of the mode of action of fluoride has developed topical application method of delivering fluoride.

By definition, the term ‘topically applied fluoride’ is used to describe those delivery systems which provide fluoride to exposed surfaces of the dentition, at elevated concentrations, for a local protective effect, and are therefore not intended for ingestion. Various modes of topical fluoride use have evolved, each with its own recommended concentration, frequency of use and dosage schedule. Fluoride containing toothpastes (dentifrices), mouthrinses, gels and varnishes are the modalities most commonly used at present, either alone or in combination. Various products are marketed in different countries and a variety of caries preventive programs based on these have been implemented.

After this lecture, audiences will understand evidence-based 1) updated knowledge about topical fluoride use, 2) clinical recommendations for the use of professionally applied topical fluoride.

Reference

1. ADA clinical recommendations on topical fluoride for caries prevention. Maguire A. Evid Based Dent. 2014 Jun;15(2):38-9
2. Fluoride varnishes for preventing dental caries in children and adolescents. Marinho VC, Worthington HV, Walsh T, Clarkson JE. Cochrane Database Syst Rev. 2013 Jul 11;7:CD002279
3. Recommendations for using fluoride to prevent and control dental caries in the United States. Centers for Disease Control and Prevention. MMWR Recomm Rep. 2001 Aug 17;50(RR-14):1-42.
4. Prevention and reversal of dental caries: role of low level fluoride. Featherstone JD. Community Dent Oral Epidemiol. 1999 Feb;27(1):31-40.

Various histomorphometric analysis of bone augmentation

Yong-Gun Kim

Department of Periodontology, School of Dentistry, Kyungpook National University,
Daegu, Korea

In the technique of bone histomorphometry, conventional histological technique are exceptionally good in highlighting biological structures, including bulk tissues, cell populations, and organelles. For that reason, histomorphometric analysis using conventional histology is one of the most widely used techniques not only for evaluating bone biopsies, but also for assessing bone healing. However, histological sectioning is a destructive technique; it requires removal of the specimen from uninvolved tissues or bones and slicing the specimen to observe the internal structure. In particular, preparation of bone specimens involves more steps than other tissues due to the hardness of bone structure. For example, a 3-week decalcification period is needed to slice specimens, which can alter the original chemical contents significantly. And in hard tissue histology, it is not possible to produce serial sections which are suitable for 3-D reconstruction due to the loss of a tissue layer of approximately 50μm in the thickness during the sectioning process when using a diamond sawing microtome.

In recent years, non-destructive techniques to reveal bone microstructures and avoid sample deformation, including conventional radiography, cone-beam (CB) CT, conventional desktop μCT, synchrotron radiation (SR) μCT, are becoming more popular in bone tissue research. In this presentation, we shall present the background research in the use of these tools based in experimental research and will focus into the alternatives to conventional histomorphometric analysis, mainly on the use of SRμCT.

Infection control of dental light curing units

Hoon-Sang Chang

Department of Conservative Dentistry, School of Dentistry, Chonnam National University, Gwangju, Korea

Dental light curing units were introduced in the early 1970s, and have since progressed from invisible spectrums to visible spectrums. Composite resins polymerized with visible spectrum has been developed rapidly and their use has become dominating especially in direct anterior restorations where esthetics is critical. Recently, light cured composite resins are used not only for direct anterior restorations but also for direct posterior restorations, indirect posterior restorations and luting materials.

When the light curing units are used for polymerization of composite resin, the light guides are often in direct contact with oral tissues. Therefore, contamination of light guides is inevitable. The light guides of the light curing units fall into the "semicritical" instrument category according to the Centers for Disease Control and Prevention (CDC) and must be heat or vapor-sterilized. At a minimum, these semicritical instruments must be sterilized in a liquid chemical agent with an Environmental Protection Agency classification of "sterilant/disinfectant" for up to 10 hours. Items that are heat sensitive, or are difficult or impossible to sterilize should be treated with a chemical germicide and covered with a barrier impervious to water.

However, chemical sterilization requiring up to 10 hours of immersion is not always practical, and not all offices have access to vapor sterilization. Furthermore, some studies have shown that glutaraldehyde-based solutions may reduce light transmission through a light guide or damage the fibers consisting the light guide. When autoclaved, the tip of the light guide build up boiler scale from vaporized water, and require frequent polishing to retain optimal light intensity. Using disposable plastic light guide is a logical solution, however, this is quite expensive.

Therefore, most common methods of maintaining sterility of the light guides are wiping the light guides with a disinfectant, such as glutaraldehyde, after each patient use; using autoclavable light guides; using presterilized, single-use plastic light guides; and using translucent disposable barriers to cover the light guides. Among the aforementioned methods, the use of a disposable barrier could offer an efficient, cost-effective alternative in preventing disease transmission when dental light curing units are used in dental offices.

Headgear : to the Teeterboard

Seung-Youp Lee

Department of Orthodontics, School of Dentistry, Chonbuk National University,
Jeonju, Korea

Traditionally various headgear has been commonly used in the field of orthodontics. They were used for the purpose of anchorage reinforcement and dentofacial growth modification, etc.

Despite the various application of headgear in the field of orthodontics, it was required the patient's cooperation, the relative patient's discomfort, and the unaesthetic drawbacks.

In recent years, it has become the orthodontic mini-screw clinically applied for popularly.

Unlike headgear the mini-screw does not require the patient to cooperate, and does not seem from the outside. It also facilitates to intrude or distalize the teeth more easily with the mini-screw than the traditional headgear usage.

For these reasons, the mini screw is gaining popularity in clinic. And it is applicated broadly.

However, there are still inherent unique orthopedic effects in headgear without any other orthodontic treatment device so far.

In this presentation, I will investigate several applications of various headgear and each effects.

In addition, it is further inquired how application of headgear did apply to dentofacial growth and development.

Changes of curriculum at Department of Dentistry in Gangneung-Wonju National University

Hang Moon Choi

College of Dentistry, Gangneung-Wonju National University, Gangneung, Korea

A curriculum is all the different courses of study that are taught. It should reflect requirements from students, educators, dental community and local community and also should catch up with advanced dental science and technology, and the best educational systems.

Department of Dentistry in Gangneung-Wonju National University have changed curriculum at every chance since its opening in 1994. There were 2 large-scale curricular changes in 2007 and in 2003.

The outcome of curricular change in 2007 is as follows:

Most of all required subjects were changed to ‘integrated subjects’ depending on new curricular areas. Many elective subjects were opened to guarantee the right of choice. Clinical training program was exposed at early grade and was extended quantitatively as well as and qualitatively. Dental humanities and social sciences education was extended, also.

There was curricular change of pre-dentistry program in 2011 in which several contents in dentistry subjects was moved to pre-dentistry program. So, curricular reconstitution was necessary in part. The changes in 2013 is as follows: Several contents moved to pre-dentistry course. Big sized subjects were divided into smaller ones. Elective Clinical training subjects were switched to required ones to strengthen the clinical training program. Ambiguous subject names were switched to clear ones to represent contents of the subjects. Block lectures were introduced at first grade.

▼P1-01

Functional Expression of Bitter Taste Receptors in Murine Salivary Glands

H. CHOI, R. KIM, S. KWOEN, Y.K. CHO, K.M. CHUNG, and K.N. KIM

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Objectives

Sense of taste is essential for maintaining quality of life or survival of organisms. Bitter, sweet, and umami taste are transduced by G protein-coupled receptors in taste buds. Recently, some of taste receptors were discovered in non-taste tissues. The purposes of this study are to determine the relative expression levels of taste receptors in salivary glands and to confirm whether taste receptors in salivary glands are functional or not.

Materials and Methods

The relative expression levels of 35 kinds of taste receptors were examined with RT-PCR and real-time PCRs in submandibular, sublingual, and parotid salivary glands of DBA2 mouse. Also, the change in intracellular calcium ion activity of salivary acinar cells elicited by sweet, bitter and umami tastes were measured by change in fura-2 fluorescence.

Results

Most of T2Rs were expressed in all tested salivary glands, however, the expression levels of these genes in salivary glands were much less than those in taste tissues including circumvallate papillae. The expression levels of taste receptors and taste-relating genes among salivary glands were different. The bitter stimuli including cycloheximide, denatonium and phenylthiourea elicited changes in Ca2+ activity, however, saccharine and glutamate did not. The ratios of bitter tastants responding cells were different among salivary glands. The calcium activity changes evoked by denatonium were relatively slower than that by cycloheximide and phenylthiourea.

Conclusion

These results suggest that salivary acinar cells expressed some of taste receptors and taste signal-relating genes. The bitter receptors expressed in salivary glands may play certain function.

▼P1-02

TNF- α Upregulates Sclerostin Expression in High Fat Diet induced Obese mice

Kyunghwa Baek, Seong-Hee Ko, Hyo Rin Hwang, Jeong-Hwa Baek

Department of Pharmacology, College of Dentistry and Research Institute of Oral Science,
Gangneung-Wonju National University, Gangneung, Korea

Objectives

Sclerostin decreases bone mass by antagonizing the Wnt signaling pathway. We examined whether obesity-induced bone loss is associated with the expression of sclerostin.

Materials and Methods

Five-week-old male mice were assigned to one of two groups (n=10 each) and fed either a control diet (10% kcal from fat; CON) or a high-fat diet (60% kcal from fat; HF) for 12 weeks.

Results

The final body weight and whole body fat mass of the HF mice were higher than those of the CON mice. The distal femur cancellous bone mineral density and bone formation rate was lower in HF mice than in CON mice. The percent erosion surface was higher in the HF mice than the CON mice. The serum levels and femoral osteocytic protein expression levels of tumor necrosis factor-a (TNF-α) were significantly higher in HF mice than in CON mice. Sclerostin mRNA levels and osteocyticsclerostin protein levels in femoral cortex were also higher in HF mice than in CON mice. Sclerostin expression in MLO-Y4 osteocytes increased with TNF-α treatment, and TNF- α -induced sclerostin expression was blocked by the inhibition of NF-kB activation. Chromatin immunoprecipitation and a luciferase reporter assay demonstrated that NF-kB directly binds to the NF-kB binding elements on the mouse sost promoter and stimulates sclerostin expression.

Conclusions

These results support a model in which, in the context of obesity or other inflammatory diseases that increase the production of TNF- α, TNF- α upregulates the expression of sclerostin through NF-kB signaling pathway, thus contributing to bone loss.

▼P1-03

Effect of Sub Minimal Inhibitory Concentration Antibiotics on Morphology of Streptococcus mutans and Lactobacillus acidophilus

Ye Won Kwon, Si Young Lee

Department of Microbiology and Immunology, College of Dentistry, Research Institute of Oral Science, Gangneung-Wonju National University, Gangneung, Korea

Objectives

The purpose of this study was to examine the morphological change of dental caries-related oral bacteria after treatment with sub-MIC antibiotics.

Materials and Methods

Streptococcus mutans and Lactobacillus acidophilus were used in this study. The MIC for amoxicillin and doxycycline were examined by broth dilution method.

Results

S. mutans showed increased length after incubation with amoxicillin and increased number of bacteria in a chain after incubation with doxycycline. The length of L. acidophilus was decreased after incubation with amoxicillin and doxycycline.

Conclusions

In this study, we observed that sub-MIC amoxicillin and doxycycline can induce the morphological changes in S. mutans and L. acidophilus.

▼P1-04

Structural analysis of protein folding intermediate

Soon-Ho Park, Dae Won Kim, Heesun Yim

Department of Dentistry Biochemistry and Molecular Biology Group, College of Dentistry and Research Institute of Oral Sciences, Gangneung-Wonju National University, Gangneung, Korea

Objectives

Scrutinizing the role of intermediate state in the protein folding reaction

Materials and Methods

The stability and folding process of WT* and variant ubiquitin with lysine 29 to alanine mutation (K29A ubiquitin) was studied. The stability of WT* and K29A ubiquitin was studied by urea-induced unfolding measurements. Folding kinetics was measured by using stopped-flow spectrofluorometer. The kinetic data were analyzed by quantitative kinetic modeling.

Results

The equilibrium unfolding experiment showed that the native stability was decreased by about 20% upon mutation. This observation indicates lysine 29 indeed forms electrostatic interactions with nearby residues. Folding kinetics measurements using stopped-flow device and quantitative modeling of kinetics data indicate that ubiquitin folds from unfolded state to native state via intermediate state. The folding intermediate was also observed to be destabilized significantly upon lysine to alanine mutation. These observations suggest that removal positive charge influences the early stage of protein folding process.

Conclusions

A nondirectional noncovalent bond such as electrostatic interaction can form early stage of protein folding reaction and hence guide the polypeptide chain to the unique native structure.

▼P1-05

Tat-PRAS40 attenuates MPP+-induced SH-SY5Y cell death and dopamine depletion in Parkinson's disease model

Hee Sun Yim, Min Jae Park, Dae Won Kim and Soon-Ho Park

Department of Biochemistry and Molecular Biology, College of Dentistry, Gangnung-Wonju National University, Gangneung, Korea

Objectives

To examine the neuroprotective effects of proline rich Akt substrate (PRAS40) in SH-SY5Y cells and in a Parkinson's disease (PD) animal model

Materials and Methods

1. Materials
2. Expression and purification of Tat-PRAS40 fusion proteins
3. Cell culture and transduction of Tat-PRAS40
4. Western blot analysis
5. Confocal fluorescence microscopy
6. Viability assay
7. Measurement of reactive oxygen species (ROS) level
8. Terminal deoxynucleotidyl transferase-mediated dUTP nick-end-labeling (TUNEL) assay
9. Immunoprecipitation
10. Animal model study
11. Tissue processing and immunohistochemistry for tyrosine hydroxylase (TH) expression in the SN
12. Statistical analysis

Results

Tat fusion protein was fused to PRAS40, which is known as a activator of mTORC1 in the cells and tissues. Tat-PRAS40 effectively transduced into SH-SY5Y cells and suppressed MPP+-induced ROS production and apoptosis at the intracellular level. In addition, transduced Tat-PRAS40 protected against cell death by regulating apoptosis via the activation of Akt protein and the complex formation with 14-3-3 protein in the cells. Furthermore, Tat-PRAS40 transduced into the substantia nigra (SN) crossing the blood-brain barrier. Immunohistochemical analysis demonstrated that Tat-PRAS40 significantly inhibited MPTP-induced tyrosine hydroxylase (TH)-positive cell lose in the SN in the PD animal model. These results indicate that transduced Tat-PRAS40 has neuroprotective effects against MPP+-induced SH-SY5Y cell death and in a PD animal model.

Conclusions

Tat-PRAS40 may be used to reverse dopaminergic neurodegeneration in PD

▼P1-06

Cell attachment and proliferation of bone marrow-derived osteoblast on zirconia of various surface treatment

Bo Hyun Jung, Ki Yeon Yoo, Hee Su Lee

Dept. of anatomy and histology, College of Dentistry, Research Institute of Oral Science,
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Objectives

This study was performed to characterize the effects of calcium phosphate coated and hydroxyapatite coated zirconia compared to smooth surfaced zirconia with bone marrow-derived osteoblast culture.

Materials and Methods

Bone marrow-derived osteoblasts were cultured on (1) smooth zirconia, (2) zirconia coated with calcium phosphate (CaP), and (3) zirconia coated with hydroxyapatite (HA). The tetrazolium-based colorimetric assay (MTT test) was used for examining the attachment of cells. Cellular morphology was examined by scanning electron microscopy (SEM) and alkaline phosphatase (ALP) activity was measured to evaluate the cell differentiation rate. X-ray photoelectron spectroscopy (XPS) was employed for the analysis of surface chemistry. The genetic expression of the osteoblasts and dissolution behavior of the coatings were observed. Analysis of variance (ANOVA) was conducted to assess the significance level of the differences between the groups.

Results

From the MTT assay, there was no significant difference between smooth zirconia and surface coated zirconia ($p>0.05$). From the SEM image, cells on all three groups of discs were irregularly triangular or elongated in shape with formation of filopodia. From the ALP activity assay, the optical density of osteoblasts on smooth zirconia discs was slightly higher than that of osteoblasts on surface treated zirconia discs ($p>0.05$). Most of the genes related to cell adhesion showed similar expression level between smooth zirconia and surface treated zirconia. The dissolution rate of Ca2+ and P- was higher with CaP coating than HA coating.

Conclusions

The attachment and growth behavior of bone-marrow-derived osteoblasts cultured on smooth zirconia and surface coated zirconia showed comparable results. However, the HA coating showed more time-dependent stability compared to the CaP coating.

▼P1-07

Regulatory mechanism of β-adrenergic signaling pathway in obesity development

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Objectives

We investigated 1) whether down-regulation of sympathetic tone with β adrenergic antagonist attenuates dietary fat digestion, absorption and obesity development and 2) whether such an effect is associated with changes in pancreatic lipase (PNLIP) in pancreatic acinar cell.

We also tested 3) whether β-adrenergic blockade could regulate Esp expression and/or bioactive osteocalcin secretion in osteoblasts, thereby reduce PNLIP secretion in pancreatic acinar cells.

Materials and Methods:

Forty of male 6wk old C57BL/6 mice were assigned into control diet(CON) and a high calorie diet(HIGH) group. In each diet group, mice were treated with vehicle (VEH) or with propranolol, a β-adrenergic antagonist (BB; 0.5 g/L in drinking water) over 12 wks. In addition, isopreterenol, a β-adrenergic agonist, and propranolol were treated to the pancreatic acinar cell lines or osteoblastic cell lines, and the expression levels of relevant genes were observed.

Results:

Over 12 weeks, increase in body weight observed in the HIGHVEH group was mitigated in HIGHBB mice (+103% vs. +72% compared to wk0, respectively). Excreted fecal fat amount was significantly higher in HIGHBB mice than in HIGHVEH mice (280 vs. 345 mg/dl, respectively). Increase in PNLIP expression observed in HIGHVEH mice pancreas was abolished in HIGHBB mice. Expression levels of Esp in HIGHVEH mice femur was higher vs. in CONVEH mice, but this increment was attenuated by β-blockade in HIGHBB animals and the reduction in serum osteocalcin level in HIGHVEH mice was mitigated in HIGHBB mice, in the same context. In MC3T3E1 osteoblasts, upregulated Esp expression, followed by downregulated osteocalcin expression observed in isopreterenol treated cells, was attenuated by propranolol treatment. In pancreatic acinar AR42J cells, levels of PNLIP expression increased when the cells were cultured in the presence of conditioned media from isopreterenol treated MC3T3E1 cells. This elevated PNLIP expression was mitigated with conditioned media from propranolol pretreated then isopreterenol treated MC3T3E1 cells.

Conclusions:

β-adrenergic blockade mitigated body weight increase and dietary fat absorption during high fat diet feeding and attenuated increment in PNLIP expression. β-adrenergic blockade regulated Esp expression and/or bioactive osteocalcin secretion in osteoblasts, thereby reduced PNLIP secretion in pancreatic acinar cells. These data suggest an important role for β-adrenoreceptor signaling pathway in bone and pancreas response to excessive energy metabolism.

▼P1-08

Children's oral health according to the caregivers' child care time and oral health behavior

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Objectives

The roll of parents is essential about children's oral health. Economic factor as well as concern and afford time are key factors in children's oral health. However there is a dearth of research on the caregivers' time. The purpose of this study is to examine children's oral health according to participation of the caregiver and time spent with.

Materials and Methods

The subjects in this study were 107 caregivers of preschoolers and kindergartens that approved the participation. Self-administered surveys were distributed to 107 individuals. And 81 surveys were taken as the final subject of analysis, excepting questionnaires that were not sufficient and completed by the children who did not take oral examination. Oral examination is conducted by one dentist. Collected data was analyzed using SPSS 20.0

Results

1. There were no statistically significant correlations between the amount of time that a child spent with their parent and the child's oral health.
2. As a caregiver spent the most hours with their child, their interest in their child's oral health increased.
3. Caregivers who spent more time with their child tended to participate more in assisting their child's tooth brushing.
4. Children having regular dental visits or preventive dental treatments resulted in a higher level of oral health.
5. A higher level of oral health was achieved when a caregiver brushed their child's teeth for them.

Conclusions

It was concluded that the amount of time that a child spent with their parent could influence concern for oral health, participation in oral health care behavior and children's oral health. However this study was difficult to evaluate significance tests. Because groups of samples were uneven as the number of samples was small and the disruption variable wasn't controlled.

▼P1-09

A case report of the integrated oral health promotion programs for adolescent : "Level up Health School"

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Introduction

Adolescence is an important period through which people acquire their lifelong habits and attitudes and therefore right beliefs, attitudes and behaviors should be developed during the time that may last throughout the entire lifetime. In order for adolescents to form desirable health habits, it is necessary to find students' health and oral health risk behaviors and to operate integrated health promotion programs based on the findings. Thus this study purposed to develop an integrated health promotion program for adolescents, which was to be performed at schools for oral health promotion among adolescents in Gangneung City, and to report the process and outcomes of the program.

Case operation procedure

The operation of the oral health promotion program for adolescents in Gangneung City was planned through the community council comprising the health centers of Gangneung City, the Department of Dental Hygiene of the School of Dentistry of Gangneung-Wonju National University, and Gyeongpo Middle School in Gangneung City. The needs of students for the program were surveyed in November 2013, and based on the results, detailed strategies and education materials for the program were developed as part of the curriculum of '2014-1 Community Dental Hygiene' for seniors at the Department of Dental Hygiene of Gangneung-Wonju National University. The program was applied to the 8th-grade students at Gyeongpo Middle School from the 9th to 30thof May, 2014, and then the results such as the students' oral hygiene, eating habits, and satisfaction with the programs were evaluated through questionnaire surveys.

Summary

The outcomes of the program showed the effects of the program such as enhanced subjective perception of oral health, and higher rate of tooth brushing after lunch. It is necessary to operate integrated health promotion programs through the medium of the oral health program in the community level, and to monitor the health level continuously.

▼P2-01

Retrospective clinical study on sinus bone graft with lateral approach and internal type implant placement

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Objectives

The maxillary sinus elevation procedure has become an important pre-prosthetic surgical procedure for the creation of bone volume in the edentulous posterior maxilla for the placement of dental implants. The aim of this case presentation was to evaluate the clinical results of sinus bone graft (Bio-Oss®) with lateral approach and internal type implant placement.

Materials and Methods

A retrospective chart review was conducted for the implants that were placed at Department of Periodontics, Dental Hospital of Gangneung-Wonju National University from January 2012 to October 2013. Peri-implant marginal bone-level change was measured by comparing periapical radiographs. The distance between the platform of the implant and the most coronal point of contact between the bone and the mesial and distal sites of implants was measured.

Results

51 fixtures were placed after sinus bone graft (Bio-Oss®) with lateral approach.

1. The cumulative survival rate after 2 years of loading was 96.1%.
2. After 24 months, radiographic results showed a mean overall bone loss of 0.96±0.84 mm.

Conclusions

In present study, sinus bone graft (Bio-Oss®) with lateral approach and internal type implant placement may be a successful treatment option.

▼P2-02

Sialolithotomy with micro-suture of salivary duct: cases report

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Introduction

Sialoliths are known to be caused by the deposition of calcium around bacteria, epithelial cells of the duct, or foreign bodies. Small sialoliths can be removed through gland massage, but larger sialoliths can be removed through an intraoral approach, extraoral approach, depending on the location, shape, and size of the stone. After surgery, complications may occur, such as salivary fistula, stricture or closure of the duct. In these cases, we were removed sialoliths of the parotid and submandibular gland by sialolithotomy. To prevent the stenosis of the duct, we keep the patency of duct using small diameter cannula and suture the overlying ductal wall with the micro-suture technique.

Case operation procedure

In all cases, due to the absence of involvement of the glandular parenchyma, we were performed the sialolithotomy via intra-oral approach. The procedure was initiated with a superficial incision in the mucosa of the oral cavity, and extraoral digital compression was performed in the caudocranial direction to bring the calculus to the surface in the oral cavity. We were incision in the duct which overlying sialolith, and salivary calculus removed. A small diameter canulla was inserted to incised duct through the orifice, and then, incised duct was sutured with 8-0 nylon using micro-instruments with microscope. Mucosa was sutured with 4-0 Vycryl, and cannula was fixed at the orifice. The cannula was maintained up to 2 weeks after surgery.

Summary

Postoperative radiologic image revealed the absence of sialolith, and complications did not until 1month after surgery. Salivation was also normal. After sialolithotomy, by micro-suture the duct wall, we were able to preserve the structure and function of the duct system. However, there are some limitations of these cases. The following up period is short and only limited number of cases. It is necessary to check whether or not the morphological changes of the salivary gland duct are implemented further sialography.

▼P2-03

Oral Health Literacy of Mother in Multi-cultural Family in Gangneung

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Objectives

The purpose of this study is to identify Mother in multi-cultural family's oral health literacy level and to promote Mother in multi-cultural family's oral health.

Materials and Methods

46 Mother in multi-cultural family participated in 'Gangneung multicultural oral health promotion program' were included in the study. For the measurement of oral health literacy, 30 subjects were analyzed. 6 pre-trained investigators conducted a Mother in multi-cultural family's interview. 36 general families's mother in Gangneung cultural center and children cafe, Pediatrics were included in this study. also 30 Control groups were analyzed. Oral Health Literacy Instrument for Korean Children's Caregiver was used.

Results

Some Mother in multi-cultural family's oral health literacy score was 49.2% correct answers, Reading comprehension section were 49.0%, numeracy section were 49.6%.

Oral health literacy scores according to Korean level were different Significantly($p<0.05$). Korean, and oral health literacy level of communication total score ($p<0.05$), oral health knowledge and oral health literacy, reading area ($p<0.05$) between the amount of were correlated.

In this study, DI was good condition, so this oral health literacy measure tool's items were very discriminating.

Conclusions

Mother in multi-cultural family's oral health literacy level was insufficient levels, mother in multi-cultural family's oral health literacy scores lower than general families's mother. This research study is limited to some areas, and the small number of samples of the entire multicultural oral health literacy levels of mothers represent a limitation to the crowd that is more multicultural future, a study of women will need.

▼P2-04

Prosthetic rehabilitation of edentulous maxillary anterior region with esthetic consideration

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Introduction

The reconstructing teeth in the missing maxillary anterior region, the rotational path removable partial denture has become a better treatment option than the bulky, heavy and aesthetic conventional removable partial denture. The rotational path removable partial denture offers the advantage of improved esthetics by eliminating anterior clasps, this technique utilizes proximal undercut adjacent to the edentulous spaces for retention. The other advantages are cleanliness, shortened treatment duration, and lower treatment cost over fixed partial dentures or implants. But, Rotational path removable partial denture has been often overlooked by the dental clinician due to its complex prosthetic design and sensitive laboratory techniques. With better understanding of the principles of rotational path removable partial denture, the dental clinician can deliver excellent esthetic outcome in compromised areas in which other treatment options may often be limited. In these cases, to introduce that the patients that the difficulty of long-term maintenance after insertion with rotational path removable partial denture and clinical and laboratory consideration for patient's maintenance.

Clinical procedures

Chief complain of patients were the restoration of maxillary anterior teeth. They were evaluated that amount of periodontal tissue, canine of mesial undercut by surveying of diagnostic cast, radiography, oral examination. As a result of the diagnosis, it was decided that to make rotational path removable partial denture including a precise mesial canine undercut. a patient, after delivery of the rotational path removable partial denture, it was needed for adjustment by decrease of retention. The other patient, there was a successful result, due to measure the precise undercut, additional design of bracing arm and to eliminate flexible retention arm by making a solid precision attachment.

Summary

For the successful rotational path removable partial denture, there were essential factors that to investigate the cause of decreased retention, ideal abutment preparation, increased guiding plane of the precision attachment.

▼P2-05

Prosthetic rehabilitation after treatment of periimplantitis and periodontitis

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Introduction

Partially or completely edentulous patients treated with implant supported prostheses have been reported successful clinical results in the long-term. Thus, the use of implant is gradually increasing. However, proper and periodic maintenance procedure is essential for the long-term success of implant prostheses. And this procedure is also required for maintenance of remaining natural tooth. If any maintenance procedure is not performed, further loss of natural teeth and/or failure of implant can be occurred.

In general, the position and number of implant, type of prosthesis are determined by position of lost teeth, residual bone, intermaxillary relationship and interocclusal space. However, in the case of additional loss of remaining natural teeth or implant after prosthetic treatment is completed, some of implants are remained inappropriate position and inadequate angle. In this case, it is inevitable that prosthesis is re-made using remained implants with newly placed implants.

Case operation procedure

This clinical report describes the management of a 51-year-old female patient with severe periodontitis. All remaining teeth had 2-3 degree mobility accompanied with severe bone loss. In addition, there were 10 implants (four in maxilla and six in mandible), which placed 10 years ago, with peri-implantitis. Through a diagnostic process, maxillary teeth and implants were all extracted and 7 implants were placed with bone graft in maxilla. All mandibular natural teeth were extracted and remained implants were treated with open flap surgery and guided bone regeneration. After re-evaluation, one implant with severe bone loss and inadequate position was extracted. And the other implant was placed in adjacent position. Utilizing remained implants and newly placed implant, the patient's oral function and esthetics was restored with implant supported fixed prosthesis.

Summary

It is the clinical report for the patient who has periodontitis and peri-implantitis that implant supported fixed prosthesis is designed with remaining implants. And the patient's oral function and esthetics was restored with satisfactory result.

▼P2-06

Prosthetic and functional rehabilitation for partial glossectomy patient

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Introduction

Oral tongue is a common site for oral cancer in the oral cavity especially the lateral border is the most common site. After the reconstruction of the removed lingual tissue, associated functions such as a swallowing, mastication, speech, control of saliva can be adversely affected. The reconstruction of a small size defect can be closed with primary closure leading to secondary intention without causing functional disorder. In closing a large sized defect, sensate free flap with enough volume such as external brachial flap or radial forearm flap are required. The grafted flap becomes stabilized after certain amount of contraction. The amount of the shrinkage is unpredictable and sometimes additional surgeries are needed due to the inappropriate size or functional disorder. Occasionally, additional palatal augmentation prosthesis is necessary to resolve problems such as speech, swallowing, mastication.

In this clinical case, the patient had a large tongue which came from tongue cancer and reconstruction with a free flap taken from the radial forearm. This tongue interrupts fabrication of mandibular removable partial denture. For such a unfavorable state, surgical resection and vestibuloplasty were done. After surgery, conventional removable partial denture was fabricated after soft tissue healing. But there were limitations in the movement of tongue impaired function of speech, swallowing. Additional palatal augmentation prosthesis was fabricated using self-curing acrylic resin and overcomed various problems.

Case operation procedure

1. Hopeless teeth(#33, 42) were extracted
2. Oversized tongue resection, vestibuloplasty on lingual side
3. Conventional removable partial denture fabrication
4. Various problems were occurred, such as speech, swallowing, mastication
5. Palatal augmentation prosthesis fabrication

Summary

In this case, the patient with tongue cancer removal and reconstruction history was able to recover the impaired function of swallowing, mastication and speech through conventional removable partial denture, palatal augmentation prosthesis fabrication with additional treatment of partial glossectomy, vestibuloplasty.

▼P2-07

Intentional Replantation ; a last resort treatment

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Introduction

Intentional replantation is extraction of a tooth to do extraoral root canal therapy, and then inserted into its socket. It has been proposed as alternative to routine extraction. Also it can be considered as a treatment option for being impossible nonsurgical endodontic treatment or apical surgery due to anatomic limitations and accessibility problems such as bone thickness, nerve and sinus proximity, C-shaped canal, extra root resorption, and so on. This case report describes two cases of intentional replantation on the teeth at different areas.

Case Operation procedure

<Case 1>

1. Sex/Age: F/51
2. Chief Complication(C.C): Referred from Prosthetic dentistry for #12 root resorption treatment
3. Past Dental History(PDH): Restoration treatment on #12 at local clinic
4. Present Illness(P.I): D. caries(distal), mob(-), per(+), pal(-), cold(-), EPT(-), root resorption on #12
5. Impression: Internal root resorption on #12 middle third area of root
6. Initial Treatment Plan: Root canal treatment(RCT)
7. Treatment Progress: Palatal swelling and pain after Ca(OH)2 dressing on #12
8. Diagnosis : External root resorption on #12
9. Final Treatment Plan: Intentional replantation with MTA after CBCT taking

<Case 2>

1. Sex/Age: F/29
2. Chief Complication(C.C): Referred from local clinic for #47 intentional replantation
3. Past Dental History(PDH): RCT, post and gold crown treatment at local clinic, 6 years ago
4. Present Illness(P.I): Periapical lesion, per(++), mob(-), pal(+), spontaneous pain(+, 3 days ago)
5. Impression: Prev. RCT, Acute exacerbation with chronic apical periodontitis
6. Treatment Plan: Intentional replantation with MTA after CBCT taking

Summary

Although it has some limitations including difficultness of tooth extraction and the possibility of fracture during extraction, intentional replantation may be considered as a final treatment for preserving the tooth.

▼P2-08

Mandibular first molar with six root canals related to BRONJ

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Introduction:

High levels of success in endodontic treatment require an understanding of the root canal anatomy and morphology and the whole root canal system must be debrided, disinfected, and filled. Thus, it is necessary for the clinician to have knowledge of not only the normal anatomy but also its variations. A radiographic study of extracted teeth reported mandibular first molars had three mesial canals in 13.3% of specimens and three distal canals in 1.7% of specimens. This case describes a mandibular first molar with 3 separate mesial and 3 separate distal canals related to BRONJ.

Case operation procedure:

1. Sex/age: F/73
2. Chief Complaint: For evaluation of #46 sinus tract
3. Past Medical History: Bisphosphonate medication for osteoporosis
4. Past Dental History: 10MA #44,45 extraction due to pus discharge, but pus discharge persisted
   9MA #44,45 area saucerization for BRONJ
5. Present Illness: #45 edentulous lingual gingiva sinus tract formation from #46 mesial canal
   #46 periapical lesion and per (+)
6. Impression: #46 periapical abscess with sinus to oral cavity
7. Treatment Plan: #46 root canal treatment
8. Treatment Progress: Although treating six canals in #46, sinus tract did not disappear.

So, after consulting with OMFS, additional saucerization and #46 apicoectomy was planned.
But, because widespread sequestrum was existed, #46 was extracted.

Summary:

Although the frequency of 6 canals is rare, morphological variations in pulpal anatomy must always be considered before beginning treatment. And periapical abscess with sequestrum related to BRONJ rarely be healed by root canal treatment only.

▼P2-09

Comparison of closure of the spheno-occipital synchondrosis in patients with skeletal Class I and Class III malocclusion

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Objectives

The aim of this study was to compare the time and pattern of ossification of the spheno-occipital synchondrosis in patients with skeletal Class I and Class III malocclusion using cone beam computed tomography (CBCT).

Materials and Methods

CBCT images were chosen from 186 Korean patients (93 males and 93 female) who were enrolled consecutively for orthodontic treatment at the Department of Orthodontics, Gangneung-Wonju National University Dental Hospital. The patients were divided into four groups according to ANB and sex. The degree of ossification of the spheno-occipital synchondrosis was classified into four stages: stage 1, the synchondrosis is completely open; stage 2, the radiopaque ossification centers appear within the synchondrosis; stage 3, the synchondrosis is partially ossified but still visible as mixed radiopaque and radiolucent vestige; stage 4, the synchondrosis has been completely ossified. In stage 2, the location and appearance of ossification centers in the synchondrosis were displayed in the 3-by-3 boxes in order to determine where the ossification centers are frequently observed and how they are fused.

Results

There was no difference in time and pattern of ossification of the spheno-occipital synchondrosis between patients with skeletal Class I and Class III malocclusion. The ossification centers appeared most frequently in superior parts but no apparent pattern of closure, such as from above to downward, was observed, in all groups.

Conclusions

Although skeletal Class III patients have antero-posterior skeletal discrepancy, the time and pattern of closure of the spheno-occipital synchondrosis were not different with normal groups. At the beginning of closure of the synchondrosis, ossification center appeared in variable patterns and it became larger and complex in progress of closure.

▼P2-10

The Usefulness of Bone Scintigraphy and TMJ Tomography in Diagnosis of TMJ Osteoarthritis : a preliminary study

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Objectives

TMJ Osteoarthritis is a degenerative disease caused by overload on joint tissue, and often accompany with local tenderness on the joint, crepitus by mandibular movement, restriction of mandibular movement, and anterior openbite.

In general, TMJ radiographic series (panoramic radiograph, TMJ panoramic radiograph, and transcranial radiograph) are conducted to diagnose TMJ osteoarthritis after clinical examination, however, these radiographic evaluations are limited in detecting minute bony changes of early pathologic lesion. The aim of this study was to evaluate the limitation and usefulness of several TMJ diagnostic imaging techniques according to the clinical sign and symptom.

Materials and Methods

Eighty-one patients with TMJ osteoarthritis (mean age 29.8±11.9 years) were included for this study and they were categorized into 3 groups; 1) patients with crepitus, 2) patients with anterior openbite, 3) patients with preauricular pain and mouth opening limitation.

Subjects were evaluated through clinical examination and 3 diagnostic imaging techniques; TMJ radiographic series, bone scintigraphy, and TMJ tomography. We compared the findings from clinical examination, TMJ radiographic series, bone scintigraphy, and TMJ tomography from 81 patients with TMJ osteoarthritis. Then we estimated the proportion of patients showing same findings between each imaging technique.

Results

The proportion of patients showing same findings in between TMJ radiographic series and TMJ tomography were 89% of subjects (n=72/81), and that of in between TMJ radiographic series, TMJ tomography, and bone scintigraphy were 74% (n=60/81) of patients.

The proportion of patients showing same findings in TMJ radiographic series, TMJ tomography, and bone scintigraphy was high, however, there were some false-negative findings in TMJ radiographic series.

Conclusions

It is desirable that clinician should conduct phased imaging examinations according to the clinical findings due to the possibilities of false negative findings in diagnosis of TMJ osteoarthritis

▼P2-11

Enhancement of Photodynamic Bactericidal Effect of Erythrosine against Streptococcus mutans by Sub-Minimal Bactericidal Concentration of Chlorhexidine

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Objectives

The use of dental halogen curing unit and erythrosine in photodynamic therapy is advantageous because of their safety for use in oral environment and their availability in the dentistry. The purpose of this study was to investigate the synergistic effects of erythrosine sensitized with a conventional halogen curing unit and sub-minimal bactericidal concentration(sub-MBC) of chorhexidine on bacterial viability of S. mutans in planktonic state.

Materials and Methods

Sub-minimal bactericidal concentration of chlorhexidine was added into wells containing bacteria and erythrosine. Range of concentrations tested for chorhexidine was from 0.0000001% to 0.001%. The irradiation of the bacterial suspensions was performed for 15 sec with a conventional halogen curing unit light. In another set of experiment, the effects of 0.001% chlorhexidine were observed by adding chlorhexidine into wells containing the sub-minimal bactericidal dose of erythrosine.

Results

A combination of the low chlorhexidine concentration (0.0000001%) with light exposure reduced bacterial growth by 78%, compared with that of the control ($p < 0.05$). Similarly, combinations of 0.00001 and 0.001% chlorhexidine with erythrosine plus light exposure caused a statistically significant reduction in bacterial counts by 85% and 98%, respectively ($p < 0.05$). In the presence of sub-minimal bactericidal dose of erythrosine with light exposure, the addition of 0.001% chlorhexidine increased the bactericidal rate($p < 0.05$).

Conclusions

A combination of erythrosine with sub-MBC chlorhexidine resulted in a significant reduction in bacterial counts when compared with in the absence of chlorhexidine.

▼P2-12

Alteration of pituitary tumor transforming gene 1 (PTTG 1) by microRNA regulates migration ability of human oral squamous cell carcinoma via MMP-2 and MMP-9 expression

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Human pituitary tumor transforming gene 1 (PTTG1), which is an identified proto-oncogene in pituitary tumor, highly express in the tissues with proliferating activity as well as several cancers. In the previous report, we demonstrated that PTTG1 involve in migration ability of oral SCC cell using down-regulation of PTTG1 by siRNA. However, the regulation mechanism of PTTG1 in oral SCC and PTTG1 targeted microRNA capable of regulation of their expression are still unclear. The objectives of this study are to analyze the expression of PTTG1 in oral SCC cell lines (YD-10B and YD-15) and demonstrate the effect of PTTG1 on oral SCC cell lines for the migration by PTTG1 siRNA and microRNA treatment targeted to PTTG1. In addition, the effect of PTTG1 by microRNA-186 (miR-186) and -655 (miR-655) targets to PTTG1 on migration ability of oral SCC cells was evaluated. Western blot, migration assay, and zymography were performed to evaluate the effects of PTTG1 on the expression of MMP-2/-9 and migration activity. The expression of PTTG1 in YD-10B cell line was stronger than that of YD-15 cell line. The expression of PTTG1 in both cell lines was significantly decreased without changes of their characterization in oral SCC cell lines by siRNA-PTTG1 treatment ($p<0.001$). Also, the migration abilities of both YD-10B and YD-15 were significantly decreased through decreasing MMP-2 and MMP-9 expression after siRNA-PTTG1 ($p<0.001$). Interestingly, down-regulated PTTG1 expression by siRNA differently induces to change the expressions integrin and Rho family in YD-10B and YD-15 cell lines. Furthermore, PTTG1-targeted miR-186 and miR-655 directly regulate the expression of PTTG1 and control the migration ability of oral SCC cells through regulation of PTTG1 expression ($p<0.001$). These results suggest that the alteration of PTTG1 by miR-186 and miR-655 could be controlled migration of human oral SCC cells via MMP-2 and MMP-9 expression. Therefore, these findings provide useful guideline for the migration mechanism of oral SCC by regulation of PTTG1 expression.

▼P2-13

A glandular odontogenic cyst occurring at posterior mandible: A case report

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The glandular odontogenic cyst(GOC) is a rare cyst derived from odontogenic epithelium with a spectrum of characteristics including salivary gland features. It generally occurs more commonly in the mandible and most often in the anterior mandible. Radiographically, most cases present as a well-defined unilocular or multilocular radiolucency with a cortical boundary. Although none of the clinical or radiographic features are unique or pathognomonic, the lesion has a potentially aggressive behavior and high recurrence rate. We report a rare case of GOC occurring at posterior mandible. It is not usual occurring site that is reported previously. And we want to add some knowledge about GOC through the radiographic findings on our case. A 76-year-old male visited our dental hospital with a chief complaint of swelling of the right posterior mandible. Radiographically, a unilocular radiolucent lesion involving impacted third molar at the right posterior mandible was observed. Slight lingual cortical expansion with partial perforation was also shown. Histopathologically, this lesion showed a relatively thin cyst epithelium that is partly keratinized with focal basal hyperplasia. We could find several portion of cyst epithelium showed a glandular differentiation, and resulted mucoid-filled secretory cells. The final diagnosis was made as a GOC. The patient was treated with surgery of enucleation. Thorough histopathological examination, coupled with radiographs, is the effective way to diagnose GOC. It is crucial that radiograph modality which provide cross sectional information concerned with fine difference in extent of perforation and thinning.

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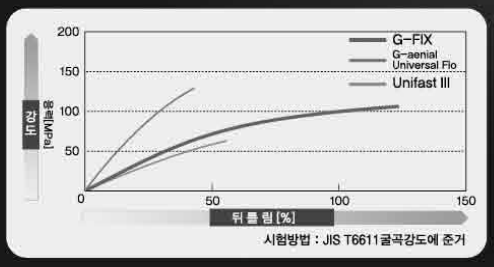

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아~다양한 치경부 마모, 교합면 마모, 병소 말이지? 오후 1:43

이건 말이야. 심미수복 접착충전재 Bond-Fill SB 로 수복하는거야 오후 1:47

소구치 교합면에 상아질 마모로 오목한 'dimple' 형성

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우리치과 **수익창출**의 **효자제품**이야 ^^ 오후 1:48

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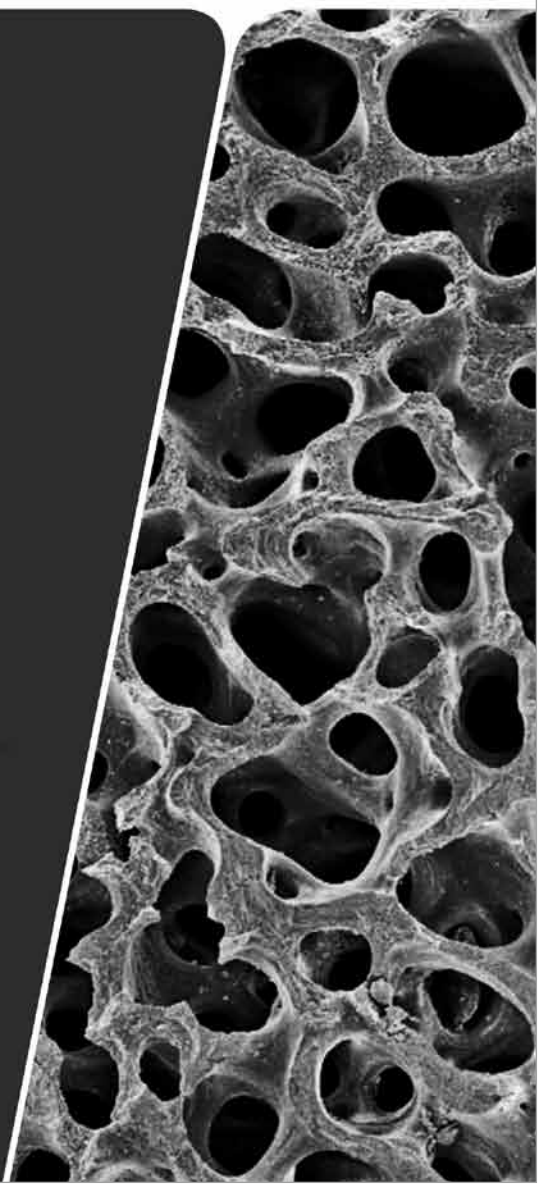

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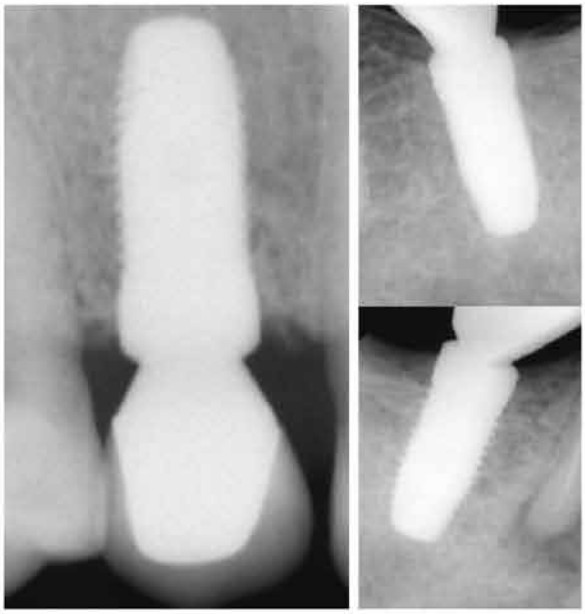


49yrs / Male

C.C
상악 우측 소구치 파절 및 하악 좌우측 제 2대구치 부위 치아 결손으로 내원

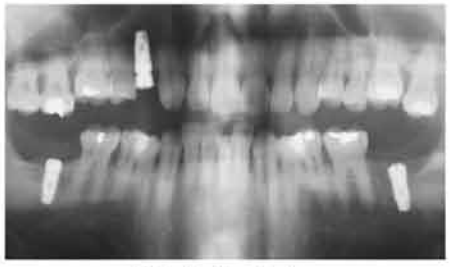
Surgery key point
#14번은 치근 부위까지 연장된 치아 파절로 인하여 발치 후 즉시 임플란트 식립을 시행하였으며,
하악 좌우측 제 2대구치 부위는 장기간 결손 된 상태였으며 각각 지연 식립 임플란트를 시행하였다.

Surgery aspect
상악 소구치 발거 후 즉시 식립 시 발치와에 치근형태의 임플란트 식립이 용이하였으며 초기 고정이 좋고 flapless로 수술을 시행하여 바로 치유 지대주를 연결하였다. 하악 대구치 부위는 결손 상태가 오래되어 치조골이 하방으로 흡수되었으나 인접치와의 차이가 심하지 않아 치조능 높이에서 0.5mm 하방에 임플란트 상부를 맞추어 식립하여 주었고 초기 고정은 이주 우수하였다.

Prosthetic aspect
상악 소구치는 dual abutment 연결 후 시멘트 유지형 포세린 크라운을 장착하여 주었다. 하악 우측 제 2대구치 부위에는 direct casting abutment를 이용한 1-piece의 나사 유지형 골드 크라운을 제작하여 장착하였고,
하악 좌측 제 2대구치 부위에는 dual abutment 연결 후 시멘트 유지형 골드 크라운을 장착하여 주었다.

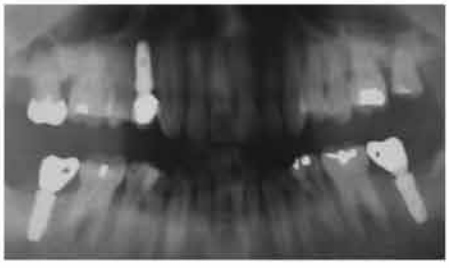
Conclusion
치근형의 임플란트를 이용하여 발치 즉시 임플란트 식립이 용이하고 internal connection type으로 인한 2차 수술이나 상부 부품의 연결을 쉽고 정확하게 할 수 있었다. Self tapping 기능이 우수하여 임플란트 식립시 초기 고정이 우수하고 주위 치조골의 반응도 아주 안정적이었다. 현재 11년이 지나고 있으나 특별한 문제없이 장기적인 초기 수술 부분에서나 보철적인면에서나 장기적인 예후 등 모든 면에서 좋은 결과를 보여주었다.

2002. 06. 11 Pre-op



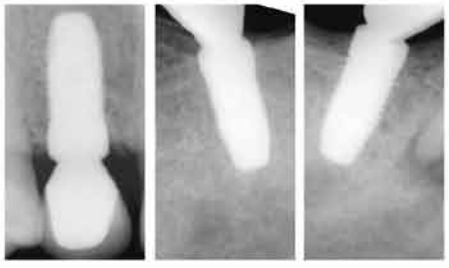
2002. 06. 21 Post-op

2002. 10. 28 #14, 37, 47 final prosthesis



2003. 12. 19 1 year follow up

2010. 06. 23 8 year follow up



2013. 04. 12 #14,37,47-10 year follow up

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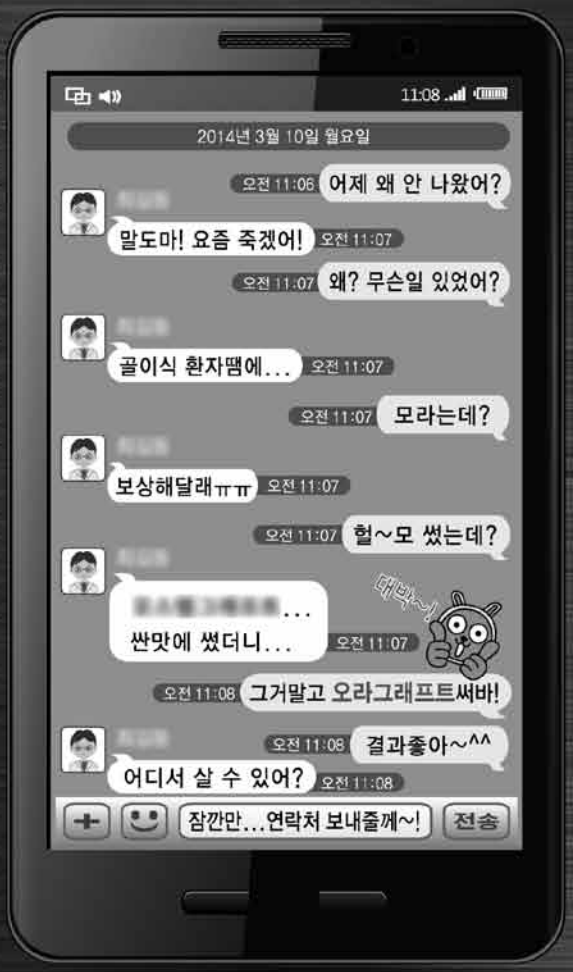

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