The 8th Conference of
Asian International Association of Dental Traumatology (AADT)

NOVEMBER 17 - 18, 2017

Mahidol University Faculty of Dentistry,
Bangkok, Thailand

The 8th Conference of Asian International Association of Dental Traumatology (AADT)

NOVEMBER 17 – 18, 2017

Local Organizing Committee of the 8th Conference of AADT:

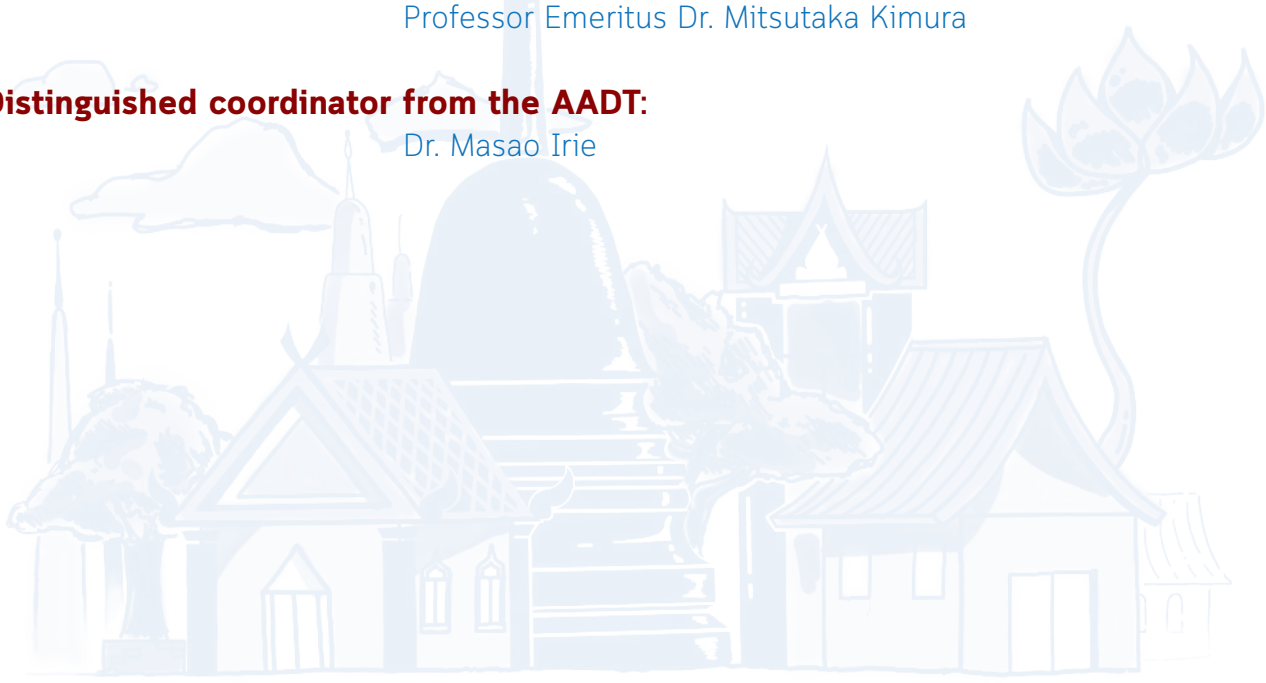
Advisor:	Professor Dr. Waranun Buajeeb, Dean of MUFD
President of the LOC:	Assistant Professor Dr. Pornpoj Fuangtharnthip
Secretary:	Assistant Professor Dr. Vanthana Sattabanasuk
Scientific committee:	Associate Professor Dr. Choltacha Harnirattisai
	Assistant Professor Pattarawadee Leelataweewud
	Associate Professor Dr. Suwannee Luppanapornlarp
	Associate Professor Dr. Araya Phonghanyudh
	Assistant Professor Dr. Kiatanant Boonsiriseth
	Assistant Professor Dr. Jeeraphat Jantarat
	Assistant Professor Dr. Jira Kitisubkanchana
Publication:	Assistant Professor Apiwan Smutkeeree
Treasurer & Registrar:	Dr. Piyapanna Pumpaluk
Non-scientific coordinator:	Ms. Siyaphat Piyasakphitchaya

President of Asian International Association of Dental Traumatology (AADT):

Professor Emeritus Dr. Mitsutaka Kimura

Distinguished coordinator from the AADT:

Dr. Masao Irie



Message from the President

It is a great pleasure for me to hold the 8th Conference of Asian International Association of Dental Traumatology (AADT). The societies of dental trauma are authorized as International Association of Dental Traumatology (IADT) in the world, Japan Association of Dental Traumatology (JADT) in Japan and Asian International Association of Dental Traumatology (AADT) in Asia. For performing clinical evaluations of the treatment of dental trauma based on the basic sciences from the viewpoints of education, research and clinical practice, the specialized fields in each university and dental service organization are continuously developing toward the forefront of dental medicine.

The 8th Conference of AADT is held by the sponsorship of Faculty of Dentistry, Mahidol University in the splendid country of Thailand. I heartily express my special thanks to Professor Dr. Waranun Buajeeb, Dean and, Dr. Pornpoj Fuangtharnthip, President of the 8th Congress, and all the members concerned.

From the standpoint of stomatology, it is very important for healthy life expectancy to conserve teeth especially protecting against occlusal trauma as well as traumatic occlusion based on the fracture and dislocation characteristics. It needs scarcely to say, therefore, that this society is deeply related to many specialized fields such as Pedodontics, Endodontics, Operative Dentistry, Biomaterials, Dental Radiology, Oral Surgery, Oral Pathology, Neuropathology and Clinical Pathology.

Finally, I would like to propose you to activate the “SCIENTIFIC APPROACH” for Dental Traumatology through fruitful discussions on a variety of presentations as you may see in the program.

Mitsutaka Kimura

Mitsutaka Kimura
President
Asian International Association of Dental Traumatology

Welcome Message from the Dean

Dear Distinguished Participants,

I am very delighted to formally welcome you to the 8th Conference of Asia International Association of Dental Traumatology (AADT) hosted by Mahidol University Faculty of Dentistry.

The major aim of the conference is to provide perceptive insights in dental traumatology and its relevant researches carried out recently. I firmly believe that the conference gathering of professional dentists, lecturers and students with shared interests and aims could definitely have a beneficial influence on dental education and research in our region.

Also, I would like to take this opportunity to express my sincere thanks and appreciation to the honorable speakers for their contribution, the Local Organizing Committee and everyone involved for their concerted efforts and dedication in the upcoming two-day fruitful scientific programs.

Lastly, I would like to wish you a successful outcome of this important meeting, and hope that you will have an enjoyable time and memorable experience here in Bangkok.

Sincerely yours,

Professor Dr. Waranun Buajeeb
Dean, Mahidol University Faculty of Dentistry

Message from the President of the Local Organizing Committee

Dear Colleagues,

On behalf of the Local Organizing Committee, we feel very honored and privileged to welcome you to join and actively participate in the 8th Conference of Asia International Association of Dental Traumatology (AADT) taken place in Bangkok, Thailand at Mahidol University Faculty of Dentistry during November 17-18, 2017.

The conference brings together many renowned keynote and guest speakers to kindly share their unique expertise in dental traumatology through an insightful lecture session.

In addition, a number of enthusiastic oral and poster presenters as well come and take part in showcasing their most recent innovations and research findings.

I am therefore confident the scientific programs will be served as a great platform for you to gain significant knowledge in oro-facial & dental traumatology and its related matters, and you will also be provided a precious opportunity to exchange your clinical experience and ideas with other participants.

I would like to express my gratitude to Professor Emeritus Mitsutaka Kimura, the president of the AADT, for his great and continuous efforts to create and organize this wonderful regional association. And personally I feel very thankful to Professor Masao Irie for his kind and helpful coordination during all the preparatory processes for this conference.

To all participants, your tremendous support and contribution to the conference are deeply appreciated. Hope all of you enjoy the 8th AADT Conference.

Sincerely yours,

Assistant Professor Dr. Pornpoj Fuangtharnthip
President, the Local Organizing Committee of the 8th AADT Conference

Contents

The Constitution of Asian International Association of Dental Traumatology (AADT)

Adopted November 13, 2004

Name

This organization is named: Asian International Association of Dental Traumatology, here in referred to as the AADT or the Association.

Objectives

The Association is established to further research into all aspects of dental traumatology, to encourage the development of preventive and therapeutic methods for dental trauma, to call public's attention to dental trauma, and to promote cooperation and information exchanges between investigators in Asian countries

Basic Functions

The basic functions of the association are to:

1. Organize conferences
2. Facilitate communications among Asian countries
3. Issue news letters
4. Others

Membership

People who accept and obey the constitution of the AADT will be accepted as a member of the association.

Tax

1. The tax of the association shall be decided by the council and the general assembly.
2. The tax should be paid at the conference.
3. The operation of the association is based on sponsorships and other incomes.

Organization

1. The positions in the committee are: consultants, one honorary chairperson of the conference, one president, three vice presidents, two secretaries-general, standing directors, directors and two auditors.
2. The term of office will be three association years, and reappointment is allowed.
3. The president shall be selected by the council and approved by the general assembly.
4. The president shall appoint the vice president, directors and executive committee.
5. The president, vice presidents and executive committee are the directors.
6. Regents shall be nominated by the council and determined by the general assembly.
7. Inspectors are selected from regents and determined by the general assembly.

8. Counselors, honorary chairperson of the conference, secretaries-general shall be selected by the council and determined by the general assembly.
9. The president is the representative of the association and is responsible for its administration.

Scientific conference

The scientific conference will be held once two year.

Constitution and Bylaws

1. The constitutions shall be amended by the committee and approved by the council.
2. The committee shall determine the bylaws.

Bylaws

The election of the president:

The president will be nominated by the counselors and appointed by council.

The place of the general assembly and the conference should be:

1. Applied by local organizations.
2. Determined by the council.

Official meetings:

1. The meeting of the council and the regents will be held once a year at least.
2. More than half members in the council are required to attend the meeting of the council and the regents.

Short course of dental traumatology in Asia

In compliance with the wishes of a short course of dental traumatology, the president should hold it with the corporation of country and/or district.

Celebration and condolence

The celebration and condolence will be left entirely to the president of AADT.

Letter of appreciation

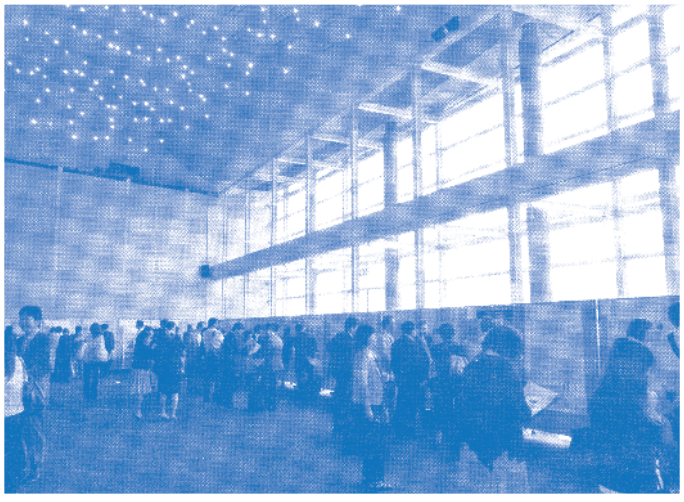
A letter of appreciation will be given to the president who served out his term and do not reappoint.

History: Conference of AADT

	Date	Host (Venue)
The 1st Conference	November 13, 2004	Peking University, China
The 2nd Conference	September 17-20, 2005	Okayama University, Japan
The 3rd Conference	April 22, 2007	Taipei Medical University, Taiwan
The 4th Conference	November 1, 2009	Peking University, China
The 5th Conference	September 4, 2011	Aichigakuin University, Japan
The 6th Conference	September 7, 2013	University of Indonesia, Indonesia
The 7th Conference	July 11-12, 2015	Kyushu Dental University, Japan (Kitakyushu International Conference Center)

Opening ceremony of the 7th Conference of AADT.
The right: Prof. Mitsutaka Kimura, President.

International symposium members in the 7th Conference of AADT.



Poster viewing of the 7th Conference of AADT.

AADT 7

The 8th Conference of Asian International Association of Dental Traumatology (AADT)

NOVEMBER 17 - 18, 2017

Mahidol University Faculty of Dentistry, Bangkok, Thailand
HRH Princess Maha Chakri Sirindhorn 50th Birthday Anniversary Celebration Building

FRIDAY, NOVEMBER 17, 2017

Venue: Floor 3

17:00 - 18:45 **AADT Registration (Floor 3 Foyer)**
18:00 - 18:30 **Executive Meeting (Room 301)**
(Committee of AADT: invitation only)
19:00 - 21:00 **Welcome Reception (Room 304-305)**
(Oversea pre-registration and invitation only)

SATURDAY, NOVEMBER 18, 2017

Venue: Floor 4, Debaratana Auditorium

07:30 - 10:30 **Registration (Floor 4 Foyer)**
08:10 - 08:30 **Society General Meeting (for AADT members)**
08:30 - 09:00 Opening Ceremony
09:00 - 16:00 Poster Viewing Time

09:00 - 09:40 **Keynote Lecture:** REGENERATIVE ENDODONTIC PROCEDURES IN TRAUMATIZED TEETH

Assist. Prof. Dr. Jeeraphat Jantarat, Mahidol University
Chair-person: Assist. Prof. Pornpoj Fuangtharnthip
(President of the 8th Conference of AADT)

09:40 - 10:20 **Keynote Lecture:** CLINICAL SIGNIFICANCE OF PERIPHERAL NERVES FROM THE SITUATION OF STOMATOLOGY: THE MECHANISM OF NEURAL TRANSMISSION FROM PERIPHERY TO BRAIN BY BITING / CHEWING (FROM CHILDHOOD THROUGH ADULTHOOD)

Prof. Emeritus Dr. Mitsutaka Kimura
(Prof. Emeritus Kyushu Dental University, President of AADT)
Chair-person: Prof. Li-Hong Ge, Peking University
(Vice President of AADT)

SATURDAY, NOVEMBER 18, 2017

10:20 – 10:30 Refreshment

10:30 – 11:30 Special Lectures:

SL-1 INTENTIONAL TOOTH REPLANTATION FOR TRAUMATIZED TEETH IN CHILDREN
Assoc. Prof. Michiyo Miyashin, Tokyo Medical and Dental University

SL-2 PULP PROGNOSIS IN TEETH WITH COMPLICATED CROWN FRACTURE
Prof. Qin Man, Peking University

SL-3 ROOT CANAL TREATMENTS OF TRAUMATIZED PERMANENT TEETH WITH EXTERNAL ROOT RESORPTION
Prof. Yasutaka Yawaka, Hokkaido University

SL-4 THE TRANSITION OF DENTIN BONDING SYSTEM FOCUSING ON THE RESTORATION OF FRACTURED TOOTH
Prof. Kazuyo Yamamoto, Osaka Dental University

Chair-person: Assist. Prof. Pattarawadee Leelataweewud, Mahidol University

11:30 – 12:30 Oral Presentation (OR-01 – OR-05)

Chair-person: Assist. Prof. Nitesh Tewari, All India Institute of Medical Sciences

12:30 – 13:30 Lunch

13:30 – 14:30 Poster Presentation (P-01 – P-20) (Floor 4, Foyer)

14:30 – 15:30 Special Lectures:

SL-5 CLINICAL RESPONSE TO DENTAL TRAUMA IN DECIDUOUS TEETH
Assoc. Prof. Kunihiko Shimizu, Nihon University (Matsudo)

SL-6 BONE MARROW STROMAL CELLS RECOVERING THE PERIODONTAL LIGAMENT IN MOUSE EXPERIMENTAL OCCLUSAL TRAUMA MODEL
Prof. Norimasa Okafuji, Matsudo Dental University

SL-7 INHIBITION OF ACUTE INFLAMMATION BY GENE THERAPY AFTER IMPLANT PLACEMENT
Dr. Hiroaki Ishibashi, Kanazawa Medical University

SL-8 OCCLUSAL GUIDANCE AFTER PREMATURE LOSS DUE TO INJURY OF DECIDUOUS TOOTH
Clinical Prof. Toshiaki Hashimoto, Fukuoka Dental University

Chair-person: Prof. Takahide Maeda, Nihon University (Matsudo)

15:30 – 15:50 Refreshment

15:50 – 16:50 Oral Presentation (OR-06- OR-11)

Chair-person: Prof. Iwan Tofani, Universitas Indonesia

16:50 – 18:00 Oral Presentation (OR-12- OR-17)

Chair-person: Assoc. Prof. Choltacha Harnirattisai, Mahidol University

18:00 – 18:20 Closing Remarks

Oral Presentation Schedule

SATURDAY, NOVEMBER 18, 2017

Venue: Floor 4, Debaratana Auditorium

11:30 - 12:30

15:50 - 16:50

16:50 - 18:00

List of Posters

SATURDAY, NOVEMBER 18, 2017

Poster Set-up	08:00 - 08:30	Poster Tear-down	16:00 - 16:30
Venue: Floor 4, Foyer			
Poster Viewing Time	09:00 - 16:00	Poster Presentation	13:30 - 14:30

Keynote lecture and Special lecture

Assistant Professor Dr. Jeeraphat Jantarat

Department of Operative Dentistry and Endodontics,
Faculty of Dentistry, Mahidol University

Assistant Professor Dr. Jeeraphat Jantarat received her MDSc, in Endodontics and her PhD in Dental Science from the University of Melbourne, Australia. She is currently Head of Endodontics Division in the Department of Operative Dentistry and Endodontics, Faculty of Dentistry in Mahidol University, Bangkok, Thailand. Dr. Jantarat became a Diplomat of the Thai Board of Endodontics in 2007. She also received a Young Educator Award from the Faculty of Dentistry, Mahidol University in 2002 and recently 2016, distinguished alumni award from Prince of Songkhla University. She is responsible for Mahidol Dental Microscope Center (MDMC).

Dr. Jantarat has lectured extensively in her home country, Thailand and in international events in Australia, Hong Kong, Japan, Malaysia, Singapore, Philippines and Indonesia. Her main research focus on Re-generative Endodontic field. She is also involved in many research projects and received IFEA Jean-Marie Laurichesse Research Grant Award in 2014.

Dr. Jantarat is also serves as a reviewer for national and international journals such as Journal of Endodontics.

Regenerative Endodontic Procedures in Traumatized Teeth

Traumatic injuries in children can cause pulp necrosis in immature permanent teeth. Root canal treatment of immature teeth is always challenging. Root canal instrumentation of thin walls and obturation of widely opened apex are challenging. In addition, risk of vertical root fracture due to thin root canal wall may lead to tooth loss. In the past decade, regenerative endodontic procedures (REPs) have been introduced to treat non-vital immature permanent teeth. The treatment involved non-instrumentation, irrigations and triple antibiotics or calcium hydroxide have been used as intra-canal medication. The patient natural scaffold was created and the Bioceramics materials were used. The tooth will be restored resin composite. From Mahidol study, the outcome of Regenerative Endodontic Procedures was extremely high with more than 95% in contrast to many studies. We innovate many clinical technics and develop our own guideline that makes the treatment work. Many materials such as new Bioceramic materials have been tested for SCAPS proliferation and differentiation. The new Mahidol scaffold was develop to serve REPs treatment in case that patient natural scaffold can not be created. The efficiency of various concentrations of Mahidol hydrogel for SCAP proliferation and differentiation has been investigated and has some promising results.

Professor Emeritus Mitsutaka Kimura

Kyushu Dental University

Education Experience

- 1966 Graduated from Kyushu Dental University, Kitakyushu
- 1966~1973 Kyushu Dental University served as Assistant
- 1973~1976 Kyushu Dental University served as Lecturer
- 1979~2005 Kyushu Dental University served as Chairman and Professor of Pediatric Dentistry
- 1981 Visiting Prof. of California University (UCSF)
- 1993~1997 Dean of Graduate School, Kyushu Dental University
- 2005~ Prof. Emeritus of Kyushu Dental University

Community Service

- 1998~2000 President of Japanese Society of Pediatric Dentistry
- 1997~2002 Director & Secretary General of Pediatric Dentistry Association of Asia (PDAA)
- 1998~2000 Editorial Board Director of Japanese Association for Dental Science
- 1999~2005 Director of Japanese Society of Pediatric and Oral Surgery
- 1996~present Visiting Professor of School of Stomatology, Beijing University
- 2001~present Guiding Professor of Indonesia University
- 2001~present President of Japan Association of Dental Traumatology (JADT)
- 2004~present President of Asian International Association of Dental Traumatology (AADT)

Clinical Significance of Peripheral Nerves from the Situation of Stomatology: The Mechanism of Neural Transmission from Periphery to Brain by Biting / Chewing (from Childhood through Adulthood)

The development process of brain and neurons will be presented in terms of biting and chewing especially from childhood through adulthood.

- Neuron of the newly completed cerebral cortex.
- Dynamics of nerve fiber over the period of eruption to completion of tooth.
- Mechanism of neural transmission (neurotransmitter) from the periphery to the completed cerebral cortex.

The presentation will be composed of three important themes: mainly about cerebral limbic system (feelings), prefrontal cortex (controlling) and hypothalamus of brain stem (decision making).

Associate Professor Michiyo Miyashin

Department of Pediatric Dentistry, Graduate School,
Tokyo Medical and Dental University, Tokyo, Japan

Special lecture

Education and Academic Qualifications

- 1981 D.D.S., Tokyo Medical and Dental University (TMDU)
- 1981 Pedodontics Course, Department of Pediatric Dentistry, TMDU
- 1991 Ph.D., TMDU

Positions and Employment

- 1981 Clinical Fellow, Dental Hospital, Faculty of Dentistry, TMDU
- 1990 Assistant Professor, Department of Pediatric Dentistry, TMDU
- 2014-present: Associate professor (Head), Department of Pediatric Dentistry, Graduate school of Medical and Dental Sciences, TMDU

SL-1

Intentional Tooth Replantation for Traumatized Teeth in Children

The preservation of dental tissues is very difficult in traumatized teeth with progressive root resorption, root fractures, marginal bone loss, and large periapical lesions in spite of endodontic treatment. Intentional tooth replantation was performed for traumatized teeth in children using rotation or extrusion to establish optimal positioning. In intentional tooth replantation, the tooth was exarticulated for preparation, and then apical foramen and root resorption lacunae were filled with adhesive resin. During this extraoral endodontic procedure, the tooth was wrapped with gauze soaked with Hank's Balanced Salt Solution (HBSS). Successful intentional tooth replantation relies on such factors as, gentle extraction, sufficient removal of granulation tissues at the root resorption area and adequate filling by using proper bonding resin with high sealing ability. After curettage of alveolar socket and replantation to optimal position, fixation and placement of periodontal pack were performed with adhesive resin. It is essential to prevent marginal infection of the gap between root and alveolar bone. Clinical follow-up of these cases showed satisfactory survival of intentional replantation, thus providing a realistic treatment alternative for traumatized teeth in young individuals.

Keywords: Intentional tooth replantation, Marginal bone loss, Periapical periodontitis, Progressive root resorption, Root fracture

Professor Man Qin

Department of Pediatric Dentistry, Peking University School and Hospital of Stomatology, Beijing, PR China

Educational Background

- Graduated from School of stomatology, Beijing Medical University (formerly Peking University School of Stomatology) in 1988, and equivalent DDS.
- Got PhD degree in Kyushu Dental College, Japan in 2000.

Professional Experiences:

All at Department of Pediatric Dentistry, Peking University School of Stomatology

- During 1988 to 2009, working as a resident, an assistant clinical professor, an associate clinical professor and associate professor successively.
- 2010 to now, professor and the chair of the department of Pediatric Dentistry, PKUSS.

Professional Activities

- The president-elect of Chinese Society of Pediatric Dentistry, 2014-2017
- Vice President of Beijing Society of Pediatric Dentistry, 2013-2016
- The Consult Member of Beijing Society of Stomatology, 2011 to NOW
- The Committee Member of Membership Committee and the Council member of International Association of Paediatric Dentistry
- Fellow of International College of Dentists.

Research and Interests:

Engage in Pediatric dentistry,

- Caries etiology, preventive and treatment for children;
- Endodontic in children and adolescents, pulp regeneration in immature teeth;
- Dental trauma
- Orofacial growth and development

SL-2

Analysis of Pulp Prognosis in Permanent Teeth with A Complicated Crown Fracture Treated with Vital Pulp Therapies – A Retrospective Study

Background: Complicated crown fractures are relatively common in children where the maintenance of a vital pulp is especially important in young permanent teeth.

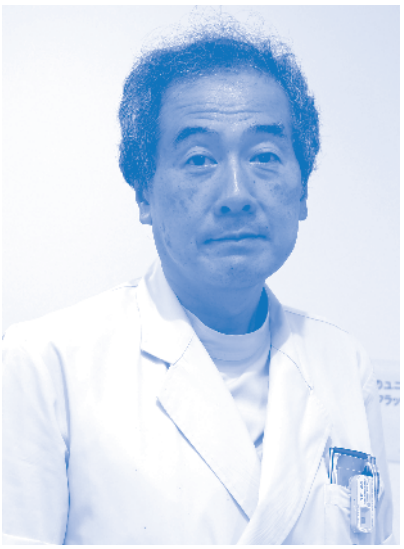
Aim: To analyze the pulp prognosis of permanent teeth with complicated crown fracture treated with vital pulp therapies in adolescent.

Material and Methods: Complete dental records of teeth with complicated crown fracture treated with vital pulp therapies were obtained. The risk of pulp necrosis was evaluated by the Kaplan-Meier method and Cox regression (P<0.05). Risk factors included gender, age, time interval between dental injury and treatment, stage of root development, types of vital pulp therapy and coronal restoration.

Results: The study involved 375 teeth with complicated crown fractures treated with vital pulp therapies (direct pulp capping, partial or coronal pulpotomy, and direct pulp capping changed into pulpotomy (partial or coronal pulpotomy). The frequency of pulp necrosis was 10.1% (11/109) for partial pulpotomy, 9.8% (20/205) for coronal pulpotomy. There was no difference between partial and coronal pulpotomy (P=0.673). Meanwhile, the risk of pulp necrosis was not significantly different between pulpotomy (33/314, 10.5%) and retreatment by pulpotomy after direct pulp capping (2/33, 6.1%) (P=0.436). However, the frequency of pulp necrosis with direct pulp capping therapy (16/28, 57.1%) was significantly higher than with pulpotomy (partial and coronal pulpotomy) (odds ratio=8.216, P=0.000). The time interval between dental injury and treatment did not significantly influence pulp survival rate after pulpotomy (partial and coronal pulpotomy) (P=0.312), but root development stage had a significant impact (P=0.000).

Conclusions: Partial or coronal pulpotomy, employed either as primary pulp therapy or secondary to emergency pulp capping, had similarly satisfactory success rates, a finding of clinical significance to management of pulp exposures due to large coronal tooth fractures.

Keywords: Complicated crown fracture, Direct pulp capping, Permanent teeth, Pulpotomy, Pulp prognosis



Professor Yasutaka Yawaka

Department of Oral Functional Science, Faculty of Dental Medicine, Hokkaido University, Hokkaido, Japan

Professional and Research Experience:

April.2005~	Dentistry for Children and Disabled Persons, Department of Oral Functional Science, Faculty of Dental Medicine / School of Dental Medicine, Hokkaido University	Professor
D April.2003~March.2005	Clinic of Pediatric Dentistry in Oral Rehabilitation, Hokkaido University Hospital	Lecturer
June.1993~March.2005	Department of Pediatric Dentistry, School of Dentistry, Hokkaido University	Research Associate
Janualy.1988~ May.1993	Clinic of Pediatric Dentistry in Oral Rehabilitation, Hokkaido University Hospital	Research Associate
April.1986~ December.1987	Department of Pediatric Dentistry, School of Dentistry, Hokkaido University	Resident

Membership in Professional Societies:

1. Director, The Japanese Society of Pediatric Dentistry.
2. Director, The Japanese Society for Disability and Oral Health.
3. Director, Japan Association of Dental Traumatology.
4. Director, Hokkaido Association of Dental Science.

SL-3

Root Canal Treatments of Traumatized Permanent Teeth with External Root Resorption

External root resorption is an important challenge in the preservation of traumatized teeth. External root resorption is observed in cases of replanted teeth with dental trauma. Root canal dressing containing calcium hydroxide [$Ca(OH)_2$] is one recommended clinical approach for external root resorption treatment. However, complete control of external resorption may not be possible due to certain factors such as the smear layer, which is formed by reaming and filing during root canal treatments. The smear layer plugs dentinal tubules and inhibits the effects of $Ca(OH)_2$ as root canal dressing material.

Our studies showed root canal irrigation with ethylene diaminetetraacetic acid (EDTA) and sodium hypochlorite (NaOCl) with an ultrasonic device is the most effective method to remove the smear layer. Additionally, an alkaline environment at the outer root surface due to ion diffusion from $Ca(OH)_2$ was observed following this treatment.

Therefore, the combined use of EDTA and NaOCl with an ultrasonic device for root canal irrigation leads to good control of external root resorption.

Keywords: Calcium hydroxide, Dental trauma, External root resorption, Replanted tooth, Smear layer

Professor Kazuyo Yamamoto

Osaka Dental University, Osaka, Japan

1981 - 1987	Studies at Osaka Dental University
1987	D.D.S. (Osaka Dental University)
1987 - 1991	Studies at Graduate School of Dentistry, Osaka Dental University, Department of Operative Dentistry
1991	Ph.D. (Osaka Dental University)
1992 - 1993	Guest Researcher of RWTH Aachen University, Germany (Director : Prof. Dr. Finger WJ)
1993 - 1996	Dental Division, Biwako Central Hospital
1996 - 1998	Full time Instructor, Department of Operative Dentistry, Osaka Dental University
1998 - 2005	Lecturer, Department of Operative Dentistry, Osaka Dental University
Since 2005	Chairman and Professor, Department of Operative Dentistry, Osaka Dental University
Since 2014	Visiting Professor of Southern Medical University, China

Member of Scientific and Professional Organizations:

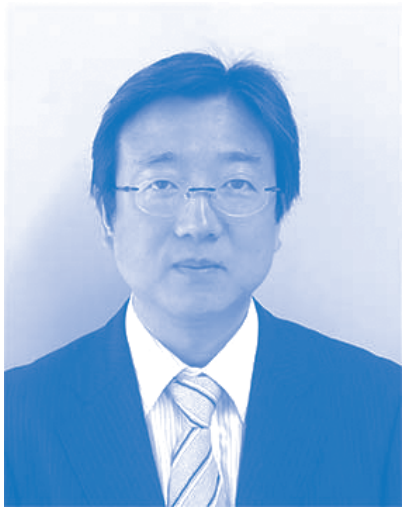
The Japan Association for Dental Science (Councilor)
The Japanese Society of Conservative Dentistry (Executive Director)
Japan Academy of Esthetic Dentistry (Executive Director)
Japan Association of Dental Traumatology (Director)
Japan Society for Adhesive Dentistry (Director)
The Japanese Society for Dental Materials and Devices (Councilor)
Japanese Dental Education Association (Councilor)
Japanese Association for Dental Research (Councilor)
Japanese Society for Laser Dentistry (Councilor)

SL-4

The Transition of Dentin Bonding System Focusing on the Restoration of Fractured Tooth

More than a half century has passed since 'bonding' was introduced into clinical dentistry. During this period, composite resin and bonding systems have markedly advanced and resin systems bondable to teeth, metals, and ceramics are now essential for routine dental practice. Especially, bonding systems for teeth have recently progressed markedly from the first-generation system targeting only enamel to the latest system, 1 Bottle - 1 Step (All in One) system. Resin bonding systems are now the leading part of restorative treatment based on Minimal Intervention Dentistry (MID) proposed by the FDI because, together with their esthetics, they are capable of minimizing the amount of cutting and conserving the healthy parts of teeth as much as possible, and there is no doubt that they will further develop in the future. Using adhesive resin, not only can the amount of tooth cutting be markedly decreased but also traumatized teeth previously requiring sacrifice, such as pulpectomy and tooth extraction, may be conserved by minimizing invasiveness depending on cases. Therefore, the use of adhesive resin promotes protection of the teeth. In this lecture, I would like to talk about the adhesion mechanism of bonding systems, proper use of different systems, and treatment methods of crown and root fractures using bonding.

Keywords: Dentin bonding system, Fractured tooth



Associate Professor Kunihiko Shimizu

Department of Pediatric Dentistry, Nihon University School of Dentistry at Matsudo, Chiba, Japan

Education Experience

1996	DDS, Nihon University School of Dentistry at Matsudo (NUSDM)
2000	PhD, Nihon University Graduate School of Dentistry at Matsudo.

Position and Employment

2000-2002	Assistant Professor, Dept. of Pediatric Dentistry, NUSDM.
2002-2008	Lecturer, NUSDM.
2008-present	Associate Professor, NUSDM.
2014-present	Clinical Professor, NUSDM.

SL-5

Clinical Response to Dental Trauma in Deciduous Teeth

Dental health workers are urged to respond without preparations in advance, because trauma injuring around the oral area occurs suddenly in daily life. By quick and appropriate treatment for trauma, it is often desirable to suppress adverse effects on injured teeth and succedaneous permanent teeth, and obtain desired therapeutic effects for patient, so dental health workers need whenever to prepare for appropriate response. However, trauma cases of young people are relatively few cases in the whole daily treatment, so the correspondence for dental trauma may be ambiguous. The correspondence and the prediction of prognosis of the trauma becomes very complicated, because for the reason of the mixed existence of the deciduous tooth and the succedaneous permanent tooth in childhood, so that the injured state is more divergent than the trauma of the adult.

Dental Hospital attached Nihon University School of Dentistry at Matsudo is located on the northeast of Chiba Prefecture adjacent to Tokyo Metropolitan and has a relatively large population. The number of patients first visiting our dental hospital is nearly 15,000 every year and this is a relatively large number among university attached dental hospitals in Japan. Over 2,000 first visit children have come to the pediatric dentistry division every year. The trauma of the oral area is the second incentive to visit following dental caries treatment, and the most of patients visit our hospital immediately after injury, because of our hospital is located on the residential area.

In this presentation, we will introduce several cases of oral trauma, which have recently visited our pediatric department of hospital, mainly focusing on response to tooth trauma in the stage of deciduous dentition.

Keywords: Avulsed tooth, Case report, Deciduous teeth, Dental trauma

Professor Norimasa Okafuji

Department of Hard Tissue Research, Graduate School of Oral Medicine, Matsumoto Dental University, Nakano, Japan

Curriculum Vitae

1987	D.D.S., Graduate of Matsumoto Dental University, Japan
1996	Ph. D, title by School of Dentistry, Aichi-Gakuin University, Japan
2002	Associate Professor, Department of Orthodontics, Matsumoto Dental University
2002.12.-2003.11.	Research Fellow of Department of Orthodontics, University of Washington, Seattle, Washington, USA
2006	Specialist appointed by Japanese Orthodontics Society (No.136)
2008	Certified physician of Japan Association of Dental Traumatology (No.67)
2007	Professor, School of Dentistry, Matsumoto Dental University Professor, Department of Hard Tissue Research, Graduate School of Oral Medicine, Matsumoto Dental University

SL-6

Bone Marrow Stromal Cells Recovering the Periodontal Ligament in Mouse Experimental Occlusal Trauma Model

It is known that traumatic occlusion in the presence of periodontal tissues along with plaque-induced inflammation may have an important contributory role in the progression of periodontal disease. The periodontal ligament and histopathology-like consideration is mostly experimental of rats, macaque monkeys and beagle dogs as seen in animal experiments performed so far. However, the report did not find a focus point at cytological kinetics of periodontal ligament due to excessive occlusal loading. Thus, we focused the cytological kinetics in the periodontal tissues by excessive occlusal loading. In this study, we established an experimental model of occlusal trauma in mice, and analyzed histopathological and immunohistochemical changes of cytological kinetics in periodontal ligament of the lower left first molar. Using a model of experimental occlusal trauma in mice, we investigated cytological kinetics of periodontal ligament by means of histopathological, immunohistochemical, and photographical analysis methods. Periodontal ligament cells at furcation areas of molar teeth in the experimental group on day 4 showed a proliferation tendency of periodontal ligament cells. The cells with a round-shaped nucleus deeply stained the hematoxylin and increased within the day 4 specimens. Ki67 positive nuclei showed prominent increase in the group on days 4 and 7. Green Fluorescent Protein (GFP) positivity also revealed cell movement but was slightly slow compared to Ki67. It indicated that restoration of mechanism seemed conspicuous by osteoclasts and macrophages from bone-marrow-derived cells for the periodontal ligament at the furcation area. It was suggested that the remodeling of periodontal ligament with cell acceleration was evoked from the experiment for the group on day 4 and after day 7. Periodontal ligament at the furcation area of the molar teeth in this experimental model recovered using the cells in situ and the bone-marrow-derived cells.

Keywords: GFP, Ki67, Mouse, Occlusal trauma, Periodontal ligament

Dr. Hiroaki Ishibashi

Oral and Maxillofacial Surgery, Kanazawa Medical University, Kanazawa, Japan

Education

1989	Graduated Kyushu University, Faculty of Dentisrty, Awarded the degree of D.D.S.

Research and professional experiences

1989-1993	Post doctoral course of Department of Pathology, Faculty of Medicine, Kyushu Univeristy
1993-1995	Research Associate, Department of Oral and Maxillofacial Surgery, Kyushu Dental College
1995-1997	Resident. Department of Oral and Maxillofacial Surgery, Kyushu University Dental Hospital
1997-1998	Research Associate, Department of Pathology, Faculty of Medicine, Kyushu Univeristy
1999-2007	Research Associate. Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Kyushu University
2008-2014	Associate Professor, Department of Oral and Maxillofacial Surgery, Faculty of Medicine, Shimane University
2014-	Associate Professor, Department of Oral and Maxillofacial Surgery, Faculty of Medicine, Kanazawa Medical University

SL-7

Inhibition of Acute Inflammation by Gene Therapy after Implant Placement

Objective: Recently, novel molecular target-based therapies have been increasingly used as salvage treatments for intractable cancers. Some of these therapies have already been established as the standard protocol to treat advanced cancer of several organs. However, no molecular target-based therapy or gene therapy has been established as a reliable treatment option for cancers of the teeth, oral cavity, and maxillofacial region.

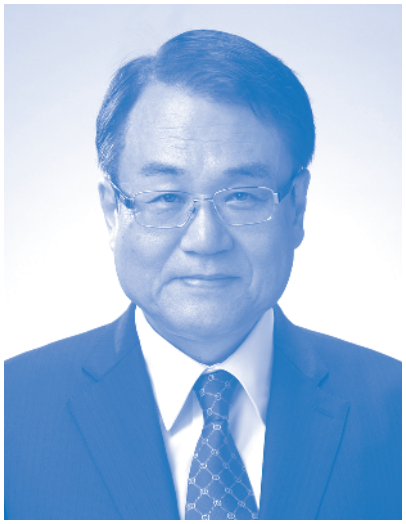
The author has proposed two strategies of novel gene therapy to treat oral and maxillofacial cancers: the decoy strategy, which involves inhibition of the expression of a targeted gene, and the HVJ-liposome method, which involves transfection of a conduct gene. This review summarizes the results of recent cancer treatment using a novel gene therapy, the decoy strategy, with gene transfection using the HVJ-liposome method. The author's data support use of this novel therapy for reduction of inflammation after placement of dental implant.

Methods: After preparation of straight muscle of abdomen cutaneous flap using SCID mice, decoy ODNs against transcriptional factor, NF-kB, was injected to the flap through inferior epigastric artery. Then vascular anastomosis and orientation sutures were performed after induction of decoy ODNs. Seven days later, severity of acute inflammation of straight muscle of abdomen cutaneous flap was analyzed by following methods. (1) Gene expression of IL-1 and TNFα (Northern Blot Analysis), (2) Infiltration of chronic inflammatory cells (Histological examination), (3) Edema and Swelling (weight of flaps).

Results: Gene expression of IL-1 and TNFα was apparently reduced by induction of decoy ODNs against transcriptional factor, NF-kB. Infiltration of chronic inflammatory cells was also diminished, and weight of flaps were increased due to edema and swelling.

Conclusion: The strategy by induction of decoy ODNs against NF-kB is effective for reduction of gene expression of inflammatory cytokines, and inflammatory reaction as infiltration of chronic inflammatory cells, edema and swelling. The recent data support use of this novel therapy for reduction of inflammation after placement of dental implant.

Keywords: Dental implant, Gene therapy, Inflammation



Clinical Professor Toshiaki Hashimoto

Hashimoto Clinic of Pedodontics & Orthodontics, Fukuoka, Japan

Bio-sketch

1979	Graduated from Fukuoka Dental College in Japan
1979~1982	Assistant for Fukuoka Dental College Pedodontics lecture
1982~present	Hashimoto Clinic of Pedodontics & Orthodontics (Opening)
1987	Awarded Doctor of Medical Dentistry from Kyushu Dental College
2004~2006	Clinical Professor, Kyushu Dental College
2010~present	Clinical Professor, Fukuoka Dental College

Community Service

1992~2016	Director of the Japanese Society of Pediatric Dentistry
2001~present	Director of the Japan Association of Dental Traumatology
2004~present	Standing Director in Asia of the International Association of Dental Traumatology
2005~present	Specialist attending physician of the Japanese Society of Pediatric Dentistry
2006~2008	President of Kyushu regional chapter of the Japanese Society of Pediatric Dentistry
2006~present	Specialist in Japan Association of Dental Traumatology authorization Specialist attending physician of Japan Association of Dental Traumatology authorization
2013~present	Chairperson of Pediatric Oral Medical Society for the Study

SL-8

Occlusal Guidance After Premature Loss due to Injury of Deciduous Tooth

One cause of premature loss of deciduous teeth is traumatic injury. What are representative cases of premature loss due to trauma? For example, a child may completely dislocate a tooth, or poor prognosis of an injury may lead to unavoidable tooth extraction.

Complications of premature loss include negative effect on the growth of the chin and succedaneous teeth, with greater severity as age decreases. Due to premature loss, the eruption space for succedaneous teeth is narrower, leading to difficulty in emergence of the tooth and in some cases impaction. As a result, some method of assistance for proper eruption is needed, such as creating space by performing fenestration surgery and providing traction for the impacted tooth. Here, I would like to introduce the method that I use.

Another method is to prevent that an eruption space from becoming narrow by using a space maintainer. I often use the Pedo Partial Appliance.

In addition, care is needed since trauma to a deciduous tooth may result in enamel hypoplasia of the succedaneous tooth.

In order to address the various effects of premature loss of deciduous teeth due to trauma, comprehensive consideration from a wide angle, continuous observation, and the appropriate response at the proper time are needed.

Keywords: Deciduous tooth, Eruption disorder, Occlusal guidance, Premature loss, Traumatic injury

Oral Presentation

For direct access to the Abstracts and CV of Presenters

OR-01 / Present time 11.30-11.40

Pornpailin Kasemkhun, Praphasri Rirattanapong
Department of Pediatric Dentistry, Faculty of Dentistry,
Mahidol University, Bangkok, Thailand

Management of Complicated Crown Fracture with Subluxation in Young Permanent Incisor

Complicated crown fracture is one of the most frequent dental trauma in young permanent teeth. The treatment of choice of this kind of dental trauma is partial pulpotomy or Cvek technique, which has shown high success rate in many previous case studies. Partial pulpotomy is aimed to maintain pulp vitality by removing only some part of coronal pulpal tissue and promote healing by placing of biocompatible materials. There are various of materials that can be used in partial pulpotomy. One of the most widely used materials is mineral trioxide aggregate, known as MTA. This case report is aimed to present the management and follow-up of complicated crown fracture with subluxation by partial pulpotomy with MTA.

A 9-year-and-6-month-old boy came with crown fracture of two maxillary central incisors, presenting at pediatric dental clinic two days after trauma. The diagnosis was uncomplicated crown fracture with subluxation for the right maxillary central incisor and complicated crown fracture with subluxation for the left maxillary central incisor. The composite restoration and partial pulpotomy were performed on 11 and 21, respectively. After 6 months, the patient came for traumatized teeth follow-up. He gave a history that 21 had repeated trauma with partial restoration dislodged, no any symptoms. Nevertheless, the teeth are still in favorable outcome. And the long-term follow-up is still needed because these crown fractured teeth are concomitant periodontal injury which is subluxation. Thus, the prognosis will not be as good as the crown fracture without subluxation.

Keywords: Partial pulpotomy

Oral Presentation

OR-02 / Present time 11.40-11.50

Yuta Inoue, Megumi Hayashi, Yoshihiro Sakamoto, Hideto Inoue
Inoue Hideto Dental Clinic, Kita-kyushu, Japan

Dental Treatment for Tooth Dislocation Due to Injury

The transitional stage from infant to adult is the most vigorous period for maxillofacial growth. Particularly for woman, the normal dentition and excellent esthetics are highly required.

The patient is a 20-year old female. She has a dental history that her maxillary left central incisor was dislocated by injury when she was about 10 years old and it has been left as it was for 10 years. She visited our clinic with the chief complaint of maxillary malalignment.

Prosthodontic treatment by implant was planned for the defect of the left maxillary central incisor and orthodontic treatment was started to secure the space for implant. Super Mini Anchor Plate (SMAP, Dentsply Sankin, Tokyo, Japan) was applied around the roots of the maxillary right and left first molars and the maxillary right and left third molars were extracted. The molar teeth were distally moved by wire orthodontics and distal movement of the root was especially kept in mind for the anterior teeth. The space was secured and the implant treatment was carried out. The periodical observation was performed after that.

Approximately seven years have passed since the combination therapy of orthodontic and implant treatments and the good prognosis will be reported with some additional considerations.

Keywords: Dental treatment, Injury, Tooth dislocation

OR-03 / Present time 11.50-12.00

Sirinan Mabangkru, Araya Phonghanyudh
Department of Pediatric Dentistry, Faculty of Dentistry,
Mahidol University, Bangkok, Thailand

Management of Lateral Luxation and Subluxation in Primary Teeth

Thai boy, 1-year-and-6-month-old, came with the chief complaint of excessive tooth mobility with splitted palatal gingiva and bleeding due to face hitting on the edge of bed at 9 days ago.

The clinical examination found 51 had 3rd degree mobility, displaced labially. Tooth 61 showed enamel-dentin fracture with 3rd degree mobility and 52 had 2nd degree mobility without displacement. The diagnosis of 51 was lateral luxation, 52 and 61 were subluxation.

The repositioning on 51 using suture splint was performed. After 8 weeks follow-up, 51 and 61 had 1st degree mobility, normal wound healing without any symptoms. Radiographic examination found continued root formation of 51, 61 without pathological lesion. Tooth 52 was nearly completed root formation without pathological lesion.

This case has favorable outcome with the improvement in both radiographic and clinical status. This case report showed that the severe mobility of laterally luxated tooth could be treated by repositioning with suture splint. However, long-term follow-up is still needed.

Keywords: Lateral luxation, Subluxation

OR-04 / Present time 12.00-12.10

Takahiro Totani
Medical Corporation Totani Dental Clinic, Osaka, Japan

Clinical Investigation on Adhesion of Juvenile Permanent Teeth

Oral Presentation

Tooth trauma often encountered in routine practice. Many reports are found especially for tooth with incomplete root formation. According to a survey by the Japan Pediatric Dentistry Association in 1996, 60% of tooth trauma is found in permanent teeth of patients aged between 7 and 9 years. Boys are twice as large as girls. For maxillary incisors, root fractures overwhelmingly account for 50%. Among them, simple root fractures are the most common, accounting for 40% of trauma teeth.

This time, a 9-year-old boy encounters a crown fracture of the maxillary incisor tooth due to trauma and reports follow-up after 10 years of treatment.

Keywords: Incomplete root formation, Root fracture, Tooth trauma

OR-05 / Present time 12.10-12.20

Masao Irie[a], Takashi Asano[b], Naoki Fukushima[b], Shinichiro Goto[b]

[a] Department of Biomaterials, Okayama University, Japan
[b] Kyushu Dental University, Japan

Highly-viscous Glass-ionomer Cement for Filling: Interfacial Gap-formation in Class I Restoration and Mechanical Properties

One of the major concerns with highly-viscous glass ionomer cements (HV-GICs) is their ability to achieve effective initial interfacial gap-formation in restorative cavities. This in vitro study examined the initial stage (after one-day storage) of interfacial gap-formation in Class I restoration together with determination of associated mechanical properties (compressive strength and flexural strength). Cavity preparation was made in occlusal surface of premolar teeth. Five HV-GICs were studied (Ketac Universal Aplicap, Ketac Molar Aplicap: 3M Oral Care, Fuji IX GP, Fuji IX EXTRA, EQUIA Forte: GC) and two conventional glass-ionomer cements (C-GICs, Ketac Silver Aplicap: 3M Oral Care, Fuji II: GC, as controls), with specimen sub-groups (n = 10/group) for each property measured. After one-day storage and polishing, the restored teeth were sectioned in a mesio-distal direction through the center of the model Class I restorations. The presence or absence of interfacial-gaps was measured at ×1000 magnification at 14 points (each 0.5-mm apart) along the cavity restoration interface; (n = 10; total points measured per group = 140). Compressive and flexural strengths were measured (n = 10/group), as described above.

For HV-GICs and C-GICs, significant differences ($p<0.05$) in gap-incidence were observed. In the former case, 4-14 gaps were found. In the latter case, 21-24 gaps were observed. The compressive and flexural strengths of HV-GICs significantly increased compared to C-GICs. After one-day storage, a HV-GIC performed significantly better than its corresponding a C-GIC. Increasing the powder-liquid ratio is the primary reason for improving these results. This improvement is achieved by a reduction in the size of the glass particle. A number of variations led to a HV-GIC with improved sealing and mechanical properties.

It is thought that a HV-GIC is the useful and significant restorative material for some pediatric or geriatric patients.

Keywords: Bonding ability, Glass-ionomer, Highly-viscous, Marginal gap, Sealability

Oral Presentation

OR-06 / Present time 15.50-16.00

Noor Othman
Faculty of Dentistry, Universiti Teknologi MARA, Selangor, Malaysia

Root Resorption: The Inevitable Complication

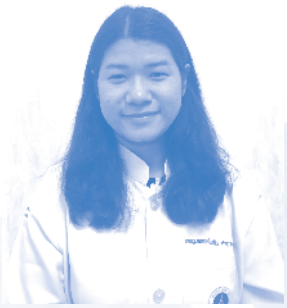
Objective: To report 2 clinical cases of upper anterior teeth presented with root resorption many years following replantation.

Case 1: A 20 year-old male suffered avulsion of tooth 21 as well as abrasion wounds resulting from a motor vehicle accident. Patient received treatment 2 days later and splinting of 13 to 23 was carried out after replantation of 21. Prior to replantation, root canal treatment of 21 was performed extra orally. At 10-month follow up, 21 appeared discoloured and a metallic sound was witnessed upon percussion. Internal bleaching was done for 21 and patient was satisfied with the outcome. Two years later, patient presented with tenderness to palpation at labial of 21 and cone beam computed tomography (CBCT) images of 21 showed marked replacement resorption.

Case 2: A 9 year-old girl experienced avulsion of 21 following a fall and replantation was done within the first hour. After 5 years, 21 presented with labial abscess, appeared discoloured and slightly mobile. Tooth 21 was also tender to percussion and there was no record of root canal treatment of the tooth. CBCT images of 21 showed distinct external root resorption.

Conclusion: Despite considerable knowledge about the pathogenesis of root resorption garnered from animal studies and observation of human replanted teeth, there is no definite protocol to arrest the condition. Favorable healing subsequent to an avulsion requires immediate interference followed by careful judgment and treatment especially during the healing phase. The importance of the emergency visit and the multidisciplinary assessments necessitate both the public and practitioners to possess understanding of the strategies involved.

Keywords: Dental trauma, Endodontics, External resorption, Replacement resorption, Root resorption



OR-07 / Present time 16.00-16.10

Ploypailin Kumprasert, Yuwadee Asvanund
Department of Pediatric Dentistry, Faculty of Dentistry,
Mahidol University, Bangkok, Thailand

Reattachment of the Crown Fragment

Crown fractures of the anterior teeth are a common type of dental trauma that mainly affects children and adolescent. Reattachment of crown fragment is one of the options for managing crown fracture when the tooth fragment is available. Reattachment of crown fragments can provide good and long-lasting esthetics because the original tooth structure, color, and surface texture are maintained. This case report presented the management of crown fracture by reattachment of the crown fragment.

A 10-year-and-5-month-old boy came to the Department of Pediatric Dentistry, Faculty of Dentistry, Mahidol University with a crown fracture of permanent maxillary incisor. Presenting at pediatric dental clinic was delayed for 4 months after trauma. He fell down from the scooter and bled from sulcus with tooth mobility, no spontaneous pain and no any symptoms. Previous treatment was the direct pulp capping and restored with resin composite at the private clinic and 5 days later the filling was dislodged. The tooth fragment was kept in tap water for 4 months. Clinically, tooth 11 presented enamel-dentin fracture with pulp exposure and be covered with capping material, no discoloration, no displacement, normal soft tissue, no mobility, positive to percussion, positive to cold test and positive to EPT. Radiographs showed crown fracture involved pulp horn, complete root formation, no root fracture and no pathological lesion. The diagnosis is complicated crown fracture with subluxation.

Reattachment with the fragment was performed using bonding agent on the fracture surface and restored with resin composite Z350 shade A2. In this case, although the color of the crown fragment was lighter than the crown at cervical region, the color may turn normal when the tooth exposes to the oral environment.

Keywords: Crown fracture, Reattachment

OR-08 / Present time 16.10-16.20

Hiroki Yamada
Viva Smile Dental Clinic, Gifu, Japan

Intraoperative CBCT for Diagnosing A Traumatized Tooth: A Case Report

Introduction: In childhood, motor function is immature. It is a period of time that is susceptible to tooth injuries. Traumatized teeth are complexities of injury to hard tissues, dental pulp tissues, and periodontal tissues. Therefore, they often have difficulty in diagnosing and treatment. Here we report a case of traumatized tooth successfully treated with the assistance of intraoperative CBCT.

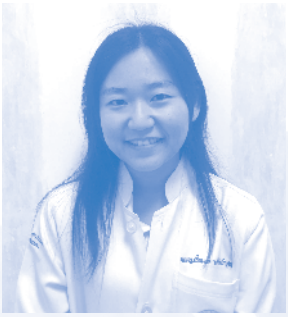
Case: A 15-year-old girl. Chief complaint: Discomfort in the left lower anterior teeth. Past dental history: Lower anterior tooth injury due to fall when she was 2.5 years old.

Progress: From initial diagnosis, she showed percussion pain and tenderness on apical portion of tooth 31. Dental x-ray photographs showed periapical permeable lesion and unclear pulp cavity. Under the diagnosis of pulp necrosis, endodontic treatment was started. However, strip perforation was suspected during access cavity preparation. Then, we performed intraoperative CBCT. Re-evaluation of the pulp cavity with dental CT showed significant tooth flexion and the deviated pulp cavity from cervical part. Perforation site of tooth 31 was covered with gingiva, therefore we underwent surgical endodontic treatment with operating microscopes. After root canal treatment, she showed improvement in symptoms, and the tooth was restored with composite resin.

Conclusion: In this case, past dental trauma affected root formation and made the treatment difficult. Pre- or intraoperative CBCT should be considered while treating injured tooth. In addition, for injured patients and their parents, it is desirable to conduct a regular periodic examination.

Keywords: CBCT, Trauma teeth, Strip perforation, Surgical endodontic therapy

Oral Presentation



OR-09 / Present time 16.20-16.30

Ueamporn Vongniwatkusol, Panida Phawilai
Department of Pediatric Dentistry, Faculty of Dentistry,
Mahidol University, Bangkok, Thailand

Management of Complicated Crown Fracture: Case Report

A three-year-old Thai boy came to dental clinic for proper management of tooth fracture. He is healthy and has no allergy to drugs. He had an accident to his upper anterior tooth 5 days ago. He fell down to the floor and his tooth was broken and had mobility without bleeding from gingival, but the upper lip had laceration. His parent couldn't brush his teeth because he felt hyper-sensitivity. Clinically, 61 had dentine fracture extended to pulp, first degree mobility, no bleeding from gingiva and positive to air flow. Radiographic examination, 61 showed radiolucent area on mesio-incisal surface involved pulp, no pathologic finding at periapical area. Diagnosis of 61 was complicated crown fracture with subluxation. Management of this tooth is pulpotomy with ferric sulfate and SSC. In the follow-up visit (9 weeks after trauma) 61 had no symptom, no mobility, negative to palpation and normal soft tissue. From radiograph, 61 showed intact lamina dura, normal PDL space, normal root length and no pathologic finding at periapical area.

Keywords: Case report, Complicated crown fracture

OR-10 / Present time 16.30-16.40

Hirofumi Tsuji
Division of Oral and Maxillofacial Radiology, Kyushu Dental University, Kita-kyushu, Japan

A Case Report of the Immature Permanent Teeth Associated with Root Elongation after Autotransplantation

Caries tends to rapidly progress in immature permanent teeth during the developmental period, and there are many cases that the crown of the tooth is destroyed in the routine dental practice. After then, the broken tooth needs to be extracted and so on. For the missing tooth, the auto-transplantation of the immature tooth should often be selected, because the procedure is useful to recover the oral cavity function with the relative small damage of the other teeth. In addition, for immature teeth, it has been reported that commonly the viability of the dental pulps, periodontal ligaments, cementoblasts, and osteoblasts are abundant. In major of cases, the roots have been elongated by hyper-cementosis of the immature tooth after the autotransplan-tation. In some rare cases, the roots of some immature teeth after the autotransplantation could be elongated by activated epithelial cells of Hertwig's epithelial root sheath at the apex. In the present case, we introduce one case report that the root of the immature tooth after the autotransplan-tation was evidently elongated on dental X-ray. Through the present case, we have speculated some factors on activations of tooth formation after auto-transplantation, and that the appropriate methods of auto-transplantation by the view of success of tooth formation.

Keywords: Ankylosis of permanent tooth, Development of root, Immature permanent tooth, Transplantation, X-ray radiograph

OR-11 / Present time 16.40-16.50

Tippawan Khrautieo, Apiwan Smutkeeree
Department of Pediatric Dentistry, Faculty of Dentistry,
Mahidol University, Bangkok, Thailand

Clinical Outcome of Post-replantation for 6 Months of An Avulsed Upper Anterior Tooth in Prolong Dried Period with Subsequence Trauma: Case Report

This case report presents delayed replantation of avulsed right maxillary central incisor (Tooth 11) and endodontical treatment of subluxated left maxillary central incisor (Tooth 21). Nine-year-old boy came to emergency pedodontic clinic with an avulsed right maxillary central incisor and subluxated left maxillary central incisor due to trauma at 72 hours ago. An avulsed tooth was stored in sterilized milk. The teeth were replaced and splinted in an emergency visit and then endodontically treated with calcium hydroxide medication after replacement for 7 days. At post-reposition period for 5 weeks, the same teeth were injured again and the patient presented with extrusion of right maxillary central incisor and subluxation of left maxillary central incisor. The teeth have been replaced and splinted for further 3 weeks. In the follow-up visit, left maxillary central incisor showed pulp necrosis and endodontic treatment was performed. The clinical and radiographic controls of the patient were performed based on the International Association of Dental Trauma guidelines. During 6 months follow-up period, the replanted tooth remained in a stable position with esthetic appearance. However, radiographic finding showed initial replacement resorption and ankylosis.

Keywords: Avulsed tooth management

OR-12 / Present time 16.50-17.00

Makoto Saito
Saito Dental Clinic, Shimane, Japan

The Deciduous Tooth Treated by Replantation One Week After Luxation – Clinical Case Report –

Oral Presentation

Examination

Patient: A 4-year-2-month-old female

First visit: April 2011

Present history: Her right deciduous central incisor fell out in an accident in her house and she lost the tooth. One week later, surprisingly her dog found out the tooth in the room.

Treatment outcome

We washed the tooth with electrolytic water, cut the tip of tooth not to damage dental germ of a permanent tooth growing later, performed root canal filling of the tooth from the root apex side using the calcium hydroxide paste (Vitapex, Neo Dental, Japan). After this root canal treatment, we replanted the tooth with application of Enamel Matrix Derivative (Emdogain, Straumann, Switzerland) and fixed it to the teeth next to it with 4-META/MMA-TBB resin (SuperBond, Sun Medical, Japan). Four weeks later, we confirmed that the tooth did not move and a dental x-ray showed periodontal space. Then we removed the temporary fixation. After 19 months (she was 5-year-9-month old), the deciduous tooth fell out and replaced with the permanent tooth. The permanent tooth is normal.

Discussion

The successful result of this treatment might be due to several factors. Particularly, we thought that EMD and calcium hydroxide paste brought the environment that could be appropriate for wound healing of the periodontium.

Keywords: Calcium hydroxide paste, Deciduous tooth, Enamel Matrix Derivative, Replantation

OR-14 / Present time 17.10-17.20

Ayako Yoshida
Seinan Jo Gakuin University, Fukuoka, Japan

Study on The Oral Health Education at Elementary School in Japan

The Oral Health Education at Elementary School promotes the children to obtain the fundamental knowledge and skills for their own healthy life.

So it is important to develop the ability of children to think and practice by themselves, such as what is the health or how to improve their health, on the basis of children's growth and development process.

To develop the health literacy of children, the role of teachers is important. The teachers are required to obtain the great abilities of health education.

The observations about the status of the Oral Health Education at Elementary School and the role of YOGO-teacher (a specific teacher in Japanese school education system, in charge of school health education) provided some study's findings.

Keywords: Elementary school, Health education, Health literacy, Oral health

OR-16 / Present time 17.30-17.40

Junhel C Dalanon, Marian Ave L Ibon, Joshua Lorenzo V Bustillo, Jade E Buynay, Junilene Deo D Cabusao, Vivien Hazel J Sarmiento, Sushmita Mae G Tormis

• College of Dentistry, Southwestern University PHINMA, Cebu City, Philippines
• School of Oral Health and Welfare, Institute of Biomedical Sciences, Tokushima University Graduate School, Japan

Infection Control Methods and Infection Control Practices of Short-term Dental Missions in Cebu, Philippines

OBJECTIVE

The study determined the Infection Control Methods and Infection Control Practices of short-term dental missions in Cebu, Philippines among the handling dental health care practitioners from the different Short-term Dental Missions (STDM) conducted in partnership with the Philippine Dental Association Cebu Chapter.

METHOD

Different STDMs were attended with varying numbers of handling dentists present in each dental mission until the minimum number of respondents was achieved. The research study employed the descriptive survey research to know if these dentists were implementing the correct infection control methods and infection control practices during Short-term Dental Missions. Foremost, dentists were given questionnaires to be answered for us to collect information pertaining on how they conducted proper infection control during Short-Term Dental Missions.

RESULTS

The study's results interpreted that the profile of the respondents in terms of sex, there were more female (56.67%) than male (43.33%) attending dentists during STDMs. The Age group that was common during STDMs was from 31-40 years old (36.67%). The Pre-disinfection practices of the respondents were moderate. The Infection Control method and sterilization methods of respondents were overall low. The infection control practices of the respondents had very high interpretations overall. The significant correlation of the profile of the respondents and their Infection Control Methods and Infection Control Practices was not significant.

CONCLUSION

Thus, this study has provided a valuable insight into the Infection Control Methods and Infection Control Practices of STDM in Cebu among the handling dentists.

The results confirmed that the Infection Control Practices of the respondents were relatively very high but their sterilization methods were relatively low overall. The relationship between utilization of Infection Control Methods and the Infection Control Practices of the respondents had low positive correlation.

Keywords: Infection Control Methods, Infection Control Practices, Public health dentistry, Short-term Dental Missions

Oral Presentation

OR-17 / Present time 17.40-17.50

Ujjal K Bhawal
Department of Biochemistry and Molecular Biology, Nihon University School of Dentistry at Matsudo, Japan

Low Level Fluoride Stimulates Epithelial-Mesenchymal Interaction in Oral Mucosa

Objectives: Oral mucosa consists of the superficial epithelium and the underlying lamina propria, and it functions as a barrier against exogenous substances. In development, interactions of stem/progenitor cells of the epithelium and mesenchyme are crucial to the morphogenesis of oral mucosa. Our previous work in low level fluoride induced cell motility of epithelial cells has yielded important clues for periodontal physiology. This study focuses on a working concept of low level fluoride to provide a conducive oral environment for pivotal epithelial mesenchymal interactions.

Materials and methods: Cultured human primary gingival epithelial cells treated with 50 μM NaF were investigated by DNA microarray. Quantitative real-time PCR and an in vivo experimental rat skin wound model were employed to confirm the findings obtained with the microarray analysis.

Results: Microarray data revealed that low level fluoride-treated human gingival epithelial cells elevated various biological processes. The key proliferation markers, FGF2 and FGF7, and mesenchymal marker, Twist1, expression was up-regulated and quantitative real-time PCR confirmed this observation. Our in vivo study revealed that low concentration of NaF increased FGF2, FGF7, and Twist1 protein expression in fluoride-treated skin wound tissues compared with controls.

Conclusion: These results provide new information on low level fluoride-induced epithelial-mesenchymal interactions and may thus aid in the understanding of oral mucosa development.

Keywords: FGF2, FGF7, Human gingival epithelial cell, Low level NaF, Twist1

Oral Presentation

The 20th World Congress on Dental Traumatology

WCDT 2018

San Diego, California USA
August 16-18, 2018

https://www.wcdt2018.com

AADT Information
http://www.ja-dt.org/official2.html

Poster Presentation

For direct access to the Abstracts
and CV of Presenters

P-01

Eva Fauziah, Thea Kirana, Eka S Shofiyah
Pediatric Dentistry, Universitas Indonesia, Indonesia

Different Approach in Complicated Crown Root Fracture in Primary Teeth: Report of Two Cases

High prevalence in trauma involving anterior primary teeth in young children known to be caused by their on-going motor development. Although behavior management is mostly challenging, proper treatment needs to be addressed in order to secure its developing permanent teeth. The aim of this report was to present two case series of crown-root fractures in primary maxillary incisors. Based on medical history, clinical findings, and radiograph examination, the obtained diagnosis for both cases was complicated crown-root fracture. Recommended treatments for complicated crown-root fracture in primary teeth are fragment removal followed by coronal restoration or extraction. In both cases, pulp polyp excision was done to see remaining coronal fragment in order to determine the best treatment option. In the first case, the conservative approach was demonstrated to the treatment of primary trauma with root canal treatment and tooth restoration. This treatment option was preferred because remaining tooth fragment was adequate, no pathologic finding in periapical area, and permanent tooth bud was securely positioned. In the second case, the treatment selected was total extraction of the primary tooth as the fracture line extended intraosseous and the remaining tooth fragment was not adequate to allow coronal restoration. Continued clinical observation and radiographic examination were evaluated to monitor the outcome of the treatment and the condition of succedaneous tooth.

Keywords: Crown-root fracture, Extraction, Primary teeth, Root canal treatment

Poster Presentation

P-02

Tadashi Yoshida
Yoshida Dental Clinic
Department of Oral Implantology, Kyushu Dental University, Japan

A Case of 4 Complete Dislocation of Permanent Maxillary Incisors

Background

Some fracture of teeth was happen by unexpected contact or accident. It is very rare 4 maxillary front teeth dislocate falling off, at once. Provide me a good progress, after following up four years & four months, I report the summary.

Case

The patient was born in 2002, he was 9 years boy. He felt down and get a blow at face in playground equipment at the school 11:00 a.m., on February 10, 2012. The teeth which fell off at once by injury were four but one of four teeth was lost. I replanted remaining three of them convalescence of luxated tooth are key by periodontal membrane cell. This patient was already 80 minutes was past from injury, but fortunately, as for the progress, it was good after art without wound department infection. Because it is a 14-year-old affected child, I need I wait for a while to 18 years old that is for the last time prosthetic measures age.

Examination

The most of the injury tooth are occurred on 4 maxillary front teeth. This goes down due to anatomy properties of the oral cavity. As it projects as hard tissue judging from a flank most, it is easy to receive external force. In a school, to reduce the loss of teeth due to the injury tooth, I have the stock solution of the tooth and the observation follow of the injury tooth patient becomes important.

Keywords: Complete dislocation tooth, Injury tooth, Long-term observation

Poster Presentation

P-03

Alisa Tirarattanasompoch, Pannaporn Tanakitprapa, Pornpoj Fuangtharnthip
Department of Advanced General Dentistry, Faculty of Dentistry, Mahidol University, Bangkok, Thailand

Management of Traumatized Primary Teeth with Root Fracture

Young children are prone to any kind of accidents. Dental trauma is likely to happen during the toddler period. We report a 23-month old boy came to see us, a few hours after falling down at home, with tooth 61 severe displacement, resulting in interruption of normal occlusion. From clinical and radiographic examination, tooth 61 was diagnosed extrusion with vertical root fracture at apical 1/3, and tooth 51 diagnosed sub-luxation. Emergency treatment was performed to fix upper anterior teeth together with 4-META/MMA-TBB resin cement (Super Bond, Sun Medical, Japan) for a month. At 6-month follow-up, tooth 51 turned to discolor with no symptoms, while tooth 61 became well recovered. At 2-year follow-up, root canal treatment, using calcium hydroxide paste (Vitapex, Neo Dental, Japan), had been done on tooth 51 due to advanced internal root resorption. Both primary teeth could remain in their places for esthetics and functions until succedaneous teeth came to replace. This case report has shown that consequences of trauma on primary teeth are rarely predictable, however, with an appropriate management, successful outcomes can be achieved.

Keywords: Extrusion, Internal root resorption, Root fracture, Sub-luxation

Poster Presentation

P-04

Pussadee Nakrathok, Panida Phawilai
Department of Pediatric Dentistry, Faculty of Dentistry,
Mahidol University, Bangkok, Thailand

Management of Subluxation Tooth: Case Report

The current paper reports the case of a 7-year-old girl who came to the Pediatric Dentistry clinic at the Mahidol University with a complaint of lower lip swelling and lower anterior teeth mobility (31,41). During the interview, the patient reported that she had fallen to the concrete floor. The time elapsed between the accident and the treatment provided at the Pediatric Dentistry Clinic was 3 hours. She had normal consciousness. Clinical and radiographic examination found that lower lip was swelling and contusion, normal mouth opening and normal TMJ. Her lower anterior teeth (31, 41) appeared first-degree tooth mobility without hemorrhage or tooth displacement. Vitality test was performed and showed positive response. Radiographic examination on both upper and lower anterior teeth revealed all of upper anterior teeth had incomplete root formation but all of lower anterior teeth had complete root formation, intact lamina dura and no fracture line was found at root or alveolar bone. Diagnosis of this case was subluxation. Thus, the proper management of this case is follow-up to radiographically monitor the periapical condition and providing instructions about oral care at 4-week period after trauma.

Keywords: Subluxation

Poster Presentation

P-05

Satoko Kakino[a], Khongorzul Ganbold[a], Tomoki Uehara[a], Ayano Inoue[a], Asiri Jayawardena[b], Hideharu Ikeda[c], Michiyo Miyashin[a]

[a] Department of Pediatric Dentistry, Division of Oral Science, Graduate School, Tokyo Medical and Dental University, Tokyo, Japan
[b] Department of General Education, School of Dental Medicine, Tsurumi University, Japan
[c] Department of Pulp Biology, Division of Oral Science, Graduate School, Tokyo Medical and Dental University, Tokyo, Japan

Measurement of Pulpal Circulation in Luxated Young Permanent Teeth with Abnormal Root Formation Using TLP

In traumatic injury of young permanent teeth, the abnormal root formation accompanied with pulp necrosis is often observed. However, the widely used pulp vitality testing, which is based only on the subjective sensations, may not be suitable for the reliable diagnosis of developing teeth in children. We have used transmitted-light plethysmography (TLP) to assess the presence or absence of pulpal circulation to diagnose pulp vitality. TLP is a non-invasive objective method that uses a 525-nm LED to detect circulatory changes in the pulp.

In this case report, we describe the 3-year follow-up of a luxated young permanent tooth with abnormal root formation after a traumatic injury. The patient was 7-year-old boy who suffered from tooth luxation of the right upper central incisor. After the immobilization of the traumatized teeth for five weeks, the pulp vitality was assessed by both electric pulp testing (EPT) and TLP. At four months after the injury, the delayed root formation became apparent on a radiographic examination. Throughout the observation periods, while the TLP of the control tooth showed clearer and larger pulse waves, the traumatized tooth always showed lower TLP amplitudes. At three years after the injury, the response to electrical stimulation was hardly detected, meanwhile TLP pulse waves were still observed. Cone-beam computed tomographic imaging revealed apical root fracture and suspected pulpal inner resorption, indicating that inflammatory change might be occurring in the pulp tissue.

These findings suggested that TLP might reflect the circulatory changes in the pulp, and that is beneficial for assessing traumatized teeth lacking for nerve response. The comprehensive pulpal diagnosis with more than one pulp vitality test may lead to more reliable outcomes.

Keywords: Pulp vitality test, Root formation, Transmitted-light plethysmography, Young permanent teeth

Poster Presentation

P-06

Fumio Soga
Kyushu Dental College, Fukuoka, Japan

Clinical Correspondence of Pediatric Dental Patients due to Trauma

Pediatric trauma in the oral cavity depends on the range of behavioral development during the infancy of 1 to 3 years of age. It tends to occur frequently at the age of 7 to 8 years. Sometimes, many pediatric patients who are injured have agitation both in patients and parents, and cannot answer accurate inquiries. Especially in infancy patients, cooperation may not be obtained due to anxiety and fear.

It is important to gain understanding and cooperation on the treatment of children and guardians in order to have good treatment for children's trauma. It is necessary to seek consent from parents and siblings, treatment is impossible if patient's intent is important and intention to refuse treatment is in the past. I would like to explain the correspondence history of pediatric dental patients, the legal problems in the handling of pediatric dental patients, and the method represented by the handover mouth method.

Keywords: Pediatric patient, Trauma

Poster Presentation

P-07

Kumiko Nozaka
Aoba Dental and Pediatric Dental Clinic, Japan

The Occlusal Management of A Case with Four Supernumerary Teeth in the Maxillary Anterior Region

Objective: We encountered a rare case of four supernumerary teeth in the maxillary anterior region. Extraction of the supernumerary teeth that induced the malocclusion followed by occlusal management was performed. We here report the interesting findings during the treatment process in the abovementioned case.

Methods: A 5 year and 3 month old male child was brought to our clinic with a chief complaint of a peg tooth erupting in the maxillary anterior region. The patient was born at 37 weeks as a premature baby. The intraoral examinations revealed that the space for an exfoliated maxillary left primary central incisor was replaced by an erupted supernumerary peg tooth. Four supernumerary teeth in the area of the maxillary incisors were recognized in the radiograph and one of them already erupted. The other three teeth were impacted and two of them existed in the regular direction. The treatment began with the extraction of the erupted supernumerary tooth. Thereafter, the right primary central and lateral incisors were extracted to promote eruption of the supernumerary tooth in the regular direction. The right and left supernumerary teeth in the regular direction were extracted immediately after the eruption. The inverted supernumerary tooth deeply existed was extracted under general anesthesia. After natural eruption of the central incisors, the proper occlusions had been developed using a multi-bracket appliance until the completion of his permanent dentition.

Discussion and results: In terms of the treatment approach, by treating the deciduous predecessor without disrupting its eruption, the eruption of the impacted supernumerary teeth in the regular direction were promoted and its extraction was performed without forcing burden on the patient. The patient is 13 years and 8 months of age with completed permanent dentitions now.

Keywords: Four supernumerary teeth, Maxillary anterior region, Occlusal management

Poster Presentation

P-08

Miwako Noda
Noda Dental Clinic
Department of Oral Implantology, Kyushu Dental University, Japan

Incomplete Tooth Dislocation and Mandibular Alveolar Fracture

Examination

Patient: A16-year-old male, first visit on October 1st, 2013.

History of the present complaint: When playing football in club activities, the ball strikes the mouth LR1.LR2. LL1 alveolar bone fracture and UR1 tooth complete dislocation.

Treatment outcome

Promptly rectify UR2 UR1 UL1 Reduced and fixed with dental adhesive cement using NITI white coated wire. The alveolar bone fracture of the LR2 LR1 LL1 part was invasively fixed. Three days later, the root canal was filled by pulling out. After three months, the wire was removed as the prognosis was good. Currently it is stable after four years.

Discussion

Other treatment methods were examined, but there was no applicable option. As a result, the treatment that was applied promotedly healed the injury.

Keywords: Complete dislocation tooth, Injured tooth, Mandibular alveolar fracture

Poster Presentation

P-09

Takuya Shimada[a,b,c], Tomoharu Taga[d], Akihiko Goto[b], Moriyasu Adachi[b], Masataka Shimazu[c], Masao Hokao[c], Mitsutaka Kimura[e]

[a] Faculty of Medicine and Health Sciences, Yamaguchi University, Japan
[b] Department of Oral Maxillofacial Surgery, Shizuoka General Hospital, Japan
[c] Hokao Dental Clinic, Japan
[d] Department of Oral and Maxillofacial Surgery, Fukui Prefectural Hospital, Japan
[e] Kyushu Dental University, Japan

Clinical Consideration to the Complications of Patients Which has Brought about Fracture of the Upper Jaw

The frequency of fractures due to maxillofacial trauma is relatively great and includes various combinations of fractures of the maxilla, zygomatic arch, mandible, and nasal bone. Oral and Maxillofacial trauma tends to decrease due to improvement of automobile safety technology and mandatory seat belt wearing in Japan, but it has developed to a certain degree. We investigated reports that discussed complications of facial fractures alone, which was adapted for open reduction fixation and intermaxillary fixation, mainly Le Fort I-type fractures.

Complications of maxillofacial fracture were mostly cases of tooth fracture, but it was shown that it ranges from those without complications to those exhibiting neurological symptoms. Not just complications that can be determined at the time of injury but some that occur in the medium to long term, we believe that long-term follow-up is necessary.

Keywords: Complications, Fracture, Upper jaw

Poster Presentation

P-10

Jessada Krailas, Boworn Klongnoi
Department of Oral and Maxillofacial Surgery, Faculty of Dentistry,
Mahidol University, Bangkok, Thailand

Surgical Approaches and Management of Panfacial Fracture: A Case Report

Panfacial fracture is multiple fractures involving upper third of the face, the mid-face and the lower third of the face. It is associated with malocclusion, dish face deformity, enopthalmos, diplopia, CSF leak and soft tissue injuries.

Each case with this type of fracture is unique and requires skill and expertise of the surgeon to restore the pre-traumatic anatomy and facial aesthetics.

Case report: An 18-year-old female patient present with history of motorcycle accident for 9 days. Patient had

1. Nasal bone fracture
2. Bilateral zygoma fracture
3. Right Lefort I fracture with split palate
4. Right condylar fracture
5. Dento-alveolar fracture

Patient underwent open reduction and internal fixation of the panfacial fractures using 1) subciliary approach and lateral eyebrow approach for reduction zygoma, 2) recontruction floor of orbit with bio-med, 3) Close reduction of nasal bone, right condyle and alveolar fracture, 4) vestibular approach for reduction maxilla. At post-operative follow up, patient was satisfied in function and esthetic after reconstruction.

Keywords: Panfacial fracture

Poster Presentation

P-11

Joji Nakama[a], Tsutomu Higa[a], Masaharu Tatetsu[b], Keiichi Arakaki[c]

[a] Okinawa Nanbu Medical Center & Children's Medical Center Oral Surgery, Okinawa, Japan

[b] Okinawa Miyako Hospital Oral Surgery, Okinawa, Japan

[c] Okinawa Chubu Hospital Oral Surgery, Okinawa, Japan

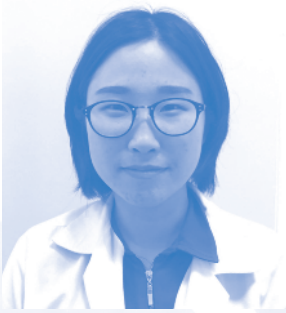
Clinical Evaluation of Facial Injury Noted in Okinawa Miyako Hospital Over A Period of 12 Years

The clinical pathological condition of oral and maxillofacial injury in 636 patients who visited Okinawa Miyako Hospital between 2004 and 2016 was clinically evaluated. The patients were 386 males and 250 females, showing a male predominance. Regarding age groups, 98 patients (17%) were aged between 0 and 9 years, 80 patients were aged between 10 and 19 years, and 79 patients (14%) were aged between 70 and 79 years. Concerning hard tissue injury, 135 cases were noted in the mandible, 34 cases occurred in the maxilla, and 34 cases were noted in the zygomatic bone. For soft tissue injury (overlapping cases), 100 cases were noted in the face, and 42 cases occurred in the tongue. Regarding the type of injury, jaw bone fracture occurred in 240 cases, face laceration injury was noted in 201 cases, and traumatized teeth were noted in 160 cases.

Keywords: Community health, Maxillofacial injury, Miyako island

Poster Presentation

P-12



Warutta Kasemsarn, Chamnarn Ploypradith
Department of Oral and Maxillofacial Surgery,
Mahidol University, Bangkok, Thailand

Multiple Facial Fracture and Dentoalveolar Injury in Oral and Maxillofacial Trauma Aspect

Oral and maxillofacial region is one of the sites that involve in many traumatized patients. Many studies mention that traffic accident and assault are the major causes of the trauma. In Thailand, a mortality rate from traffic injury is 22.89 per 100,000 persons in 2013 and motorcycle is the most common cause of injury. Multiple facial trauma commonly occurs as a consequence of these causes, which makes a treatment plan and its sequence highly important. Occlusion is usually the key for reducing jaw fracture and fitting arch bars in both jaw work as a wire attachment for jaw fixation. Sometimes these injuries may involve dentoalveolar structure, thus malocclusion and seldom massive bleeding would be seen. Furthermore, if dentoalveolar segment is unstable, it would be more difficult to reduce all bony segment and rebuild normal occlusion.

This case report shows two motorcycle accident patients at Chiang Rai hospital. The first patient is an 18-year-old Thai female who has been diagnosed as naso-orbito-ethmoidal (NOE) fracture, mandible fracture, and Lefort I fracture. Her upper anterior teeth were also involved. The second patient is a 17-year-old Thai male who massively bled from mouth and nose at primary survey and had Lefort I split palate fracture and mandible fracture. His upper anterior dentoalveolar segment severely displaced.

Keywords: Dentoalveolar injury, Motorcycle accident, Multiple facial trauma

Poster Presentation

P-13

Choltacha Harnirattisai, Thanapong Wongvatthanavuth
Department of Operative Dentistry and Endodontics,
Mahidol University, Bangkok, Thailand

Influence of Enamel Bonding on Fracture Resistance of Teeth Restored with Resin Composite

Objective: So far, there has been no information concerning how significant bonding of each substrate is to strengthen the restored tooth. Fracture resistance of teeth with MOD cavity restored with resin composite using etch-and-rinse adhesive bonded to either enamel or dentin was then investigated.

Method: Standardized extensive MOD cavity was prepared on forty extracted maxillary first premolars with 3-mm-thick of buccal and lingual wall at CEJ. Teeth were randomly divided into 4 groups of 10 each, according to the bonded area. Group 1 - bonded to enamel and dentin; Group 2 - bonded to enamel only; Group 3 - bonded to dentin only; Group 4 - unrestored. Three-step etch-and-rinse adhesive (Adper Scotchbond Multi-purpose Plus) was used with hybrid resin composite (Filtek-TM Z250) according to the manufacturer's instructions. After 24 hours of water storage, restored teeth were then subjected to axial loading with a 5.0 mm-diameter steel ball in a universal testing machine at crosshead speed of 0.5 mm/min until fracture. Fracture loads in kilogram (kg) were compared statistically using one-way ANOVA and Tukey HSD test (α= 0.05).

Results: Group 1 (68.0±7.2 kg) and Group 2 (65.7±4.7 kg) showed higher fracture resistance than Group 3 (31.8±7.7 kg) and Group 4 (29.2±4.4 kg) significantly ($p<0.05$). No significant differences of fracture load were found between Group 1 and 2, and between Group 3 and 4 ($p>0.05$).

Conclusion: For three-step etch-and-rinse adhesive, enamel bond has shown to be more important than dentin bond as the bond to enamel increased significantly fracture resistance to tooth restored with resin composite.

Keywords: Dentin bond, Enamel bond, Fracture resistance, MOD cavity, Three-step etch-and-rinse adhesive

Poster Presentation

P-14

Yoshika Gamo[a], Masao Irie[b]
[a] Shirayuri Dental Clinic, Fukuoka, Japan
[b] Okayama University, Okayama, Japan

Traumatological Information: Bonding Ability to Enamel Substrate of Deciduous Tooth

Objective: This in vitro study examined bonding ability to human enamel substrate of deciduous tooth of flowable resin composite (FRC) and two self-etched adhesives / one composite: Clearfil tri-S Bond ND Quick / Clearfil Majesty ES (TSB/MEF), and Clearfil Universal Bond quick + Clearfil Majesty ES (CUB/MEF), Kuraray Noritake Dental, Japan), as compared to enamel substrate of conventional permanent tooth.

Methods: The surface of polished enamel (# 600) was pretreated by manufactured direction. A Teflon mold with a cylindrical hole (diameter, 3.6 mm; height, 2 mm) was clamped onto the enamel surface and was filled with MEF. The following properties were evaluated; shear bond strength to human enamel substrates of TSB/MEF and CUB/MEF) immediately after light-activation and after one-day storage in distilled water. Statistical analyses were performed by t-Test (immediate condition versus after one-day condition, p=0.05, S: Significantly different, NS: Not significantly different).

Results: Summary [SBS, Mean (S.D.), MPa, n=10], immediate condition vs one-day condition.

The shear bond strength of FRCs to enamel substrates after one-day storage were significantly higher as compared to those of immediately after light-activation. The shear bond strength to deciduous tooth substrate demonstrated similar tendency to those of the shear bond strength to conventional permanent tooth substrate in two conditions. A post-cure interval of one-day results in adhesive properties of flowable dental composites.

Conclusion: With TSB/MEF and CUB/MEF it is thus generally advisable to adjust of mechanical strength immediately after initial setting and perform a final contouring and finishing by delayed polishing procedure. It is thought that a FRC is the most useful for Traumatological and pediatric patients.

	TSB/MEF				CUB/MEF			
To deciduous enamel	12.3 (1.7)	vs	17.7 (2.6)	S	14.6 (2.6)	vs	20.1 (3.0)	S
	NS		NS		NS		NS	
To permanent enamel	12.6 (2.9)	vs	17.6 (4.0)	S	15.7 (3.2)	vs	22.7 (4.6)	S

Keywords: Deciduous tooth, Enamel substrate, Initial stage, Permanent tooth, Shear bond strength

Poster Presentation

P-15

Chou Shih-Hung[a], Masao Irie[b], Jee Wen-Wang[a]
[a] National Taipei University of Nursing and Health Science, Republic of China
[b] Department of Biomaterials, Okayama University, Okayama, Japan

Dental Traumatological Information: Delayed Polishing Minimized Class I Gap-formation in Various Glass-ionomer Restorations

Objective: This in-vitro study evaluated the effects of delayed versus immediate polishing to permit maturation on interfacial gap-formation around highly-viscous glass-ionomer cement (HV-GIC) in Class I restorations together with determination of associated bonding properties to tooth structure.

Methods: Cavity preparation was made in occlusal surface of premolar teeth. Four HV-GICs (GlasIonomer FX ULTRA: Shofu, EQUIA Forte: GC, Fuji IX GP EXTRA: GC, and Ketac Universal Aplicap: 3M) were studied and one conventional glass-ionomer cement (C-GIC, Fuji II, GC, as a control), with specimen sub-groups (n=10) for each property measured. After polishing, either (i) immediately (8 min) after setting or (ii) after one-day storage, the restored teeth were sectioned in a mesio-distal direction through the center of the model Class I restorations. The presence or absence of interfacial gaps was measured at x1000 magnification at 14 points (each 0.5-mm apart) along the cavity restoration interface; (total points measured per group =140). Shear bond strengths to tooth were measured.

Results: For four HV-GICs and one C-GIC, significant differences ($p<0.05$) in gap-incidence were observed between polishing (i) immediately and (ii) after one-day storage. In the former case, 38-94 gaps were found. In the latter case, only 4-21 gaps were observed. The shear bond strengths of all cements significantly increased after one-day storage compared to (i) immediately.

Conclusion: With HV-GICs, it is thus generally advisable to adjust occlusion immediately after initial setting and perform a final contouring and finishing by delayed polishing procedure. It is thought that a HV-GIC is the most useful for some pediatric or geriatric patients.

This work was supported by JSPS KAKENHI Grant Number 22592183, 26462950.

Keywords: Class I, Conventional glass-ionomer, Delayed polishing, Glass-ionomer restorations, Interfacial gap-formation

Poster Presentation

P-16

Toshiko Tanaka[a], Hideaki Nakashima[a], Koji Watanabe[b]

[a] Division of Surgery, Department of Physical Functions, Kyushu Dental University, Japan

[b] Division of Pediatric Dentistry, Department of Human Development and Fostering, Meikai University School of Dentistry, Japan

Iontophoresis Actually Enhances Uptake and Transportation Fluorine into Enamel and Protects Enamel From Decalcification

Although dental trauma is generally acute dental trauma, chronic dental trauma, such as tooth abrasion, attrition and tooth erosion, also frequently occurs. Fluoride application is the most effective treatment for the prevention of acid decalcification including both tooth erosion and caries at present. It's believed that iontophoresis should increase the uptake and penetration of fluorine (F) into enamel, however, few studies have examined the relationship between iontophoresis and F uptake in enamel, therefore, this relationship remains controversial and unclear.

This study was performed to determine whether fluoride iontophoresis effectively increased the uptake of F into enamel, and also to investigate the relationship between the amount of F incorporated and the decalcification depth. Bovine mandibular central incisors were immersed in 2% fluoride solution in the absence (the immersion method) or presence (the iontophoresis method) of iontophoresis. Sample teeth were then decalcified in 0.1M lactic acid solution. The concentration of F was measured using a fluorine ion meter, while atomic absorption spectrophotometry was used to determine calcium (Ca) concentrations. When the decalcification time was increased, the uptake of F was dramatically and significantly higher in the iontophoresis method than in the immersion method. Furthermore, the decalcification depth was markedly shallower with the iontophoresis method than with the immersion method. No changes were observed in the uptake of F by the immersion method when the decalcification depth was increased. F uptake levels were unaffected by changes in the current delivered (200-500 mA), but were dependent on the current-carrying time. A clear inverse correlation was also observed between F uptake levels and the decalcification depth (r=0.967). These results clearly demonstrated that iontophoresis increased the uptake of F and enhanced its penetration into the enamel, thereby decreasing decalcification by acid.

Keywords: Chronic dental trauma, Decalcification, Enamel, Iontophoresis, Tooth erosion, Uptake of fluoride

Poster Presentation

P-17

Yasuhiro Morimoto, Tatsurou Tanaka, Naoki Fukushima, Ikuko Nishida
Division of Oral and Maxillofacial Radiology, Kyushu Dental University, Japan

Imaging Findings of Gubernaculum Tracts on CT and Panoramic Radiographs

Purpose: To elucidate the imaging findings and detection rates of gubernaculum tracts (GTs) on computed tomography (CT) and panoramic radiographs.

Material and Methods: This study was conducted using pairs of panoramic radiographs and CT scans that were obtained at the Division of Oral and Maxillofacial Radiology in Kyushu Dental University Hospital from children with oral and maxillofacial diseases. The visualization areas of CT were maxillary and mandible teeth including permanent teeth and/or primary teeth. The planes of CT were axial, panoramic, and cross sectional images.

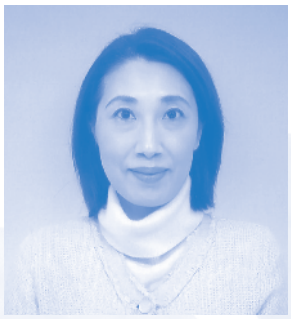
Results: GTs of the anterior teeth were all visualized as three round-shapes areas with low density on the lingual side of the respective deciduous predecessors on axial images of CT, but not panoramic radiographs. GTs of the molar teeth were visualized as a rectangle and oblong shape contiguous with the dental follicle of unerupted molars on panoramic CT images, but not panoramic radiographs. Both of GTs of maxillary central supernumerary tooth with normal eruption and inverse were not seen in the sagittal image. The GTs for maxillary central incisors, lateral incisors, canine, and molar were identified in almost all subjects with normal unerupted teeth. However, the detection rates of the structure in premolar were relatively lower than those in other teeth because of the complexity of teeth. The GTs for the mandibular central incisors, lateral incisors, canine, and molar were identified in almost all subjects with normal unerupted teeth. However, the detection rates of the structure in 2nd premolar were relatively lower than those in other teeth because of the complexity of teeth.

Conclusions: The GTs, which may be eruption root of the permanent teeth in children, were clearly identified on CT.

Keywords: Computed tomography, Gubernaculum tract, Panoramic radiograph

Poster Presentation

P-18



Min Zhang, Kou Matsuo
Division of Oral Pathology, Department of Health Improvement,
Kyushu Dental University, Japan

The Basic Study on the Molecular Mechanism for Type II Diabetic Periodontitis

Non-insulin-dependent type II diabetes mellitus causes serious complications such as hypertension and arteriosclerosis as well as diabetic periodontitis. Furthermore, in many cases, treatment for usual periodontitis does not work effectively enough for diabetic periodontitis, and the solution to this issue including its pathogenic mechanism is not clear yet. The purpose of this experiment in diabetic periodontitis is to clarify the peculiar development mechanism on a cellular and molecular level, and to develop a therapeutic agent to cure diabetic periodontitis. We used a type II diabetes model db/db mouse and wild-type mouse, and took the images of their mandible by using μCT. The result showed remarkable decrease of the alveolar bone in model db/db mouse. Whereas, we have prepared a bone marrow cell from both mice's tibias and femurs, and added osteoclast lead factor, RANKL, for stimulation. As a result, the induced amount of the osteoclasts of db/db mouse were much greater compared with that of the wild-type mouse. With the abovementioned results, we consider that the acceleration of the osteoclast differentiation in the bone marrow environment plays a part in diabetic periodontitis.

Keywords: Bone resorption, Diabetic periodontitis, Osteoclast differentiation, Type II diabetes mellitus

Poster Presentation

P-19

Takeshi Kawai
Kannai Bashamichi Dental Office, Kanagawa, Japan

Epidermoid Cyst Clinically Presented as Nasopalatine Duct Cyst

Nasopalatine duct cyst is the most common developing non-odontogenic cysts. It is more commonly expressed among males and those who are in the age of between 30's to 50's. On the other hand, epidermoid cyst is the congenital cyst which is known to be derived from impaction of the ectoderm during the embryonic period and occurs in various sites such as head and neck, face, abdomen, ovaries, and anus. Oral epidermoid cyst is rare and can be commonly found in the mandible.

The purpose of this article is to report and briefly discuss on a case of epidermoid cyst mimicking nasopalatine duct cyst at the anterior region of maxilla. A 21-year-old female visited our clinic with a complaint of swelling at midline maxilla area. As the past clinical history, the patient visited a local doctor for discomfort in maxillary anterior teeth at the age of 15 and received endodontic treatment after diagnosed as irreversible pulpitis. Later, the patient noticed swelling of the anterior maxillary region and the facial profile has been changed. Upon clinical examination, swelling of the philtrum on both sides of alar base and dark purple hemispheric mass, sizeφ5×5 cm with an indistinct boundary, with mild oppressive pain from the median region of maxilla to superior labial frenulum were observed. However, no nasal symptoms or paresthesia was reported. With the clinical diagnosis of nasopalatine duct cyst, enucleation and apicoectomy were performed under local anesthesia using intravenous sedation. The histopathological analysis found typical characteristics of epidermoid duct cyst. After follow up for 2 years, no recurrence has been observed.

Keywords: Epidermoid cyst, Nasopalatine cyst

Poster Presentation

P-20

Menik Priaminiarti[a], Iwan Tofani[b], Ade Reggy Rahadianto[b]

[a] Department of Dental and Maxillofacial Radiology, Faculty of Dentistry, Universitas Indonesia, Jakarta, Indonesia

[b] Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Universitas Indonesia, Jakarta, Indonesia

Bilateral Temporomandibular Joint Ankylosis: A Case Report

Ankylosis of the temporomandibular joint (TMJ) is the fusion of joint surface of the articular component. This pathological change may be a bony, fibrous or fibro-osseous which replaces the normal articulation component with complete or incomplete union. The type of ankylosis may be intra or extra-articular, as well as bilateral or unilateral. According to researchers, the most common causes of the TMJ ankylosis were trauma and infection. Bilateral TMJ ankylosis which occur during active growth period may present facial alterations termed as bird face deformity due to micrognathic mandible with receding chin and steep occlusal plane, usually accompanied by inability to open the mouth, also could cause upper airway obstruction. Computed tomography (CT) imaging is an essential diagnostic tool owing a high diagnostic value in illustrating the relation of the articular component as vital structures at the base of the skull with the ankylosed segment. A case of bilateral temporomandibular joint ankylosis with associated bird face in a 25-year-old male is described. The patient had a mandibular trauma at the age of 7 years, and gradually leading to a progressive limitation of jaw movement. CT images showed a bilateral bony fusion of the condyles to the glenoid fossae, as well as hypertrophic sclerosis of the condylar heads. Gap arthroplasty as one basic management of TMJ ankylosis was selected due to less invasive surgical procedure, more comfortable postoperative condition since no donor site is required, and the recurrence rate is as low as 13%. The result showed satisfactory post-operative inter-alveolar opening and articular function.

Keywords: Ankylosis, Bilateral, CT scan, Temporomandibular joint

Poster Presentation

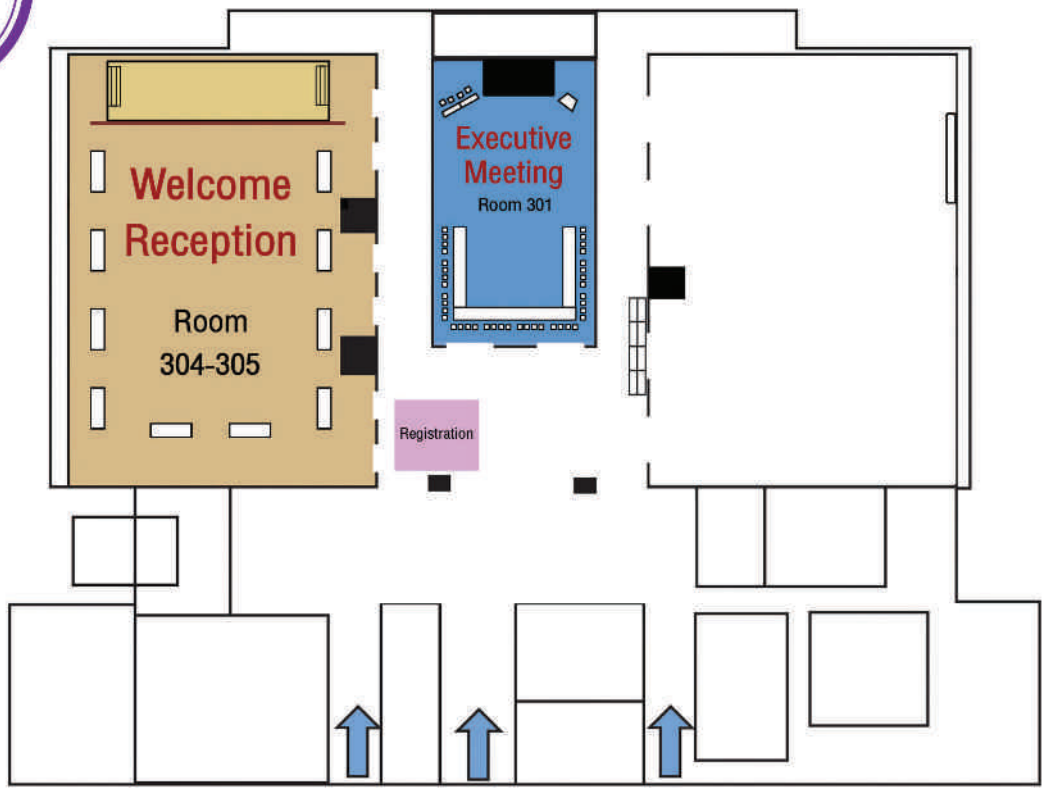
Author index

Mahidol University
Faculty of Dentistry

Floor Plan

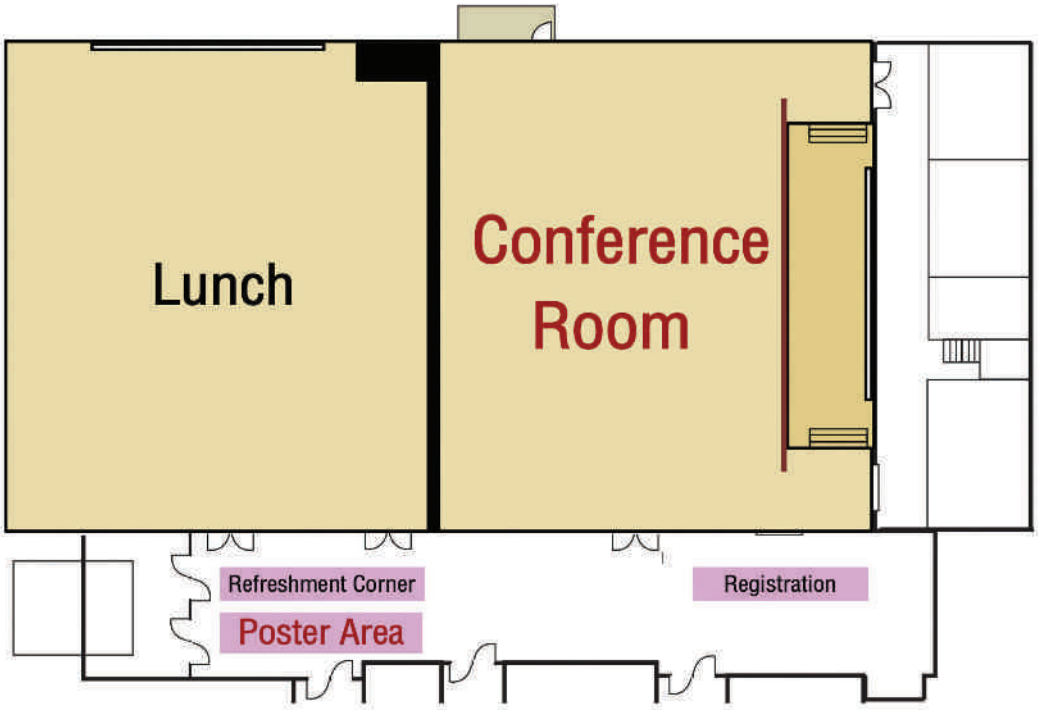
3rd Floor

November 17, 2017



4th Floor

November 18, 2017



AADT 73

Faculty of Dentistry
Mahidol University

http://www.dt.mahidol.ac.th/en/