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## Scientific program of 13<sup>th</sup> IDCMR Congress, 24<sup>th</sup>-25<sup>th</sup> August 2018

Venue: Sedona Hotel, Yangon, Myanmar

### Thursday 23<sup>rd</sup>, August 2018

13:00-17:00	Registration	Ahlon/Dagon Room (1 <sup>st</sup> Floor)
18:00-20:00	Speakers' Night (Invitation only)	Fook Mun Lau Restaurant

### Friday 24<sup>th</sup>, August 2018

Time	Program	Location
7:00-8:00	Registration	<i>Registration Desk</i>
8:00-9:00	Opening ceremony Welcome speeches/addresses <ul style="list-style-type: none"> <li>➤ H.E. Dr. Myint Htwe, Union Minister</li> <li>➤ Prof. Shwe Toe, President, LOC, 13<sup>th</sup> IDCMR Congress</li> <li>➤ Prof. Waranun Buajeeb, Dean, Faculty of Dentistry, Mahidol University</li> </ul>	<i>Grand Ball Room</i>
9:00-9:30	TEA BREAK	
<b>Keynote Lectures</b>		
9:30-10:20	Oral Microbiome: our friends in need? Prof. Samaranayake Lakshman, Sharjah University College of Dental Medicine	<i>Grand Ball Room</i>
10:20-11:10	Harmonising Undergraduate Dental Education in ASEAN Dr. Supachai Chuenjitwongsa, Chulalongkorn University	<i>Grand Ball Room</i>
11:10-12:00	Laser in Cavity Preparation Prof. Andreas Moritz, University of Vienna	<i>Grand Ball Room</i>
12:00-13:00	LUNCH	<i>Garden/Inya Wing</i>
<b>Invited Speakers' Lectures</b>		
13:00-13:30	Continuing Professional Development: an essential engagement for dental practitioners Prof. Dr. Myo Win, National Education Policy Commission Member	<i>Grand Ball Room</i>
13:30-14:00	A Practical Approach to Geriatric Dentistry Prof. Dr. Thein Kyu, President, Myanmar Dental Association	<i>Grand Ball Room</i>
14:00-14:30	New Concept of Dentin Re-mineralization in Adhesive Dentistry Prof. Takashi Saito, Dean, Hokkaido University	<i>Grand Ball Room</i>
14:30-15:00	TEA BREAK	

15:00-15:30	From Bone Formation to Bone Quality in Implantation Prof. Takeyasu Maeda, Dean, Niigata University	Grand Ball Room
<b>Guest Speakers' Lectures</b>		
15:30-16:00	Oral Health Care in Aging Societies: Evidence and the Way Forward Dr. Tippanart Vichayanrat, Mahidol University	Grand Ball Room
16:00-16:30	Digital Dentistry in Everyday Practice Dr. Kittipong Booranasophone, Bangkok Hospital	Grand Ball Room
16:00-16:45	IDCMR Deans' Forum	Ahlon/Dagon Room
16:45-17:30	IDCMR Council Meeting	Ahlon/Dagon Room
19:00-21:00	GALA DINNER	Grand Ball Room
<b>Saturday 25<sup>th</sup>, August 2018</b>		
<b>Time</b>	<b>Program I</b>	<b>Location</b>
<b>Oral Presentations (Basic Sciences and Clinical Sciences)</b>		
9:00-9:20	Experimental study on the effect of muscle imbalance of the lateral pterygoid muscle on the abnormal remodeling of condyle in SD rats Dr. Tian Linqing, Kunming Medical University	Grand Ball Room 1
9:20-9:40	The signaling pathway of TNF- $\alpha$ induced ISG15 up-regulation Dr. Wannee Lertsooksawat, Mahidol University	Grand Ball Room 1
9:40-10:00	Kabuki syndrome : A case report from Thailand with oral abnormalities Dr. Pin-kwan Padthaisong, Mahidol University	Grand Ball Room 1
10:00-10:30	TEA BREAK	
10:30-10:50	Patient satisfaction with single-implant retained mandibular complete overdenture Dr. Myat Nyan, University of Dental Medicine, Mandalay	Grand Ball Room 1
10:50-11:10	Three-dimensional volume change of grafted bone In the maxillary sinus Dr. Ma Nan, Kunming University	Grand Ball Room 1
11:10-11:30	Osteogenic potential and fibroblast response of niobium oxide containing zirconia Dr. Aung Thu Hein, University of Dental Medicine, Yangon	Grand Ball Room 1
11:30-11:50	A rare case of idiopathic gingival fibromatosis associated with hypertrichosis Dr. Fang Yu-ye, Kunming Medical University	Grand Ball Room 1
11:50-12:10	Yunnan baiyao affects PRF releasing the growth factors in human Dr. Wang Liyu, Kunming Medical University	Grand Ball Room 1
12:10-12:30	The research of factors influencing the oral health related quality of life in the elderly in Kunming city Dr. Qing Feng, Kunming Medical University	Grand Ball Room 1

Time	Program II	Location
<b>Oral Presentations (Basic Sciences and Clinical Sciences)</b>		
9:00-9:20	Influence of curing light intensity and porcelain thickness on color stability and translucency of cemented porcelain laminate veneers Dr. Xingxing Li, Kunming Medical University	Grand Ball Room 2
9:20-9:40	Precision endodontic treatment for complicated root canal systems; a case report and proposals for the future Dr. Tao Liu, Kunming Medical University	Grand Ball Room 2
9:40-10:00	Restorative techniques in traumatized permanent teeth: two clinical case reports Dr. Nichruethai Tangnuntachai, Mahidol University	Grand Ball Room 2
10:00-10:30	TEA BREAK	
10:30-10:50	Early childhood caries status and its associated factors among young Cambodian children Dr. Yu Kubota, Niigata University	Grand Ball Room 2
10:50-11:10	Management of traumatic immature tooth with Biodentine: A case report. Dr. Siraprapa Tanikalchan, Mahidol University	Grand Ball Room 2
11:10-11:30	Dental management of Williams syndrome: A case report Dr. Duangsamon Mekkrangkrai, Mahidol University	Grand Ball Room 2
11:30-11:50	Effect of probiotic on oral microorganism among children with S-ECC Dr. Sun Jing-yu, Kunming Medical University	Grand Ball Room 2
11:50-12:10	Nasolabial flap in oral and maxillofacial reconstruction Dr. Tun Ngwe, University of Dental Medicine, Yangon	Grand Ball Room 2
12:10-12:30	Use of the buccal fat pad flap in immediate reconstruction of oral tissue defects in oral surgery Dr. Yong Wu, Kunming Medical University	Grand Ball Room 2
<b>Saturday 25<sup>th</sup>, August 2018</b>		
Time	Program	Location
9:00-11:00	IDCMR Poster Presentation and Award Competition	Grand Ball Room 3
12:30-13:30	LUNCH	Garden/Inya Wing
<b>Guest Speakers' Lectures</b>		
13:30-14:00	Paradigm Shift in Pre-surgical Orthopedics for Infants with Cleft Lip and Palate Dr. Supakit Peanchitlertkajorn, Mahidol University	Grand Ball Room
14:00-14:30	Changing Paradigms in concept on Caries Prevention: Current situation in Vietnam Assoc. Prof. Hoang Trong Hung, University of Medicine and Pharmacy, Ho Chi Minh	Grand Ball Room

14:30-15:00	Oxidative stress induced by <i>Porphyromonas gingivalis</i> lysate and nicotine in human periodontal ligament fibroblast Assoc. Prof. Nguyen Thu Thuy, University of Medicine and Pharmacy, Ho Chi Minh	Grand Ball Room
15:00-15:30	TEA BREAK	
15:30-16:00	Closing Ceremony – Announcement of Winners (Oral/ Poster)	Grand Ball Room

### 3 Hands-on Courses (25<sup>th</sup> August 2018, Day 2, Saturday)

#### 1. Innovations in Aesthetic Composite systems- A Restorative Update

Speaker Profile: Dr Asis Sodhi, Kavco, Kerr (Biosys Company)  
 9:00 – 12:00 a.m.  
 Venue: Sedona Hotel (Yangon)  
 Registration fees: 150 USD  
 Register at: mail : idcmrmyanmar@gmail.com  
 Hot line: +9595027362  
 Remark: All Delegates will get back giveaway of Herculite Precise Composite Kit which worth 150,000kyats.

#### 2. PROBLEM SOLVING ESSENTIALS IN ENDODONTICS IN THE 21st CENTURY

Speaker Profile: Professor Myint Myint San, Dr. Ow Yan Wandee, Kavco, Kerr (Biosys Company)  
 1:00 – 4:00 p.m.  
 Venue: Sedona Hotel (Yangon)  
 Registration fees: 150 USD  
 Register at: mail : idcmrmyanmar@gmail.com  
 Hot line: +9595027362  
 Remark: All Delegates will get back giveaway of SybronEndo products which is worth 150,000 in MMK

#### 3. DENTIUM "IMPLANT" Hands-on

Speaker Profile: Dr. Suphachai Suphangul (Dentium Implant)  
 9:00 a.m. – 4:00 p.m.  
 Venue: Sedona Hotel (Yangon)  
 Registration fees: 150 USD  
 Register at: mail : idcmrmyanmar@gmail.com  
 Hot line: +9595027362

**The oral microbiome: our friends in need?**

**PROFESSOR LAKSHMAN SAMARANAYAKE**

Hon DSc, Hon FDSRCSE, DDS, BDS, FRCPath, FRACDS, FDSRCPS, FCDSHK, HKAM(Path), FHKAM(DSurg), FHKCPath, FICD

Oral microbiome is the term given to the totality of organisms and their resident oral ecosystem. Oral microbiota that constitute the microbiome appear in various guises, mainly within plaque biofilms, either as our friends or as opportunistic enemies. The two commonest human afflictions of the oral cavity, caries and periodontal disease, are caused by plaque biofilms. There is a growing body of data that periodontal biofilms-related diseases may have a profound effect on our health and longevity causing atherosclerotic vascular disease (ASVD) including heart disease and stroke, adverse pregnancy outcomes, diabetes, cancer, and pulmonary disease. This presentation will provide a state-of-the-art overview of the oral microbiome in health and disease and how these usually friendly microbial consortia becomes foe under elusive circumstances. The clinical relevance of the new data for the patient and the practitioner will also be discussed.

## Harmonising Undergraduate Dental Education in ASEAN

### DR. SUPACHAI CHUENJITWONGSA

DDS, PhD, FHEA, FSEDA  
Academic Affairs, Faculty of Dentistry, Chulalongkorn University

The ASEAN Mutual Recognition Arrangement (MRA) on Dental Practitioners was signed in 2009 to promote the free movement of dental practitioners across the ASEAN member states. Since then, ASEAN undergraduate dental education has been developed substantially to comply with the MRA.

By adapting the outcome/competency-based educational concepts, ASEAN has officially established the “ASEAN minimum common competency standards for dental undergraduate education” and “Scope of performing abilities” as a framework for ASEAN dental schools to produce dental graduates who are able to serve in the ASEAN region. The next phases of ASEAN undergraduate dental education development focus on recommended monitoring system on student competence and teaching and learning methods for ASEAN dental schools, which are underpinned by the constructive alignment concept. Professional development of dental educators and the quality assurance system are also a part of the working plan to ensure the high standards of undergraduate dental curricula in ASEAN.

Stakeholders including staff, students, patients, employers, and professional bodies should regularly get involved in the development process. Collaboration and sharing amongst all member states are crucial for the success of Harmonising Undergraduate Dental Education in ASEAN.

**Lasers in Endodontics, Cavity Preparation and the Treatment of Hypersensitive Dental Necks**

**UNIV. PROF. ANDREAS MORITZ**

MD, DMD

School of Dentistry, Medical University of Vienna

Among many other indications for the use of lasers in dentistry, there are three fields of application, where the laser has brought major improvements and specific advantages: Endodontic treatment, cavity preparation and the treatment of hypersensitive dental necks.

Different lasers are used in root canal preparation as well as in disinfection of canals and the surrounding dentinal tubules. Thus laser treatment will significantly ensure the long-term success of endodontic treatment.

Other wavelengths are used in the field of cavity preparation: The Erbium laser group. Enamel and dentin can be ablated without thermal side effects due to the photo ablative impact of the wavelengths. Composite restorations can be placed without acid etching because of the retentive surface delivered by the laser.

The CO<sub>2</sub> laser (10600nm) is widely used in surgery generating very satisfying results. Another application for this wavelength in conservative dentistry is the treatment of hypersensitive dental necks. In most cases one appointment is sufficient to achieve permanent pain relief even for patients who suffer from severe symptoms.

**Continuing Professional Development: an essential engagement for dental practitioners**

**PROFESSOR MYO WIN**

Rector (Retired)

Former Professor and Head of Children's Dentistry and Orthodontics

University of Dental Medicine, Yangon

In the context of the changing patterns of oral health needs, an increasing wide range of health issues and more expectations from the patients, dental practitioners need to develop a wider knowledge base.

Undergraduate or postgraduate education alone is not sufficient and Continuing Professional Development (CPD) is recognized as an important activity to maintain appropriate professional standards. There is no single way of doing correct CPD and preferences for CPD activity and topics vary among individuals.

In many countries there is no regulation about the content of CPD and allow freedom to make own choice of topics but certain topics are essential in some countries. The quality and relevance of CPD activities is more important than quantity of hours.

It is of note that due to the movement of graduate dentists across countries within European Union, there is a clear need to review education and training provided through CPD for assurance of high quality care.

CPD for dental practitioners is not mandatory in some ASEAN countries. However, Professional Regulatory Bodies play an important role in maintaining the quality of dental care in the respective countries and therefore Myanmar Dental Council has a commitment to develop an appropriate CPD programme.

**A practical approach to Geriatric Dentistry**

**PROFESSOR THEIN KYU**

Dr. D.Sc. (Ygn), Dip. Med. Ed.(Ygn), F.I.C.D  
D.Sc.(Hons.) (Tokyo Medical and Dental University)

Geriatric Dentistry, a specialty in dentistry has evolved with the increased demand of the people and the increased interest of the profession. Most of dental schools tried to include this specialty in the curriculum whereas Myanmar could make it at 1999. The global attempts and achievements in prolong life span with quality is of prime importance. Regardless of little different dental needs than those of younger individuals potential for poor tolerance of protracted dental treatment is generally encountered in Geriatrics. A practical approach emphasizing in oral rehabilitation will be presented.

## **New Concept of Dentin Remineralization in Adhesive Dentistry**

### **PROFESSOR TAKASHI SAITO, DDS, PHD**

Professor and Chairman

Division of Clinical Cariology and Endodontology,  
Department of Oral Rehabilitation, School of Dentistry,  
Health Sciences University of Hokkaido

Recent achievement of a consistently reliable bonding of resin composite to dentin has dramatically changed the clinical practice strategy in restorative dentistry. Comparatively high bond strength of resin composite to dentin has been reported in long-term clinical use. Conversely, for the adhesion of resin composite to carious dentin according to the concept of MI, a resin-free decalcified dentin zone may exist at the base of the hybrid layer as a result of incomplete resin infiltration and inter-connecting water trees may remain in the adhesive interface, causing insufficient polymerization of resin. In both cases, the exposed collagen is susceptible to hydrolytic degradation over a long period, leading to reduction in bond strength. Hence, it is speculated that a rapid induction of remineralization of decalcified collagen is quite effective in improving the long-term durability of resin-dentin bonding. The aim of our study is to enhance the durability of resin-dentin bond interface through the development of adhesive monomers which possess dentin remineralization activity. The re-mineralization activity will be discussed regarding newly developed adhesive monomer, CMET which is a calcium derivative of 4-MET, for the development of dentin remineralization therapy as a novel strategy for caries treatment.

## **From Bone Formation to Bone Quality in Implantation**

### **PROFESSOR TAKEYASU MAEDA**

Dean & Professor

Research Center for Advanced Oral Science

Niigata University Graduate School of Medical and Dental Sciences

Takeyasu MAEDA, DDS, PhD

Tomoki MAEKAWA, DDS, PhD

Yurie YAMADA, DDS, PhD

Research Center for Advanced Oral Science

Niigata University Faculty of Dentistry, Niigata, Japan

This lecture presents the morphological findings on tissue response to titanium-implantation in an animal experimental model. In bone formation process, the implant-cavity preparation induced an aggregation of osteoclasts on the cavity surface, followed with bone formation by osteoblasts towards the implant. The newly-formed bone contained rich filamentous structures in its matrix, regarding as woven bone. However, as reported in previous studies, the injured bone remained between the newly-formed woven and pre-existing bone. It gradually decreased to disappear completely by active bone remodeling with a synchronized coordination of osteoblasts and osteoclasts after establishment of osseointegration, thickening to be replaced by compact bone. The woven bone was also replaced by compact bone. These findings indicate the occurrence of bone remodeling after the achievement of osseointegration, confirmed with our vital bone labeling showing two clear lines in the newly-formed bone around the implant. Furthermore, our EMPA analysis for an examination of bone quality demonstrated chronologically increased levels of Ca and P in the newly-formed bone identical to those in the surrounding bone, meaning the maturation of newly-formed bone around the implant. These findings by our experiments indicate that we have to pay special attention to bone quality of the newly-formed bone.

**Oral Health Care in Aging Societies: Evidence and the Way Forward**

**Dr. TIPPANART VICHAYANRAT**

Head, Department of Community Dentistry  
Faculty of Dentistry, Mahidol University

Oral health condition has a significant impact on an older person's quality of life. Poor oral health can have implications for the general health of older people as well and is linked to several health conditions including malnutrition, pneumonia, cardiovascular diseases, diabetes, and mental diseases. Since many countries in Asia are becoming aged societies, there is a need for more information about older people's oral health to better understand the full scale of this issue. This presentation will discuss the extent of oral health problems in older people in Asian countries, challenging of oral health care for frail elders, and what can be done to improve older people's oral health. Finally, the needs of the oral health care for the older population will require a capable dental workforce. Two main approaches are required, focusing on the dental school and dental hygienist curriculum to prepare the dental personnel for aging population, and through continuing professional development of the existing dentists. The role of dental schools is empirically highlighted to meet the need for geriatric dentistry which should be incorporated into both the undergraduate and postgraduate dental curriculum based on multidisciplinary point of view.

**Digital Dentistry in Everyday Practice**

**Dr. KITTIPONG BOORANASOPHONE**

Bangkok Hospital

Modern Dentistry can be improved through the use of the digital workflows now available.

This lecture will introduce some of those workflows, using tools such as Cerec Chairsides CAD/CAM system and Lab-side digital solution. The implementation of those workflows in the everyday practice of dentistry is of benefit to both the clinician and the patient.

After reviewing of those tools can help achieve better safer faster dental care, the lecture will then focus on material selection.

**Paradigm Shift in Pre-surgical Orthopedics for Infants with Cleft lip and Palate**

**Dr. SUPAKIT PEANCHITLERTKAJORN**

DDS, MDS

Diplomate, American Board of Orthodontics

Diplomate, American Board of Dental Sleep Medicine

Assistant Professor, Dept. of Orthodontics, Mahidol University

Dental licenses - California, US and Thailand

Pre-surgical orthopedic treatments have been employed in infants born with oral clefts for over half a century. There are a variety of technics described in the literature. The early treatment goals included feeding assistance as well as aligning alveolar segments. Advocates of the treatment claimed that long-term benefits included speech and orthodontic benefits. However, recent studies have shown that such long-term benefits could not be substantiated. The ability to mold neonatal cartilages has given rise to a new pre-surgical technic called Nasoalveolar Molding (NAM). The NAM technic added nasal cartilage molding as part of its treatment goal. This has allowed surgeons to consistently obtain improved esthetics in the nasolabial area. The popularity of NAM in recent years has shifted traditional treatment goals of the pre-surgical orthopedic treatments to focus more on enhancing nasolabial esthetics. In this presentation, I will discuss studies reporting outcomes of pre-surgical orthopedics for infants with oral cleft, particularly those dealing with NAM treatment. In addition, I will demonstrate short-term and long-term outcomes of patients that received the treatment.

**Changing Paradigms in concept on Caries Prevention: Current situation in Vietnam**

**ASSOC. PROF. HOANG TRONG HUNG**

DDS, MSc, PhD

University of Medicine and Pharmacy, Ho Chi Minh

Faculty of Odonto-Stomatology, University of Medicine and Pharmacy at

Ho chi Minh city”

Fluorides play an important role in prevention and control of dental caries. The anti-cariogenic properties of fluoride have been found since the early of 1930s and was considered as one of the most highlight achievements in the history of dentistry. Since fluorides were found, the paradigms of caries prevention have been changed accordance with advances in dental technologies and tendencies of dental caries in communities.

The aims of this lecture were to present a review in changing caries prevention Paradigms and current situations of caries prevention in Vietnam.

This review recognized that the public oral health programs have significantly reduced dental caries experience in young children by using “frequency Fluorides” and water fluoridation was the major factor contributing to reduce dental caries among children and adults living in the fluoridated communities. However, there was a skewed distribution of dental caries nowadays, changes in caries prevention paradigms could bring many benefits for the communities in establishing strategies to assess, control and prevent caries in high risk groups living in specific communities and for patients who seek their Oral Physician to be managed dental caries.

Keywords: dental caries, fluoride, caries prevention

**Oxidative stress induced by *Porphyromonas gingivalis* lysate and nicotine in human periodontal ligament fibroblast**

**ASSOC. PROF. NGUYEN THU THUY**

**Thuy T. Nguyen<sup>1,2</sup>, Nam Nhat-Cong Huynh<sup>3</sup>, Sujiwan Seubbuk<sup>1</sup>, Thanapoj Nilmoje<sup>1</sup>, Aree Wanasuntronwong<sup>1</sup>, Rudee Surarit<sup>1</sup>**

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**Objectives:** *Porphyromonas gingivalis* (*P. gingivalis*) and nicotine have been implicated as a major pathogen in the development and progression of periodontitis. One of the possible mechanism is via the oxidative stress of human periodontal ligament fibroblasts (PDLF), which lead to the damage of cell viability and function. This study aimed to investigate oxidative stress (OS) levels in the cultured media of human PDLF under the induction of *P. gingivalis* lysate and nicotine.

**Methods:** Primary PDLF was cultured in growth media under *P. gingivalis* or/and nicotine treatment in different concentrations for 2 and 24 hours. Following incubation, oxidative stress molecules malondialdehyde (MDA) and oxidized guanine species (Ox-GS) from the cell cultured supernatant were determined by spectrophotometric assay and ELISA, respectively.

**Results:** At both 2 and 24 hours, Ox-GS and MDA levels in the medium of cells treated with different concentrations of *P. gingivalis* lysate and nicotine, either separately or in combination, were significantly different from the negative controls in a dose- and time-dependent manner. Interestingly, except MDA levels in *P. gingivalis* lysate at 20 µg/ml, MDA levels in all other tested conditions were found as same as one in the positive controls after 24 hours.

**Conclusions:** OS biomarkers were generated by PDLF upon treatment with periodontal pathogens and nicotine which could elucidate a potential local mechanism of periodontal disease etiology.

Key words: periodontitis, oxidative stress, periodontal ligament fibroblast, *Porphyromonas gingivalis*, nicotine

**Experimental study on the effect of muscle imbalance of the lateral pterygoid muscle on the abnormal remodeling of condyle in SD rats**

**TIAN Linqing**

School of Stomatology, Kunming Medical University  
Building C, 1088# Mid Haiyuan Road Kunming Yunnan, China 650031

**Objective:** SD rats model of lateral pterygoid muscle imbalance in both sides are established to investigate its effect on development changes of condylar cartilage and Subchondral bone.

**Methods:** 48 male SD rats of 6 weeks old divided into two groups: experimental group that injected with botulinum toxin A (2.5U/0.1ml, 100ul) on the right side of the lateral pterygoid muscle and control group that injected with 0.9% normal saline. Temporomandibular joints in SD rats in the 2, 4, 8 and 12 weeks after surgery and analysis: 1. microCT was used for scanning, BV/TV, BS/BV, Tb.Th, Tb.Sp and Tb.N 2. To observe the effect the expression of VEGF in condylar cartilage. 3. HE staining was used to observe the structural changes of the condylar cartilage, TRAP staining was used to observe the changes of osteoclasts.

**Results:** Significant phenomenon of occlusal disorder occurred 2 and 4 weeks after establishment of the model in the experiment group. The BV/TV, TB.N, Tb.Th values the expression for 2 and 4 weeks were lower than those of the control group ( $P<0.05$ ). The TB.SP, BS/BV, expression of VEGF protein in the cartilage of rats and The osteoclast positive cells in subchondral bone values were the expression for 2 and 4 weeks were higher than those of the control group ( $P<0.05$ ).

**Conclusions:** After the establishment of SD rats model of lateral pterygoid muscle imbalance, botulinum toxin A was injected at 2、4 weeks, bone loss was found in the condylar subchondral bone of rats, but the expression of vascular endothelial growth factor increased in condylar chondrocytes. The abnormal muscle tone of the lateral pterygoid muscle can induce OA in the condylar cartilage and subchondral bone of the temporomandibular joint. This model can be used for the further study of the pathogenesis of TMJOA.

### The signaling pathway of TNF- $\alpha$ induced ISG15 up-regulation

Wanee Lertsooksawat<sup>1</sup> and Kongthawat Chairatvit<sup>1</sup>

<sup>1</sup> Department of Oral Biology, Faculty of Dentistry, Mahidol University, Bangkok, Thailand

**Background:** ISG15 (Interferon stimulated gene 15) is normally induced by type I IFN (IFN- $\alpha/\beta$ ), but it can also be induced by pro-inflammatory cytokine, TNF- $\alpha$ , which is proposed as a link between inflammation and carcinogenesis. ISG15 is up-regulated in several cancer cell types including oral squamous cell carcinoma. However, the mechanism of TNF- $\alpha$  induced expression of ISG15 is still unknown.

**Objectives:** To elucidate the signaling pathway of the early response of ISG15 by TNF- $\alpha$ .

**Methods:** Up-regulation of ISG15 by TNF- $\alpha$  were examined in two human carcinoma cells, lung (A549) and oral squamous cell (HSC4) carcinoma, and one normal human gingival fibroblast (HGF) cell using western blot and RT-qPCR. Several kinase inhibitors were used to identify a key intermediate molecule required for TNF- $\alpha$  induced ISG15. Luciferase reporter assay was used to identify a region in the ISG15 promoter required for induction by TNF- $\alpha$ .

**Results:** Our study showed that TNF- $\alpha$  induced ISG15 expression in all tested cell types (A549, HSC4, and HGF). The p38 mitogen-activated protein kinase (p38 MAPK) inhibitor, SB202190, and c-Jun N-terminal kinase inhibitor, SP600125, attenuated the effect of TNF- $\alpha$  induced ISG15 expression. In addition, mutations at C/EBP-binding site in the ISG15 promoter which is located within the first 300 nucleotides of the ISG15 promoter suppressed the effect of TNF- $\alpha$ -induction.

**Conclusion:** The direct induction of ISG15 expression in A549 cells was mediated through the signaling molecules JNK and p38 MAPK. The C/EBP-binding region in the ISG15 promoter was required for the induction by TNF- $\alpha$ . However, the underlying mechanism of ISG15 expression by TNF- $\alpha$  needs to be further studies. This study provides a basic knowledge for better understanding in molecular linkage among TNF- $\alpha$ , ISG15 and cancer, and for future development of cancer therapy.

**Kabuki syndrome: A case report from Thailand with oral abnormalities**

**Pin-kwan Padthaisong, Woranun Prapansilp**

Department of Pediatric Dentistry, Faculty of Dentistry, Mahidol University, Bangkok, Thailand

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**Background:** Kabuki syndrome is a rare autosomal dominant trait, first reported by Niikawa in 1981. The faces of the patients are similar to the make-up of the Kabuki actors, the traditional Japanese theater. The clinical diagnosis of Kabuki syndrome is based on the presence of five cardinal manifestations which are typical facial features, skeletal anomalies, dermatoglyphic abnormalities, mild to moderate intellectual disability and postnatal growth deficiency. Oral manifestations are also commonly observed in Kabuki, sometimes dental findings may be helpful for clinical diagnosis in children with mild phenotype. The dental anomalies that have been described in many authors are hypodontia, conical teeth, spaced dentition, high arched palate, cleft lip and cleft palate. Cleft Palate has many effects on feeding, speech, jaw and dental development. Therefore the comprehensive management plan is included specialists team and dentists.

**Case presentation :** Thai female 18 year 1 month was diagnosed Kabuki syndrome with mild mental retardation has a regular follow up with her personal doctor every year, no current medications. She presented with some permanent teeth missing, upper anterior spacing and unilateral posterior crossbite.

**Conclusion:** Even the estimated prevalence of Kabuki syndrome in Japan was 1: 32,000, this syndrome also have been recognized in other countries. As the dental anomalies development mentioned above, dentists should be concerned about their medical problems which is highly reported in patients with Kabuki syndrome such as congenital heart defects, hearing problems, intellectual and behavioral aspects. Thus the dentists can plan and perform proper management for the patients.

**Patient satisfaction with single-implant retained mandibular complete overdenture**

**Myat Nyan, Ei Ei Hlaing, Sai Myat Thin**

Department of Prosthodontics, University of Dental Medicine, Mandalay, Myanmar

**Background:** Many patients with considerably resorbed mandibular alveolar bone have problems with the retention and stability of their conventional mandibular complete dentures resulting in poor overall patient satisfaction.

**Objective:** A study was carried out to evaluate patient satisfaction after rehabilitation with one-implant retained mandibular complete overdenture in elderly patients.

**Materials and methods:** Thirty elderly mandibular edentulous patients were included. Ethical approval was obtained from Ethical and Research Committee of University of Dental Medicine, Mandalay. Single one-body implant (Dentium, Korea) was surgically placed at the midline of mandible and one month after surgery, mandibular complete overdenture retained by rubber O-ring attachment on the implant was prescribed. Post-treatment patient satisfaction was determined by patient evaluation (PEQ) questionnaire.

**Results:** All patients reported excellent satisfaction on the prescribed treatment. The patient satisfaction score by PEQ questionnaire was 64.9±6.5 (mean±SD) out of 70 which can be translated into mean satisfaction of 91%.

**Conclusion:** In conclusion, single implant retained mandibular complete overdenture treatment dramatically improves satisfaction of patients with considerably resorbed mandibular alveolar bone.

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### Three-dimensional volume change of grafted bone in the maxillary sinus

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**Background:**The posterior maxillary region often provides a limited bone volume for dental implants. Maxillary sinus elevation is believed as a reliable option for placing implants. The long-term stability of graft materials plays a crucial role in the outcome of operation, which also affects the success of implants.

**Objective:** The factors influencing the long-term stability of bone graft materials are relatively complex. This study was aiming to analyze the effect of influencing factors on the three-dimensional volume change of graft material.

**Methods:** A maxillary sinus elevation procedure done with lateral approach and hydraulic approach using 100% anorganic bovine bone was performed in 30 patients. A CBCT scan was taken immediately after the surgery (T1) and 6 months later (T2). CBCT scan data were analyzed with image processing software to evaluate differences in the volume of grafted material between T1 and T2. sinus width, angle A, contacting area size were measured at T1.

**Results:** In narrow sinus, the three-dimensional volume change of bone graft material was less than that in large sinus at 6 months after operation. The area of grafted bone contacting with natural bone was negatively correlated with the volume change of grafted bone.

**Conclusion:** Due to the narrow sinus, the osteoblasts and blood supply from the sinus wall migrate to the transplanted area more easily, which is conducive to the long-term stability of the three-dimensional volume of the bone graft material; the larger the bone graft material is in contact with the natural bone, the greater the osteogenesis would be achieved. The richer the cells, the less absorption of bone graft material.

**Osteogenic potential and fibroblast response of niobium oxide containing zirconia**

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**Background:** Many researchers have tried to introduce zirconia ceramics as titanium implant alternative because of their aesthetic superiority, excellent biocompatibility and mechanical properties. The longevity and functionality of dental implants depend on both osseointegration around the implant body and the establishment of a properly functioning soft tissue barrier around the implant neck.

**Objective:** This in vitro study evaluated the osteogenic potential and fibroblast response of 3Y-TZP and niobium oxide containing Y-TZPs ((Y, Nb)-TZPs) with specific ratios, namely YN4533 and YN4533/AI20 discs.

**Materials and Methods:** The surface properties of smooth 3Y-TZP, YN4533, YN4533/AI20 and rough discs (15 mm in diameter, 1 mm thick, 20 discs for each group) were evaluated by confocal laser scanning microscopy (CLSM) and scanning electron microscopy (SEM). Murine pre-osteoblast MC3T3-E1 cells and human gingival fibroblast (HGF) cells were cultured on all zirconia discs. The PicoGreen assay was used to investigate cell proliferations. The mRNA gene expression of alkaline phosphatase, osteocalcin, type I collagen, integrin  $\alpha$ 2 and  $\beta$ 1 were measured by real-time RT-PCR. Two-way ANOVA was used for the comparison of the outcomes among the groups. All the data were analyzed at the significance level of 0.05.

**Results:** Both MC3T3-E1 pre-osteoblasts and HGFs were more widely spread on smooth surfaces than on rough surfaces. Cellular proliferations of both osteoblasts and HGFs were higher on smooth surfaces. Osteoblasts were more differentiated on YN4533 and YN4533/AI20 than on 3Y-TZP. The mRNA expressions of type I collagen, integrin  $\alpha$ 2 and  $\beta$ 1 were significantly stimulated for (Y, Nb)-TZP groups at 24 hours after seeding.

**Conclusions:** Within the limitation of this study, (Y, Nb)-TZPs provide appropriate surface condition for osseointegration at the implant level and for peri-implant mucosal sealing at the abutment level. They are expected to be suitable alternative ceramics dental implant materials to titanium for aesthetically important areas.

**A rare case of idiopathic gingival fibromatosis associated with hypertrichosis**

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**Background:** This clinical case describes the treatment of a 5-year-old girl who was born with hypertrichosis associated with idiopathic gingival hyperplasia. Idiopathic gingival fibromatosis, also known as hereditary gingival fibromatosis (HGF), is a rare condition but the most common form of gingival hyperplasia. Overgrowth of gingival tissue is usually slow and progressive and may delay or prevent tooth eruption, resulting in cosmetic and functional impairments. Hypertrichosis may be associated with HGF, which can occur in isolation or as part of a syndrome.

**Case presentation:** The girl is the Yi nationality. She was suffering with congenital heart disease and there was no history of any drug administration and family history. The patient had dysmorphic facial features, which included thick and abundant eye lashes, a broad nose, labial fullness, and a large amount of facial hair and generalized hypertrichosis. All physical examination indicators were normal. Following the gingivectomy twice time, the masticatory and aesthetic profile was enhanced. The histopathological examination of the excised tissues revealed parakeratinized stratified squamous epithelium that was hyperplastic and diagnosed was gingival fibromatosis. After six months of surgery, a mild gingival hyperplasia recurrence was noted.

**Conclusion:** At present, surgical resection was the only method to treat hereditary gingival fibromatosis. The recurrence rate of HGF was associated with oral hygiene, and more importantly, children and adolescent have a higher recurrence rate. It is obvious that when it happens, other operations were needed. Though hypertrichosis is not a serious clinical disease, it influences the aesthetic profile of patient, which means the psychological aspect of this disorder should not be neglected.

**Yunnan baiyao affects PRF releasing the growth factors in human**

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**Background:** The second generation platelet concentrate Platelet Rich-Fibrin ( PRF ) can continue to release the cell growth factor, promote healing of tissue. And on the other hand, Yunnan baiyao which is a famous Chinese herbal medicine can stimulate platelets releasing more particles.

**Objective:** By detecting before and after taking orally yunnan baiyao the concentration of three kinds of cell growth factors which is Platelet Derived Growth Factors (PDGF-AB), Transforming Growth Factors(TGF- $\beta$ ) , Insulin-like Growth Factors ( IGF ) change in PRF, to understand the yunnan baiyao affects PRF releasing the cell growth factors.

**Method:** There were 3 Volunteers who was approved by institutional ethical, before and after taking orally yunnan baiyao, collected the venous blood 10 ml, centrifugal 3000 r/min  $\times$  10 min, prepared for the PRF membrane. And then put them into 5 ml of fresh MEM sugar medium, respectively in 37 °C under 1 d, 7 d, 14 d, 21 d, 28 d and collect their exudates, and by ELISA method to detect the concentration of the exudates.

**Result:** 1) growth factor released situation: at different time points, TGF -  $\beta$ 1 concentration are basically identical; in 14 days the highest concentration of PDGF - AB, and in 7days highest concentration of IGF-1has appeared. 2) After taking oral yunnan baiyao the concentration of growth factors is higher than before observably, the difference was statistically significant ( $P < 0.05$ ).

**Conclusion:** PRF can last releasing the cell growth factors slowly, after taking orally the yunnan baiyao that can stimulate the PRF release higher concentration of growth factors effectively.

**The research of factors influencing the oral health related quality of life in the elderly in Kunming city**

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**Objective:** To explore the influencing factors of oral health related quality of life in the elderly in Kunming city, and to provide basic information and scientific basis for oral health care.

**Methods:** A cross - sectional survey was conducted on 1686 old people in 14 districts of Kunming city by using the Chinese version of OHIP - 14 and referring to the Third National Oral Epidemiology Survey.

**Results:** The total score of OHIP-14 was  $14.36 \pm 6.67$ , and the total score of OHIP-14 was significantly different between urban and rural areas. The results of multilevel model analysis showed that the factors that entered the regression equation were age, personal monthly income, gingival probing bleeding, periodontal pocket depth, dentition defect and dentition loss.

**Conclusion:** Oral diseases are the main factors affecting oral health related quality of life in the elderly. Oral health services and oral health education should be strengthened.

**Influence of curing light intensity and porcelain thickness on color stability and translucency of cemented porcelain laminate veneers**

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**Background:** Color changes of resin cements may show up and affect the aesthetic appearance of thin and translucent porcelain laminate veneers.

**Objective:** The aim of the in vitro study was to evaluate the effects of curing light intensity and porcelain thickness on the color stability and translucency of cemented laminate veneers after accelerated aging.

**Methods and Materials:** 56 porcelain disks were fabricated using HT A3 shade of IPS e.max Press with 0.50mm and 1.00 mm thickness. The specimens of each thickness were randomly divided into four groups and A3 shade of Variolink N resin cement were bonded on three groups of porcelain disks respectively with light intensities of 700 mW/cm<sup>2</sup>, 900 mW/cm<sup>2</sup>, and 1100 mW/cm<sup>2</sup>. CIE L\*a\*b\* parameters were measured before and after 5,000 cooling/heating cycles. Changes in color and translucency were calculated, and then submitted to two-way ANOVA.

**Results:** Both porcelain thickness and curing light intensity caused statistically significant differences in the color difference after aging ( $P < 0.01$ ). The greatest color changes were observed in samples of thickness 0.50 mm with light intensity 700 mW/cm<sup>2</sup>. Aging clearly decreased the translucency of all specimens. Samples with varying thicknesses and curing light intensities had statistically significant differences in the quantity of translucency decrease after aging ( $P < 0.01$ ).

**Conclusions:** Cemented porcelain laminate veneers tend to become darker and yellower after aging. Light intensity and porcelain thickness both clearly affect the color stability of cemented porcelain laminate veneers. The translucency of the veneer is significantly related to the thickness, and the translucency of veneers decreases after aging.

**Precision endodontic treatment for complicated root canal systems: a case report and proposals for the future**

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**Aim:** To describe a protocol for precise treatment of complicated root canal systems to assist Endodontists to improve the outcome of root canal treatment and minimize procedural errors.

**Summary:** A mandibular premolar was diagnosed by conventional radiographs as containing a partially calcified canal system. Further analysis of the tooth prior to treatment included cone-beam computed tomography (CBCT), accurate measurement of the reconstructed CBCT images and an integrated analysis of all diagnostic information. The premolar had an extremely complex root-canal system. Based on accurate analysis of the canal configuration and evaluation of possible weak dentinal walls, an accurate root canal preparation phase was planned and a precise individualized management plan formulated. Assessments were made of the calcified section in the middle of the canal, anomalous variations in the root canal anatomy, vulnerable points of the dentine wall, and of the appropriate regions where removal of dentine during canal shaping in terms of position, direction and depth were identified. Precise treatment required initial preparation of the disto-buccal canal without calcification followed by the safe and effective preparation of the calcified mesio-buccal canal through a gradual process of penetrating in a disto-buccal to mesio-buccal direction. In this way, the two buccal canals were merged into one canal. The precise diagnosis, analysis and individual treatment plans based on the integrated information from several similar cases may provide a new method to perfect the preparation of complicated root canals.

**Key learning points:**

- An appropriate sequence of clinical examination, radiographs, CBCT and 3D reconstruction of canal systems can be used to diagnose, evaluate and analyse complicated root canal systems.
- An individual and precise management plan based on accurate analysis can avoid procedural errors and weakening roots through excess removal of dentine and allow more effective preparation of root canals.
- Running title: Precision treatment of root canal

**Keywords:** precision treatment, complicated root canal system, cone beam computed tomography, three-dimensional reconstruction, accurate analysis

**Restorative techniques in traumatized permanent teeth: two clinical case reports**

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**Background:** Anterior teeth crown fractures are the most common form of dental trauma in children and adolescents. Restorative treatment is important to maintain their functions and aesthetics. Several restorative techniques have been purposed such as freehand direct mockup technique, direct mock-up with reference guide technique and reattachment of the crown fragment. Using direct mock-up with reference guide by polyvinyl siloxane is one of the best choice for treatment of multisurface crown fracture. The advantages of this technique are minimal clinical chairtime, favorable aesthetic outcome, and appropriate occlusion. On the other hand, reattachment of the crown fragment is another treatment option if the tooth fragment is available. The advantages of reattachment technique are to maintain its original shape, color, translucence and surface structure. The latter procedure can also minimize the laboratory chair time for completing restoration.

**Case reports:** This case report presents two anterior crown fracture cases from Department of Pediatric Dentistry, Faculty of Dentistry, Mahidol University. The first case is a 10-year-old Thai girl presented with two uncomplicated crown fracture teeth with periodontal injuries at maxillary central incisors. Both fractured teeth involved palatal and incisal surfaces. Then, they were restored with direct mock-up with reference guide by polyvinyl siloxane. The second case is a 9-year-old Thai girl who had a uncomplicated crown fracture with concussion at maxillary right central incisor. The tooth fragment was available; therefore, the reattachment of the crown fragment was done using bonding agent and resin composite.

**Conclusion:** Both direct mock up with reference guide technique and reattachment of the crown fragment are practical restorative options to restore multisurface traumatized permanent anterior teeth when compared to freehand direct mock-up. Selection of the appropriate restorative technique depends on area of crown fracture involvement, tooth fragment availability, and available dental materials.

## Early childhood caries status and its associated factors among young Cambodian children

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### Background

Early childhood caries (ECC) is a global public burden in terms of medical, social and economic aspects, and Cambodian children are severely affected. The purpose of this cross-sectional study was to measure prevalence of ECC and severity, and associated factors among 10- to 42- month old children in Kampong Cham, Cambodia.

### Methods

Data, from 83 children (male = 49, female = 34; mean age = 24.69±9.54 month; mean number of teeth = 14.64±5.27), were collected at seven villages in Kpong Ta Ngon, Kampong Cham province. The dental caries status was recorded following WHO guidelines. The socio-economic status, dietary habits and oral hygiene habits of the children were assessed through an interview questionnaire for their primary caregivers.

### Results

Early childhood caries prevalence was 49.4%. The mean dft was 2.40±2.97, and 100% of teeth with cavitated teeth was untreated. Significant associations were found between dental caries, and parity, sugary food intake and nocturnal breast-feeding and bottle-feeding ( $p<0.05$ ). Logistic regression revealed that the children who experienced bottle-feeding were 3.51 times more likely to have dental caries than those who without bottle-feeding (OR=3.51, 95%CI=1.07-11.50,  $P=0.038$ ), and the first-born children were more likely to have dental caries than those who without the first-born (OR=2.79, 95%CI=1.31-5.99,  $P=0.008$ ).

### Conclusion

The finding of this study suggested that early childhood caries prevalence was high, and bottle-feeding and the first-born were the associated factors for ECC in this population.

**Keywords:** Early childhood caries, Cambodia, Associated factors

## **Management of traumatic immature tooth with Biodentine: A case report**

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### **Background**

Complicated crowns have been defined as fractures of crown involving enamel dentine and pulp. It occurred 0.9-13% of all dental injuries. The majority of these injuries occur in children who the permanent incisors are incomplete root formation. Immature teeth have opened apex and thin dentin that difficult for root canal treatment and prone to fracture. Consequently, the important for treatment is preserved pulp vitality and promote healing and repair. Several materials have been used for dressing the pulp such as Calcium hydroxide and Mineral trioxide Aggregate (MTA). Biodentine is a new one that was introduced on 2009 which overcomes the drawbacks of Calcium hydroxide and MTA. It was improvements in some of the properties for example physical quality and handling.

### **Case presentation**

The case report presents a Thai-French 8-year-old girl who came with a history of dental trauma for 2 days. She suffered from a complicated crown fracture with concussion of the maxillary left central incisor. She was treated with partial pulpotomy with Biodentine and restoration with resin composite. Clinical and radiographic examination were performed, follow the AAPD guideline, at four, seven weeks. At three months, the patient was no any symptoms and the tooth had no sign of clinical signs of inflammation and infection.

### **Conclusion**

Partial pulpotomy was accepted in recover the traumatically exposed pulps of immature teeth. Biodentine is a new product that has captivated attention in positive effect on preserving vital pulp and also stimulates reparative dentin formation. Although many case reports showed that Biodentine is suitable alternative to MTA and Calcium hydroxide for partial pulpotomy in traumatized permanent incisors. There is a lack of long-term clinical studies that precludes a final conclusion. Consequently, Following the case clinical and radiography for at least 3 years was needed.

**Dental management of Williams syndrome: A case report**

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Williams syndrome (WS) is a rare multi-system disorder which occurs equally in all ethnic groups and both sexes. The incidence is 1 in 7,500 to 10,000 people. It consists of a variety of hallmark physical features; distinctive facial characteristic, cardiovascular abnormalities, behavior characteristic including mental retardation and tooth abnormality.

A thirteen years old Thai boy with Williams syndrome came for dental checkup. This patient has elfin-like face characteristic with flat nasal bridge, short upturned nose, long philtrum, hypertelorism and prominent ear lobes. His medical status revealed mild supraaortic stenosis and mild mitral valve prolapse. Dental findings showed hypodontia, malalignment, class II malocclusion, taurodontism and high caries activity. In this case, the treatment procedure was performed under nonpharmacological approach because the patient had potentially cooperative behavior and well-control systemic health. Due to congenital heart defect, it increases the risk of subacute bacterial endocarditis, an antibiotic prophylaxis with 2 grams amoxicillin 1 hour before procedure was used in the visit to deal with bleeding and infection. Furthermore, the patient was categorized as high caries risk group, preventive program and dietary counseling were individually designed and implemented.

The management of patient with WS requires understandings of a natural course of disorder, awareness of potential clinical complications and periodic review at different ages. Dentist is one of the multidisciplinary team for early detection and management of oral disease. Therefore, preventive plan and comprehensive treatment plan should be individually generated for each patient.

**Effect of probiotic on oral microorganism among children with S-ECC**

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**Background:** Prevalence of dental caries is increasing in younger generation. As a new ecological preventive measure of dental caries, bacteriotherapy has been widely focused on.

**Objective:** The aim of this study was to observe the effect of probiotic powder on oral microorganism among children aged 5-year with severe early childhood caries, so as to evaluate the effect of probiotic powder on prevention and treatment of dental caries, and to explore an effective and convenient measure for caries-prevention for children with severe early childhood caries.

**Method:** 30 volunteer subjects who meet the inclusion criteria with  $dmfs \geq 6$ , aged 5 years, were recruited for the study. The subjects were divided in two groups by randomized and double-blind method and received the treatment for 7 days: control group-taking placebo powder, and experimental group-taking probiotic powder respectively. Salivary pH and counts of *Streptococcus mutans* were determined to compare the change of *S. mutans* in saliva at baseline, right after the intervention and at 1-month post-treatment period. All the data was analyzed with one-way analysis of variance (ANOVA) ( $p < 0.05$ ).

**Results:** *S. mutans* counts decreased significantly at 7 days after the intervention in experimental group ( $p < 0.05$ ), and there was no statistically difference in control group ( $p > 0.05$ ). After 1-month post-treatment, the *S. mutans* counts returned to the level before treatment in experimental group. There was no significant in saliva pH between two groups before and after intervention ( $p > 0.05$ ).

**Conclusion:** Oral administration of probiotics showed a short-term effect on reduction of mutans streptococci count and showed a preventive role in caries development.

## Nasolabial flap in oral and maxillofacial reconstruction

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**Background:** Nasolabial flap is one of the surgical options for reconstruction of soft tissue defects in oral and maxillofacial region. Nasolabial flap is a true myocutaneous flap pedicled on facial artery and comprise of skin, subcutaneous tissue and underlying musculature. It can be used as both axial and random flap. It is robust and versatile flap. The nasolabial flap may be superiorly, inferiorly, laterally or medially based. The choice of pedicle is based on the site of defect.

### Case presentation:

**Case 1:** It is demonstrated that inferiorly based nasolabial flap was used for reconstruction of defect at posterior floor of mouth. A 41-year old man suffered from Ca mandible (L) at molar region involving floor of the mouth. Segmental resection of mandible, wide excision of ulcer at floor of the mouth, reconstruction was performed.

**Case 2:** The inferiorly based nasolabial flap was used to reconstruct the defect after wide excision and marginal resection of mandible in 50-year old man with Ca anterior floor of mouth involving mandible.

**Case 3:** A 62-year old lady with Ca anterior maxilla was treated by partial maxillectomy and the defect was reconstructed with superiorly based nasolabial flap.

**Case 4:** Laterally based nasolabial flap was used in case of 47-year old man with Ca buccal mucosa (L) involving commissure and skin. Full thickness wide excision and reconstruction was done.

**Case 5:** Medially based nasolabial flap was chosen to reconstruct the defect after full thickness excision, marginal resection of mandible in case of 71-year old man with Ca buccal vestibule involving commissure and skin.

**Conclusion:** The nasolabial flap is versatile, useful and reliable alternative for smaller to medium size defects in oral and maxillofacial region without causing much morbidity to the donor site.

**Use of the buccal fat pad flap in immediate reconstruction of oral tissue defects in oral surgery**

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**Objective:** The aim of this study was to present a new immediate reconstructive option for oral tissue defects with a pedicled buccal fat pad flap in oral surgery.

**Materials and Methods:** Fifteen cases (10 males, 5 females; mean age: 50 years) suffering from oral tumor and attending the Affiliated Stomatology Hospital of Kunming Medical University were included in this study. All patients underwent immediate repair surgery involving a pedicled buccal fat pad graft in oral surgery, from July 2010 to August 2016.

**Results:** All cases underwent uneventful healing with a surviving graft flap. The buccal fat pad healed in about 9 to 10 weeks and its uncovered surface became epithelialized with similar feature to the normal mucosa. At a follow-up of 6 months to 3 years, a good outcome was obtained with minimal malfunction and face deformity.

**Conclusions:** The pedicled buccal fat pad is ideal material for repair, and it is a viable option for immediate reconstruction of oral tissue defects in oral surgery.

**Key Words:** Buccal fat pad; Oral tumor; Reconstruction; Tissue defect

**(P-1301) Trpv1, P2X3 and c-fos expression in nerve and blood vessels injury**

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**Background**

TRPV1 and P2X3 are the protein bound membrane in trigeminal ganglion (TG) usually present in chronic pain, while c-Fos is the protein transcription that found in 1-4 hours after noxious stimuli. C-Fos expression in lamina I&II at the level of trigeminal nucleus caudalis is the marker of pain transmission into the central mechanism.

**Objective(s)**

The present study aimed to measure the expression of Trpv1, P2X3 on trigeminal ganglion and c-Fos on trigeminal nucleus caudalis after lingual nerve injury and external carotid artery ischemic reperfusion.

**Materials and methods**

Immunohistochemistry staining from trigeminal ganglion and trigeminal nucleus caudalis were measured. The animals were divided into 3 groups: control, lingual nerve chronic constriction (LNC) and external carotid artery ischemic reperfusion (ECAIR). All tissues were viewed under a scanning microscope using ImageScope program. TRPV1 and P2X3 neurons with presence of nucleus were manually counted in TG section and were divided into immunopositive and immunonegative neurons. The number of c-Fos positive immunostaining neurons in lamina I&II were manually counted and represented in positive number of neurons. Paired t-test and one-way ANOVA were used as statistical analysis with  $p < 0.05$ .

**Results**

The ipsilateral side neurons in TG of LNC and ECAIR groups were higher than control group. It significantly determined in small size neurons. TRPV1 increases in only small size neurons however, increasing of P2X3 was observed in small and medium size neurons. The increasing of c-Fos expression in ipsilateral side of LNC groups was observed.

**Conclusion**

Nerve and blood vessels injury increase the nociceptive receptor in peripheral nervous system. However, only nerve injury increases the c-fos expression in central nervous system.

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(P-1302) Genotyping of *Candida albicans* and *Candida dubliniensis* from oral specimens

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**Background:** *Candida albicans* and *Candida dubliniensis* have been detected from oral cavities of individuals with and without oral candidiasis.

**Objectives:** This study aimed to subtype *C. albicans* and *C. dubliniensis* isolates and evaluate their virulence attributes. Materials and methods: *C. albicans* and *C. dubliniensis* were isolated from two categories of subjects. One-hundred subjects without sign and symptoms of candida infection were classified as healthy group, whereas the other 100 subjects with oral candidiasis were in disease group. Procedure to collect these isolates was approved by the institutional ethical review committee. Genotyping of all isolates was performed based on the presence and the size of transposable intron region in the large-subunit rRNA (25S rRNA gene). Then virulence properties including buccal adhesion ability as well as phospholipase and proteinase activities were investigated, and analyzed according to isolate subtypes as well as subject groups.

**Results:** *C. albicans* isolates were divided into three subtypes (genotypes A, B, C) based on different lengths of PCR products amplified from the 25S rRNA gene, while *Candida dubliniensis* was showed as genotype D. Genotype B was the most prevalence subtype in both healthy and disease groups. This genotype B showed highest ability to bind with buccal epithelial cells, while demonstrated the lowest phospholipase activity among all genotypes of *C. albicans*. However, no significant difference was found for proteinase activity among three genotypes of *C. albicans*. When healthy and disease groups were compared, genotype C of *C. albicans* was more frequently detected in candidiasis patients than healthy subjects. As for *C. dubliniensis* (genotype D), it showed lower abilities than *C. albicans* for both buccal adhesion assay and extracellular enzymatic activities.

**Conclusion:** The genotyping of *C. albicans* and *C. dubliniensis* based on PCR amplification of the 25S rRNA gene seemed useful and could reflect some virulence aspects of the isolates.

**(P-1303) In vitro susceptibility and azole resistance mechanisms in *Candida glabrata***

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**Background:** *Candida glabrata* is a haploid and non-dimorphic yeast, which is the second most frequently isolated species causing oral candidiasis. Incidence of azole resistance in *C. glabrata* has been continuously reported. Molecular mechanisms of azole resistance in *Candida* spp. are associated with missense mutation in azole targets and increased expression of efflux pumps. Recent studies revealed the relationship of mutation in transcription factor PDR1 with azole resistance in *C. glabrata*.

**Objectives:** To determine azole susceptibility patterns and identify molecular mechanisms of azole-resistance in oral clinical *C. glabrata* isolates.

**Methods:** Forty *C. glabrata* isolates were recovered from oral samples of patients with oral candidiasis. Broth microdilution method was performed to test azole susceptibility patterns. The azole resistance-related genes, CgERG11, CgERG3, and CgPDR1 were sequenced to identify nucleotide substitution. Then gene expression level of various resistance-related genes was determined by quantitative RT-PCR in azole-susceptible, susceptible dose dependent (SDD) and resistant *Candida* isolates

**Results:** MIC ranges of all *C. glabrata* isolates tested were 0.03-1.0 µg/ml for itraconazole, 0.03-2.0 µg/ml for ketoconazole, and 0.125-64.0 µg/ml for fluconazole. Two *C. glabrata* isolates (5%) were cross resistant to all three kinds of azoles. Sequence analysis revealed silence mutations found in CgERG11 and CgERG3 coding regions. Interestingly, novel three missense mutation L139I, N768D and E818K were identified in CgPDR1 of two azole-resistant *C. glabrata* isolates, not found in SDD and susceptible isolates. Furthermore, identified mutation of CgPDR1 was found to be correlated with the increased expression of CgCDR1 and CgCDR2 efflux pumps in resistant *C. glabrata* isolates compared to SDD and susceptible isolates.

**Conclusion:** Gain of mutation (GOF) in transcription factor CgPDR1 resulted in increased expression of CgCDR1 and CgCDR2 efflux pumps, which lead to low azole susceptibility of *C. glabrata*. Identification of mutations in CgPDR1 could be beneficial as genetic markers of azole resistance in *C. glabrata*.

**(P-1304) Caries status and oral health related-behaviors of Jingpo preschool children**

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**Aims:** To describe the dental caries status and oral health-related behaviors of 5-year-old Jingpo preschool children in Yunnan China.

**Methods:** A survey was conducted in 2016 with the ethics approval from Kunming Medical University. Five-year-old Jingpo and Hani children in Yunnan were recruited using a cluster-sampling method. Two calibrated dentists examined the participants with dental mirrors and CPI probes under headlight. Caries experience was assessed using the dmft index. A parental questionnaire survey was conducted to collect the demographic information and oral health-related behaviors of the children.

**Results:** The response rate to this survey was 99%. A total of 361 5-year-old children, 49% boys, were examined. Eighty-six percent of the children suffered from dental caries, with the mean dmft scores reaching  $6.1 \pm 4.7$ . Almost all of the decayed teeth were left untreated, and dental fillings were only found in 4 (1%) of the children. The majority of children (87%) brushed their teeth daily, while the mean dmft scores had no significant difference among the children with or without daily brushing practice ( $p = 0.293$ ). Approximately half (45%) of the children had never visited a dentist, and the major reason for not visiting the dentist was that their parents thought their child had healthy teeth or that his or her teeth problems were not severe.

**Conclusions:** Most of the Jingpo children brushed their teeth daily. However, the prevalence of dental caries in Jingpo children was high, and a majority of the carious teeth were left untreated. School-based programme to promote toothbrushing habit with affordable fluoride toothpaste, and use of fluoride agents or ART approach to treat the caries problems can be developed.

**Keywords:** Dental caries, Oral health-related-behaviors, Ethnic minority, Children

**Foundation:** Yunnan Provincial Science and Technology Department and Kunming Medical University Conjoint Fund NO.: 2017FE468(-161)

**(P-1305) Effect of standardized extract of *Centella asiatica* ECa233 on neurite outgrowth and beta-tubulin synthesis in PC12 neuronal-like cell**

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**Background**

Age-related deficit in cognitive function is commonly well-recognized in elderly and fast-growing population in many countries. Neuroprotective effect of ECa233, a standardized extract of *Centella asiatica*, has been demonstrated in animal models of learning and memory deficit. However, effect of ECa233 on neurite outgrowth which could possibly be involved in its neurotrophic/neuroprotective effects has not yet been elucidated.

**Objective(s)**

The present study aimed to investigate the effect of ECa233 on the neurite growth and its underlying mechanisms in PC12 neuronal-like cells.

**Materials and methods**

PC12 was cultured in ECa233 (1, 10 and 100 ug/ml) with and without 2 ng/ml NGF. The percentage of neurite outgrowth bearing cell was counted and the amount of beta-tubulin was assessed in Western blot analysis.

**Results**

ECa233 10 ug/ml with NGF 2 ng/ml potentiated neurite outgrowth more than NGF 2 ng/ml alone. The amount of beta-tubulin was also increased at the same treatment. All treatment of ECa233 without NGF 2 ng/ml did not potentiate neurite outgrowth however, the beta-tubulin protein expression was increased more than no-NGF group.

**Conclusion**

ECa233 can promote the neurite outgrowth and beta-tubulin protein expression. The result obtained supports the potential benefit of ECa233 for the management of neuronal injury and neurodegenerative diseases.

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**(P-1306) Assessment of efficient xeno-free culture system of dental stem cells**

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**Background:** The possibility of transplanting adult stem cells into tissue defects has opened new prospects for the treatment of human pathologies. Use of media containing animal-derived serum carries potential risk of infectious diseases and unwanted immunogenicity.

**Objective:** The purpose of this study was to identify suitable cell culture media alternatives for stem cells from human exfoliated deciduous teeth (SHED).

**Materials and Methods:** Define xeno-free culture media were compared with the conventional serum containing media in the culture of SHED. Cultured SHED in different media were further characterized through proliferative capacities, cellular phenotype, and differentiation potential.

**Results:** Selected xeno-free media were capable of supporting the growth of SHED. MSCGM-CD Bulletkit medium greatly increased the number and proliferate capacity of colony-forming unit-fibroblast than SHED cultured in other media. In addition, the characteristic surface markers expression and multipotent differentiation potential of SHED in the MSCGM-CD Bulletkit medium were comparable to those observed with serum-containing medium.

**Conclusions:** The xeno-free medium described herein has the potential to be further used for the safe expansion and to determine efficient way to produce clinical grade dental stem cells for therapeutic applications.

**(P-1307) Quality of life assessment in orthodontic patients receiving orthodontic anchorage**

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**Background:** Orthodontic anchorage is an important consideration when planning orthodontic tooth movement and the main factor for determining the success of orthodontic treatment. Patients do experience pain, swelling, difficulty on chewing and speaking upon receiving the orthodontic anchorage. Several studies reported on patients' discomfort upon receiving the transpalatal arch and mini-implant. However, there is lack of study to assess the patients' discomfort towards the modified TPA-Nance appliance.

**Objective:** To assess Oral Health-Related Quality of Life (OHRQoL) among orthodontic patients who had allocated into three methods of orthodontic anchorage; transpalatal arch (TPA), modified TPA-Nance (TPA-Nance), mini-implant (MI).

**Materials and Methods:** The ethics approval was obtained from the Universiti Teknologi MARA (UiTM) Research Ethics Committee. Orthodontic patients with anchorage requirement between 18 and 30 years old were recruited. The subjects were equally divided into three groups, which included 28 females and 8 males. The assessment of patients' oral health related quality of life (OHRQoL) towards the anchorage supplementation using modified oral health impact profile (OHIP-14) questionnaires was carried out. The questionnaire was given at two time points, which was before the insertion of the allocated anchorage regime (T0) and after a week of insertion of the allocated anchorage regime (T1).

**Results:** There was no statistical significant difference on functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap domains of OHIP-14 questionnaire between the three anchorage groups.

**Conclusions:** Orthodontic treatment with the supplementation of orthodontic anchorage will not worsen the OHRQoL of the orthodontic patients.

**(P-1308) Microleakage of resin composite and glass ionomer cement in chlorinated water**

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**Objective:** The aim of this study was to compare microleakage of resin composite and resin modified glass ionomer cement immersed in chlorinated water with different pH

**Materials and methods:** Thirty extracted non-carious human permanent premolars were used. Teeth were randomly divided into 2 groups, cavity was prepared on buccal surface of the tooth and filled with randomly assigned material. Group I : resin composite (Filtek™ Z350). Group II: Resin modified glass ionomer cement (RMGIC (Fuji II™ LC). Each group was then divided into 3 subgroups. Subgroup 1 - Teeth were immersed in chlorinated water pH 5.5. Subgroup 2 - Teeth were immersed in chlorinated water pH 8. Subgroup 3 - Teeth were immersed in distilled water. Basic fuchsin (0.5%) was used to detect the microleakage. Each tooth was sectioned into 3 pieces, the assessment of dye penetration was done using stereo microscope and Image-Pro Plus program. The comparison of dye penetration between resin composite and RMGIC were analyzed by Kruskal-Wallis test at  $p < 0.05$  and Mann-Whitney U test.

**Results:** Resin composite and Resin modified glass ionomer cement showed significantly microleakage in chlorinated water at pH 5.5 and pH 8 than in distilled water. However resin composite showed significantly lower microleakage than RMGIC group in chlorinated water pH 5.5 and pH 8 ( $p < 0.001$  and  $p = 0.011$  respectively). RMGIC group showed significantly more microleakage in chlorinated water pH 5.5 than in pH 8. ( $p < 0.001$ ) but no significant difference was found in resin composite group ( $p > 0.05$ ).

**Conclusion:** Resin composite showed significantly lower microleakage than resin modified glass ionomer cement when immersed in chlorinated water pH 5.5 and pH 8.

**(P-1309) Effect of Aloes resin on migration activity using Boyden chamber and Scratch assays**

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**Objectives:** The aim was to compare the effect of Aloes resin on migration activity of Human Gingival Fibroblast (HGF) between using Boyden chamber and Scratch assays.

**Materials and Methods:** HGF cells  $2.5 \times 10^5$  cells/ml were exposed to 0.02% (W/V) of Aloes resin in a individual insert of 24-cluster-well-culture plate for Boyden chamber assay and 6-well plates for Scratch assay. The cell migration after exposure to Aloes resin 16 h and 24 h was determined by Boyden and Scratch assays respectively. The two assays were compared using intra-class correlation coefficient (ICC) analysis.

**Results:** Aloes resin was not cytotoxic to HGF cells at concentration of 0.02%. The percentage of cell viability in the 0.002-1% (W/V) Aloes resin groups dose dependently decreased from 104.09 % to 27.72 %. In Boyden chamber assay, the amount of migrated cells through permeable, polycarbonate (PC) membrane were  $456.8 \pm 36.3$  cells, while the negative control group was  $351.4 \pm 23.2$  cells. So, the percent values for cells migration  $32.4 \pm 2.5$ . In Scratch assay, the amount of migrated cells were  $133.9 \pm 14.8$  cells, while the negative group was  $103.2 \pm 13.3$  cells. The percent values for cells migration  $29.94 \pm 3.5$ . There were no significant differences between the two cells migration assay ( $p > 0.05$ ). The ICC values showing the agreement of the two assays in Aloes resin concentration of 0.02% were 0.772 and found a good correlation of results.

**Conclusion:** The Boyden chamber and Scratch assays gained the good correlation in the evaluation of cell migration of Aloes resin.

**Keywords:** Aloes resin, Boyden chamber assay, Intra-class correlation coefficient, Scratch assay

**(P-1310) Effect of cuttlefish bone on migration and mineralization of MC3T3-E1**

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**Objective:** The purpose of this study was to evaluate effect of cuttlefish bone powder (CBP) on migration and mineralization of MC3T3-E1 osteoblast cell line.

**Materials and Methods:** MC3T3-E1 cells were treated with 0.5, 1, 5, 25, 50, 100, or 200 µg/ml CBP. Cytotoxicity was evaluated using the MTT assay. Cell migration effect of CBP was determined using Boyden Chamber Assay at 16 h incubation time of treatment with 0.5, 25, or 100 µg/ml CBP and mineralization of bone after 28 days treatment by Arisarin red staining.

**Results:** CBP was not cytotoxic to MC3T3-E1 cells at any concentration. The percentage of cell viability in the 0.5–200 µg/ml CBP groups dose-dependently decreased from 107.52±11.03–92.48±5.60%, however, the differences between the groups or the negative control group were not significant. At 16 h % cell migration of 0.5, 25, and 100 µg/ml CBP groups showed 127.50±15.63%, 112.63±11.55%, and 113.07±11.96%, respectively, which were significantly higher than that of the control group. Minearalization effect of (CBP) on MC3T3-E1 osteoblasts was determined using arisarin red staining. A significantly greater number nodules of MC3T3-E1 osteoblasts cell line surface was observed.

**Conclusion:** The current study revealed that 0.5, 25 and 100 µg/ml CBP resulted in migration of the MC3T3-E1 cells and also induced a high nodule of cell mineralization compared with the control. These results indicate that CBP promotes osteoblast cell migration and may be a potential material for wound healing of bone defect in the oral cavity. This study demonstrated that CBP could induce cells to form mineralized nodules in greater number in every tested concentration. This may have implications to bone tissue engineering to use CBP as scaffold material.

**Keywords:** Arisarin red staining, Cell migration, Cuttlefish bone powder, Cytotoxicity, Osteoblast cell culture

**(P-1311) Early involvement of caries in young first permanent molars**

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**Background:** An anatomic consideration of permanent molars is of concern in children with severe early childhood caries (ECC). Permanent molars often have incompletely coalesced pit and fissure that allow dental plaque to be retained at the base of fissure and vulnerable for caries development and rapid progression.

**Objective:** To evaluate the prevalence of caries in newly erupted first permanent molars in children with the experience of severe early childhood caries.

**Methodology:** Ethical clearance from the institutional review board was obtained. Children aged between 6-7 years reporting to the department of Pediatric Dentistry were included and the duration of the study was three months.

A questionnaire was given to the parents about the caries experience in primary dentition, behavioral practices of the children (brushing and diet practices). Based on caries experience in primary dentition forty children were identified with the experience of Severe ECC. These children had poor oral hygiene practices and more than three sugar exposures per day.

Single examiner evaluated caries in first permanent molars using visual- tactile method in forty children reported experiencing Severe ECC.

**Results:** In 95% of the children permanent molars were carious. The numbers of permanent teeth involved were two in the 63% of children, three in 6% of the children and four in 31 % of the children. Mandibular molars were frequently involved than maxillary molars. Most frequently involved anatomical sites were occlusal pits followed by lingual pits in maxillary molars and buccal pits in mandibular molars.

**Conclusion:** This finding suggests adapting comprehensive oral health care for the children with severe ECC. Recommend early diagnosis of caries and preventive strategy for the first permanent molars.

**Key words:** Permanent molars, early childhood caries, preventive

**(P-1312) Inhibitory effect of *Emblica officinalis* on *Candida albicans***

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**Background:** *Emblica officinalis* or Indian gooseberry is a medium deciduous tree widely distributed in subtropical and tropical areas of Asia. Its fruits have been reported to possess anti-inflammatory, antipyretic and antimicrobial effects.

**Objective:** This study aims to investigate the antifungal effect of *E. officinalis* on *Candida albicans*.

**Materials and methods:** Fresh fruits of *E. officinalis* were extracted with 95% ethanol at room temperature and tested for antifungal activity against *C. albicans* ATCC 10231 and 2 clinical strains isolated from oral lesions of patients. Kirby-Bauer disc diffusion method was used to screen the activity and then Minimum Inhibitory Concentration (MIC) value was determined by broth dilution method.

**Results:** It was found that *E. officinalis* extract showed inhibitory effect against *C. albicans* ATCC 10231 with inhibition zones of 12.50±0.43 mm, 12.77±0.05 mm and 14.38±0.25 mm, respectively. The MIC value against all 3 candida strains was 2.93 mg/mL.

**Conclusion:** According to the obtained result, ethanolic extract from fruits of *E. officinalis* is one of the effective herbs for the potential treatment of candida infection in the oral cavity.

**(P-1313) The antimicrobial effects of *Kaempferia parviflora* on oral bacteria**

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**Background:** *Kaempferia parviflora* or black ginger belongs to the Zingiberaceae family locally known in Thai as Thai ginseng or Kra-chai-dam. The rhizome of this plant has been applied to cure diarrhea, peptic ulcer, diabetes and fungal infection. Few studies have been conducted on the antimicrobial activity against oral bacteria.

**Objective:** The present study aims to investigate the ethanolic extract from rhizomes of *K. parviflora* for its in vitro antimicrobial activity against oral bacteria.

**Materials and methods:** The inhibitory activity was first screened against *Streptococcus mutans* KPSK2, *Lactobacilli casei* ATCC393 and *Staphylococcus aureus* ATCC5638 by Kirby-Bauer agar disc diffusion method. A 0.2% chlorhexidine gluconate solution was used as a positive control. Then, the Minimum Inhibitory Concentration (MIC) was determined by agar dilution technique.

**Results:** The extract at the concentration of 3.75 mg/disc showed antibacterial activity against *S. aureus* with inhibition zone of 14.4±0.39 mm whereas that of a positive control was 29.7±0.63 mm. No inhibition zones were observed against *S. mutans* and *L. casei*. The MIC values of *K. parviflora* against *S. aureus* and *S. mutans* were 0.23 mg/mL and 15.0 mg/mL, respectively.

**Conclusion:** This study supports the traditional use of this plant extract and suggests that it may also be useful in the treatment of bacterial infection in the oral cavity.

**(P-1314) Evaluation of Masticatory Performance in Complete Denture Wearers and Fully Dentate Subjects**

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**Background:** Masticatory performance can be measured either subjectively by patient's perspective, or measured objectively. Various objective methods for evaluating masticatory function were introduced. Among them are using gummy jelly and color-changeable chewing gum as test food material. Color-changeable chewing gum can measure mastication ability in mixing food, while gummy jelly can measure mastication ability in comminuting food.

**Objective:** The aim of our study was to analyze masticatory performance as measured with gummy jelly and color-changeable chewing gum between complete denture wearers and dentate patients, and to analyze the correlation between masticatory performance with other factors such as age, gender, body mass index, salivary flow rate, saliva pH, chewing time, and swallowing threshold.

**Methods:** 40 complete denture wearers and 40 fully dentate subjects participated in this study. Two test food were used to evaluate masticatory performance: gummy jelly and color-changeable chewing gum. Subject was instructed to chew the color-changeable chewing gum in 30, 45, and 60 strokes, and to chew gummy jelly in 10, 20, and 30 strokes.

**Results:** There was significant differences ( $p < 0.05$ ) between masticatory performance as measured with gummy jelly and color-changeable chewing gum in dentate subjects and complete denture wearers. There was correlation between the measurements using both test foods. There was no correlation between masticatory performance with other factors such as age, gender, body mass index, salivary flow rate, saliva pH, chewing time, and swallowing threshold.

**Conclusion:** Masticatory performance in complete denture wearers is inferior compared to natural dentition subjects. There is correlation between masticatory performance measurement using gummy jelly and color-changeable chewing gum. Masticatory performance was not affected by other factors like age, gender, body mass index, salivary flow rate, saliva pH, chewing time, and swallowing threshold.

**Keywords:** masticatory performance, complete denture wearer, dentate, mixing ability, comminuting ability, gummy jelly, color-changeable chewing gum

**(P-1315) A metagenomic study of dental caries and microbial community polymorphism**

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**Background:** Dental caries is a chronic infectious disease that occurs in dental hard tissues. Yunnan Province is located in the southwest of China. Among the 56 ethnic groups in the country, there are 52 in Yunnan. There are few research reports on the oral health status of ethnic minorities in Yunnan, and there has been no report on the study of caries microbial community.

**Objectives:** The aim of the study is to investigate the dental caries of minority college students in Yunnan and enrich the database. And the polymorphism of oral microorganism community was studied by high throughput sequencing.

**Methods:** A total of 660 full-time minority freshmen in Yunnan Nationalities University participated in the dental examinations, and we chose ten people in the caries-active (DMFT $\geq$ 6) group and ten people in the caries-free (DMFT=0) group with approval of the ethical committee of the Stomatology Hospital, Kunming Medical University. The saliva and dental plaque were collected and 16SrRNA sequencing was carried out.

**Results:** The prevalence of dental caries was 73.9%, the mean DMFT value was 2.98( $\pm$ 2.71), and female displayed a higher DMFT value than male( $P<0.05$ ). There was no difference between Han and ethnic minorities( $P>0.05$ ). 1675081 measured sequences were found, belonging to 22 phyla, 226 genera. The phylogenetic diversity in the caries-free group was higher than that in the caries-active group( $P<0.05$ ).

**Conclusion:** Oral health status of minority college students in Yunnan was not very well. The phylogenetic diversity in the caries-free group was higher than that in the caries-active group. The saliva and plaque groups displayed slightly different levels of highly phylogenetic diversity.

**(P-1316) Oral Kaposi sarcoma: a case report**

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**Introduction:** Kaposi sarcoma (KS) is a common malignant lesion of AIDS patients. It has been categorized into 4 subtype; Classic or sporadic, Endemic or African, Epidemic or AIDS-related and iatrogenic. Also, there have been reports of epidemic oral KS. KS is strongly associated with Human Herpes Virus 8 (HHV8). Oral KS was the first manifestation of whole bodies. HIV patient may be more likely to have KS with the decline of their immune function.

**Report of case:** We reported a case of oral KS in a newly diagnosed AIDS patient. He had multiple discrete violaceous plaque at his legs and multiple oral lesions as associated with HIV infection. Biopsy of a mucosal nodule at right buccal mucosa had a histopathologic diagnosis as KS. We used immunohistochemical staining including pancytokeratin, S-100 protein, CD34, Factor VIII and LNA-1 for confirm the histopathologic diagnosis. The immunohistochemical results showed positive staining on CD34, Factor VIII and LNA-1 whereas negative results on pancytokeratin and s-100 protein. Then, patient was referred to Faculty of Topical Medicine, Mahidol University for HIV screening test, CD4 count level and start on Highly Active Antiretroviral Therapy (HAART).

**Discussion:** However, the role of immunohistochemistry technique is useful for confirm the diagnosis, HIV screening and CD4 count level test should be done.

**(P-1317) Factitial oral injury in children: Report of two cases**

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**Background:** Factitial oral injury is common in children with pervasive developmental disorders. However, it is not uncommon in general population and may be overlooked. It varies in signs, symptoms and severity. Non-healed chronic and recurrent lesions represent a type of oral traumatic injury that deserves special attention due to possible psychological-related etiology. Two cases with different ulcerative lesions will be described. Literature related to factitious oral injury will be reviewed, history taking approach, differential diagnosis and treatment modalities for practitioner will be suggested.

**Case 1:** A seven-year-old healthy male presented with both an extraoral 3X3 sq.cm tenderness-to-palpation red swelling lesions and an intraoral 2X2 sq.cm painful edematous lesion covered with creamy fibrinous exudate on right cheek persisting for three months. History of night-time bruxism associated with stress. Specialists in oral medicine and masticatory science were consulted to rule out etiology and diagnosis. Topical protein-free hemodialysate and systemic antibiotics were used to subside the lesion. Soft splint was fabricated for long-term control of bruxism. Patient should also be seen by a psychologist.

**Case 2:** A five-year-old healthy girl presented with bilateral thickening hyperkeratosis and erythematous abrasive traumatic ulceration of buccal mucosa located along the occlusal plane. History revealed its association with unconsciously cheek biting habit which had developed for one year without causing pain. The habit was recessed by parental reminder after a discussion raising parents' and child's awareness of habitual cause of lesions without any appliance. The lesions significantly improved after recession of the habit. Parents were advised to carefully observe the child during stress-driven activities and fatigues.

**Conclusion:** Children with recurrent traumatic ulcers should be carefully investigated on etiology of lesion. Thorough history taking is crucial. Treatment should be multidisciplinary approach including pain control, promotion of wound healing, elimination of the cause and prevention of recurrence.

**(P-1318) Replantation of an avulsed permanent tooth in an eight-year-old boy**

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**Background**

Management of avulsion, especially in permanent teeth, is challenging. Although the incidence of avulsion is infrequent, approximately 0.5-3% in permanent dentition, but usually seen in school-aged children. Appropriate initial management at the site of injury is important and effects the prognosis.

**Case presentation**

A healthy, eight-year-old Thai boy presented at pediatric dentistry clinic, Mahidol university, Bangkok, Thailand, with avulsion of two teeth; immature permanent left maxillary central incisor and primary left maxillary lateral incisor. Subluxation of the right maxillary central incisor was also reported. Only the avulsed permanent tooth was preserved in cold fresh milk immediately by his teacher and then was replanted with finger pressure by dentist about 2 hours later. Maxillary central incisors were splinted with semi rigid arch wire and composite for 3 weeks. The patient was instructed to avoid biting on traumatized teeth, soft diet for 2 weeks and continued brushing. Prophylactic antibiotics was prescribed. During the follow up periods of 7 months, the teeth were remained stable, no signs of pulp necrosis and root resorption were detected.

**Conclusion**

Extra-oral dry time effects the prognosis of replantation of an avulsed tooth. Therefore, the knowledge of teachers or parents at accident site about the importance and methods of preserving an avulsed permanent tooth is significant and consequently results in the good outcomes.

**(P-1319) Down syndrome in Mahidol pediatric dental clinic**

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**Background**

Down syndrome (DS) is a common chromosomal abnormality characterized by the presence of an extra copy of genetic material on the 21st chromosome. In Thailand, prevalence of DS is about 1 in 1,000. The syndrome has associated with various congenital problems such as cardiovascular problems, musculoskeletal problems and mental retardation. Moreover, DS have specific orofacial characteristics such as delayed teeth eruption, missing teeth and malformed teeth. However, the type and the frequency of congenital anomalies associated with DS are still controversial.

**Objectives**

To determine medical health problem and orofacial characteristics of DS patients attending Mahidol pediatric dental clinic.

**Materials and methods**

This study recruited DS patients from Mahidol pediatric dental clinic. DS patients' chart and dental radiograph were reviewed. All information about patients' medical problem, dental anomalies and oral health status were extracted.

**Results**

There were 24 DS patients recruited in this study at this time. All of them have mental retardation. 80% of them have medical problem. The most common congenital problems in our patients are cardiac anomalies, followed by hypothyroid. For the dental anomalies, the most common anomalies associated with DS are missing teeth, delay eruption and peg shaped lateral incisor. Dental caries is the main oral health problem in DS children and periodontal disease is the main in DS adult.

**Conclusion**

The data confirms that the prevalence of systemic condition and oral health problems in DS are very high. Dentists need to evaluate carefully before giving dental treatment. A multidisciplinary team approach is also necessary to provide the best oral health care for DS patients.

**(P-1320) Hemifacial microsomia – a case report with review of literature**

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**Background**

Hemifacial microsomia is a common congenital malformation which is an asymmetric craniofacial defect. It usually occurs on one side of the face which typically affects structures derived from the first and second branchial arches such as the mandible, temporomandibular joint, facial soft tissue, eye and components of the ear. On the affected side was under-developed and does not catch up with normal growth during childhood. In addition to craniofacial deformities, there may be involved other parts of the body such as cardiac, vertebral, kidney and central nervous system. The cause of hemifacial microsomia is unclear. Most cases are sporadic. It usually occurs in people with no family history of hemifacial microsomia but there are rare familial cases that exhibit autosomal dominant inheritance.

**Case presentation**

This is a report of Thai girl 4-year-old with hemifacial microsomia without underlying disease. She had no sibling and no family history of hemifacial microsomia. Extraoral examination showed facial asymmetrical with deviation of lower jaw towards right side, right mandibular hypoplasia, deformity of right ear with hearing impairment and presence of preauricular skin tags since birth. Intraoral examination presented delayed dental development and tooth agenesis on affected sides, typical canted occlusal plane with both condyles appropriate movements. She was referred to the Department of Pediatric Dentistry, Faculty of Dentistry, Mahidol University for further evaluation and comprehensive treatment. In treatment planning, caries risk assessment need to evaluate and the dental occlusion must be considered.

**Conclusion**

Dental management of hemifacial microsomia will need to be under long-term periodic follow-up that necessary to monitor dental status, growth and development and encourage appropriate preventive intervention. The management of this hemifacial microsomia requires a multidisciplinary team working to establish normal occlusion, best functional and esthetic result possible.

**(P-1321) Management of ranula in children: A case report**

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Oral ranula is a type of mucoceles that occurs at the floor of mouth. It is caused by obstruction of excretory ducts or extravasations and subsequent accumulation of saliva from sublingual gland in the tissue. Oral ranula often occurs in children and adolescents. There are various techniques to manage ranula such as medication and surgical with or without excision sublingual gland. The optimal treatment of a ranula is still controversial. This case report will present the management of ranula by a fine needle aspiration.

A healthy six-year-old Thai boy came to clinic with a chief complaint of painless soft mass under his tongue since last month. His swelling was initially small and gradually increased in size. He had no history of trauma in this area. From clinical examination, he had normal swallow and normal mouth opening. At right floor of mouth showed a lesion sized 2x1.5x0.8 cm, diffuse dome mass with translucent, bluish color and fluctuant in consistency. The swelling was painless when palpation. Based on the clinical appearance the case was provisionally diagnosed to be ranula. Fine needle aspiration technique was selected as the optimal procedure because the patient had behavior with potentially cooperation. Fine needle aspiration is a non-invasive procedure with less painful and quicker method including less possibility of scarring and infection. However, recurrence is commonly observed. The fluid content was drawn with gauge 20 under local anesthesia. After one month follow-up, the patient had no recurrence lesion and no symptom in the area.

Therefore, fine needle aspiration may be a treatment option of oral ranula but long term follow up is still needed.

**(P-1322) Effect of Cymbopogon citratus oil formulations on Mutans streptococci biofilm**

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**Background:** Childhood caries leads to poor children's quality of life. Mutans streptococci are major agent causing dental caries. Therefore eliminating cariogenic bacteria can prevent from disease development.

**Objective of investigation:** This study aimed to evaluate the susceptibility of *Streptococcus mutans* (ATCC 25175), *Streptococcus sobrinus* (ATCC 6715) and biofilm formation to three Cymbopogon citratus oil formulations.

**Methods:** All strains were incubated for 3 and 6 h to form biofilm for susceptibility test. And to evaluate the effect of each oil formations on growth and biofilm formation using 96 well-polystyrene plates biofilm assay.

**Results:** Results showed that 3 and 6 h preformed *S. mutans* (ATCC 25175) and *S. sobrinus* (ATCC 6715) biofilm were sensitive to all oil formulations (>99.9%) when compared to the controls. Biofilm formation of *S. mutans* (ATCC 25175) and *S. sobrinus* (ATCC 6715) were inhibited (>95%) when compared to the controls by all Cymbopogon citratus oil formulations at different concentrations. Six percent Cymbopogon citratus oil formulations showed maximum inhibition effect followed by 4% and 2%, respectively.

**Conclusions:** Thus Cymbopogon citratus essential oils might be an alternative, inexpensive natural medication to prevent dental caries.

**(P-1323) Periodontal Status in Smokers and Non-smokers with Chronic Periodontitis**

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**Background:** Chronic periodontitis is an infectious disease resulting in inflammation within the supporting tissue of the teeth, progressive attachment loss and bone loss that are caused by bacteria leading to a host-inflammatory response. Tobacco smoking is regarded as one of the most significant risk factors for the development and progression of periodontal disease.

**Objective:** The study was aimed to compare the periodontal status; clinical periodontal and microbiological parameters of smokers and non-smokers with chronic periodontitis.

**Materials and methods:** Subjects were collected among the patients attending to the department of periodontology, University of Dental Medicine, Yangon. Both genders, 20 smokers and 20 non-smokers aged between 35-59yrs, each having at least 20 natural teeth and having chronic periodontitis with one disease tooth site of pocket depth (3-4mm) in each quadrant. Clinical periodontal parameters such as plaque index(PII), gingival index(GI), bleeding on probing index (BoP index), probing pocket depth (PPD), clinical attachment level(CAL) and mobility index(MO) were measured in each group. Microbiological parameter, BANA (N-benzoyl-DL-arginine- $\beta$ -naphthylamide) test scores were recorded by taking subgingival plaque samples from 4 sites in each quadrant of the subjects.

**Results:** There was no significant difference in mean value of PII score ( $p=0.34$ ) of both groups. Mean value of GI score ( $p<0.001$ ) and BoP score( $p<0.001$ ) were lower in smokers than non-smokers. There were overall increased CAL and mean value of MO score ( $p=0.005$ ) were higher in smokers. In addition, there were more positive BANA test scores in smokers. Pearson correlation of 0.76( $p<0.001$ ) existed between pack year of smokers and CAL of smokers, showed that there was dose dependent association in smokers.

**Conclusion:** The finding of the present study emphasized that smokers have more BANA positive species (*Porphyromonas gingivalis*, *Tannerella forsythia* and *Treponema denticola*) in pocket depth 3-4mm and inflammatory destruction of periodontal tissues were more in smokers with minimal signs of inflammation.

**(P-1324) Antibacterial activity of *Garcinia mangostana* (L.) and *Morinda citrifolia* (L.) against *Streptococcus mutans***

**Khin Mya Tun, Thein Tun, Zaw Moe Thein**

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**Background:** Medicinal plants have been used by the world population for their basic health care needs and prevention of many infectious diseases. The effects of *Garcinia mangostana* (L.) and *Morinda citrifolia* (L.) on cariogenic bacteria have never been demonstrated in Myanmar. Therefore, this study might provide scientific evidence to value the antibacterial activities of these medicinal plants for prevention and treatment of dental caries.

**Objective:** The purpose of this study was to examine the antibacterial properties of *Garcinia mangostana* (L.) and *Morinda citrifolia* (L.) against *S. mutans*.

**Material and Method:** The bacterial strains used in this study were *Streptococcus mutans* (ATCC 25175) and *S. mutans* (Local strain) from Department of Medical Research. The antibacterial effect of ethanol, aqueous and ethyl acetate extracts of mangosteen pericarp and noni fruit were tested using agar disc diffusion method. Minimum inhibitory concentration (MIC) values were determined by microbroth dilution method.

**Results:** In *Garcinia mangostana* (L.), ethanol, aqueous and ethyl acetate extracts showed zone of inhibition on *S. mutans* (Local strain) but ethanol and ethyl acetate extracts showed on (ATCC 25175) only. Comparison between these extracts which showed zone of inhibition on different concentrations in local and ATCC strains were statistically significant ( $p < 0.001$ ). In *Morinda citrifolia* (L.), ethanol and ethyl acetate extracts showed zone of inhibition on *S. mutans* (ATCC 25175) but only ethyl acetate extract showed on (Local strain). Comparison between the extracts which showed zone of inhibition on different concentrations was observed both in ATCC and local strain ( $p < 0.001$ ). Minimum inhibitory concentration of ethanol and ethyl acetate extracts of *Garcinia mangostana* (L.) and *Morinda citrifolia* (L.) for tested strains were ranged between (1.25 mg/ml) to (2.5 mg/ml).

**Conclusion:** Both *Garcinia mangostana* (L.) and *Morinda citrifolia* (L.) have strong antibacterial activity against *S. mutans*.

**(P-1325) Age estimation based on eruption stages of permanent second molars**

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**Background:** Age estimation is an important activity in medico-legal area. Chronology of dental development is less variable than bone development. Clinical visualization of tooth eruption is more suitable for age estimation since it does not require any special equipment, expertise and is more economical. Sentences will be different depending on the age of the victim (younger or older than 14 years). Mean eruption time of permanent second molars was about 13 years. Mean age of eruption stages of permanent second molars will be very informative in crimes.

**Objective:** To estimate age of an individual based on eruption stages of permanent second molars.

**Methods:** This was a cross-sectional analytical study. A random sample of 540 Bamar students in the age group of 8-16 years from Myaung Township was selected. Permanent second molars based on eruption stages were recorded and mean eruption time was analyzed by SPSS.

**Results:** Mean age of eruption(stage 1) of UM2 in Bamar male was 12.8 years, 13.09 years for stage 2, 14.86 years for stage 3 and in Bamar females, 12.67 years for stage 1, 13.1 years for stage 2, 15.13 years for stage 3. Mean eruption time of LM2 for stage 1 in Bamar male was 12.46 years, 13.12 years for stage 2, 14.9 years for stage 3 and in females, 12.03 years for stage 1, 12.98 years for stage 2, 15.07 years for stage 3.

**Conclusion:** LM2 erupted earlier than UM2 in both males and females. The most reliable second molar which used in age estimation was permanent maxillary left second molars in both male and female. It is better to estimate age of an individual based on eruption stages rather than presence or absence.

This study had been carried out with the approval of Ethical and Research committee of University of Dental Medicine, Yangon and we would like to express gratitude to the Ethical and Research committee for their permission. We are also grateful to Department of Medical Research, Myanmar for their financial support. Grant number is DMR Ext Grant 22/2017.

**(P-1326) Comparative study on dental arch dimensions between Bamar and Karen**

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**Background:** The dimensions of dental arches exhibit considerable variability within and among human groups. A number of investigators have noticed that variation in arch forms in different ethnic groups. Arch dimensions could be used for race determination and sex determination in forensic odontology, treatment planning and management of malocclusion in orthodontic for local population.

**Objectives:** To compare the dimensional characteristics of dental arch between Bamar in Sagaing region and Karen in Yangon Region.

**Materials and Methods:** 16 – 18 years old 208 subjects (104 Bamar and 104 Karen) were selected according to inclusion criteria. Maxillary and mandibular impression taking were done and dental stone models were cast by dental stone powder. The reference points for the measurements were marked on the dental stone model by using sharp pointed pencil to establish the exact landmark points. Arch dimensions, inter-canine width (ICW), inter-molar width (IMW), anterior arch length (AAL) and posterior arch (PAL), were measured by a digital caliper calibrated to 0.01 mm (Mitutoyo, Japan).

**Result:** The mean arch dimensions of Bamar were; 29.32 mm for UICW, 21.59 mm for LICW, 49.35 mm for UIMW, 39.84 mm for LIMW, 18.07 mm for UAAL, 12.60 mm for LAAL, 16.62 mm for UPAL, 15.82 mm for LPAL. The mean arch dimensions of Karen were; 34.97 mm for UICW, 25.23 mm for LICW, 54.05 mm for UIMW, 43.66 mm for LIMW, 24.59 mm for UAAL, 17.09 mm for LAAL, 20.60 mm for UPAL, 20.30 mm for LPAL.

**Conclusion:** Mean maxillary and mandibular ICW, IMW, AAL and PAL of Karen ethnic group were significantly larger than those of Bamar ethnic group.

This study had been carried out with the approval of the Postgraduate Academic Board of Studies and Ethical and Research Committee of University of Dental Medicine, Yangon. We would like to express our gratitude to Ethical and Research Committee of University of Dental Medicine, Yangon for permission of this study.

**(P-1327) Patients Satisfaction with Oral Health Care Services Provided by University of Dental Medicine, Yangon**

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**Background:** Oral health care service quality has received increasing attention in recent years. Patient satisfaction is critical for the growth of oral health care service and practice in a nation. Success of oral health care service can be generally assessed by the level of patients satisfaction in the variety of clinical setting, for instance, private clinics or teaching dental university.

**Objective:** This study is aimed to determine the level satisfaction of patients after visiting the University of Dental Medicine, Yangon.

**Materials and methods:** Total 207 patients visiting five clinical departments of UDMY were investigated within three months. A questionnaire consisting of 26 questions covering demographic data, patient-dentist interaction, administrative efficiency and clinic set up environment and technical competency was interviewed. The data were analyzed by descriptive methods followed by inferential method. P-value of  $<0.05$  was considered as statistically significant.

**Results:** Out of 207 patients, 41.5% were male and 58.5% were female. A mean percentage of agreement is 76.3% for the four disciplines of satisfaction denoting high level of satisfaction on oral health care services provided by UDMY. About 44% agreed on long waiting time to have an appointment in administrative domain while 100% of them felt dentist was friendly in patient-dentist interaction domain. The age of the patients and overall satisfaction revealed a significant association ( $p=0.013$ ). Marital status was significantly associated with their satisfaction in patient-dentist interaction ( $p=0.014$ ). There is a strong association between patient satisfaction on administrative efficiency and clinic setup environment and patient-dentist interaction ( $p=0.000$ ).

**Conclusion:** This study shows a positive response to the care of patients at the University of Dental Medicine, Yangon. Further researches as well as periodic review study have to be carried out for improvement and utilization of oral health care services in Myanmar.

**(P-1328) Comparison of Periodontal Status and Oral Health Knowledge of Pregnant Women between rural and urban areas in Wundwin Township**

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**Background:** Periodontal health and oral health related quality of life of pregnant women were poorer than non-pregnant women and some expecting mother do not have adequate oral health knowledge and awareness. It is mandatory to educate women in pregnancy about oral health care and to promote their oral health knowledge.

**Aim:** The purpose of this study was to compare periodontal status, oral health knowledge and awareness of pregnant women between urban and rural area in Wundwin Township, Mandalay division.

**Materials and Method:** Thirty pregnant women (aged between 18-35 years) who visited as routine antenatal care at MCH (Maternal and Child Health) center and other thirty pregnant women from RHC (Rural Health Center) were recorded with clinical parameters (plaque index, gingival index, probing pocket depth) for periodontal status during the second trimester of pregnancy. All participants had received initial periodontal treatment as routine dental care. After one month, periodontal parameters and oral health knowledge were assessed as previous visit. Ethical approval was obtained from Department of Medical Service (Wundwin Township). Awareness of the relationship between oral health and pregnancy were assessed by questionnaires from patients who were willing to participate in this cross-sectional study. The data were collected, summarized and statistically analyzed using Mann-Whitney test with SPSS software version 22.

**Result:** Periodontal status and oral health knowledge of pregnant women between rural and urban area was found no significant difference ( $p$  value  $> 0.05$ ). However, there was a significant improvement in periodontal status and oral health knowledge after initial periodontal treatment in both groups of urban and rural area.

**Conclusion:** Present findings suggested that there was no difference in periodontal status, knowledge and awareness of oral health of pregnant women between rural and urban area in Wundwin Township.

**(P-1329) Effect of sublingual crescent extension on mandibular complete denture retention**

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**Background:** Rehabilitation of edentulous mandible with complete dentures is one of the most difficult treatments encountered in daily prosthodontic practice. The problem is more obvious for patients with moderate to severely resorbed mandibular residual ridges.

**Objective:** The purpose of this study was to assess the effect of sublingual crescent extension on retention of mandibular complete dentures in patients with severely resorbed alveolar ridges.

**Material and method:** Fourteen edentulous patients with Atwood Class V mandibular ridge were included. Ethical approval was obtained from Ethical and Research Committee of University of Dental Medicine, Mandalay. Two separated impression were made using different techniques: one with sublingual crescent extension and the other conventional impression technique without sublingual crescent extension. Two mandibular complete dentures were fabricated on resultant casts for each subject. The dentures were randomly assigned and delivered with 2 weeks interval alternatively. The retention of each denture was measured with Push-pull gauge (Taiwan) at insertion and after two weeks. The differences between retention forces at insertion and after two weeks for each denture and retention forces between two different dentures after two weeks were analyzed using paired t test.

**Results:** After two weeks of insertion, there was improvement in denture retention in both dentures ( $p < 0.05$ ). Retention forces of dentures with sublingual crescent extension and conventional techniques were  $(1.04 + 0.5) \text{kg}$  and  $(1.72 + 0.9) \text{kg}$  (mean $\pm$ SD) respectively. There was statistically significantly increased in retention of denture with sublingual crescent extension ( $P < 0.05$ ).

**Conclusion:** For edentulous patients with severely resorbed alveolar ridges, mandibular complete dentures with sublingual crescent extension ensured greater retention than conventional dentures and the impression should be made to record this area routinely .

**(P-1330) Correlation between gingival crevicular blood glucose level and standard method in periodontitis patients**

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<sup>3</sup> University of Dental Medicine, Yangon

**Background:** Diabetes mellitus (DM) is undiagnosed in approximately half of the patients actually suffering from the disease. In addition, the prevalence of DM is more than twice as high as in patients with periodontitis when compared to periodontally healthy subjects and a high number of patients with periodontitis may have undiagnosed DM. The advent of self-monitoring devices allows an instantaneous chairside screening of blood glucose and helps the clinician to plan-specific treatment procedures.

**Objective:** The aim of this study was to correlate between gingival crevicular blood glucose level and blood glucose level estimated by standard method in chronic periodontitis patients.

**Materials and methods:** 47 diabetics and 47 non-diabetic patients with moderate to severe periodontitis, aged 35-55 years, were selected and clinical parameters such as bleeding on probing (BoP), periodontal probing depth (PPD) and clinical attachment level (CAL) were assessed. Blood oozing from gingival crevice following periodontal probing was collected with test strip of glucometer. This value was correlated with finger-prick blood glucose value and intravenous blood glucose value by statistical analysis using Pearson's correlation.

**Results:** Highly significant correlation was found among gingival crevicular blood glucose level, finger-prick blood glucose level and intravenous blood glucose level in each group. However, there was no significant correlation between gingival crevicular blood glucose level and CAL and PPD measurement.

**Conclusion:** Considering on the correlation between gingival crevicular blood glucose and the other conventional methods for glucose estimation in diabetes and non-diabetes, it is evident that the examination of blood obtained from routine periodontal probing may be useful for estimation of blood glucose levels.

**(P-1331) Post-surgical changes of orthognathic surgical correction of a Class III malocclusion through a surgery-first protocol: case report**

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The orthognathic surgery treatment can achieve the best result for severe skeletal malrelationship. Surgery first approach was used in this case with differential maxillary impaction and mandibular setback by using bilateral sagittal split osteotomy which was followed by orthodontic alignment.

A 22 years old male Bamar patient attended the Orthodontic Department, University of Dental Medicine, Yangon with complaint of unattractive facial appearance, difficulty in cutting food and irregularity of front teeth. The patient also had a previous history of orthodontic treatment 3 years ago for correction of severe crowding. In the frontal view examination, there is increased lower height along with collapsed paranasal areas. The lateral view showed concave profile, prognathic mandible with lower lip protrusion. Intra oral examination revealed 4 missing first premolars, 3 of which are extracted for orthodontic treatment and one is impacted. Both left and right molars and canines are class III with 6mm of anterior open bite and bilateral posterior cross bite were seen. Although surgery first approach was chosen bracket placement was done for attachment and ligation intraoperatively and post operatively. 018" ss wire was carefully bend to rest in .022" slot passively. Differential impaction with 2 mm of advancement on maxilla and 6mm of mandibular set back and anticlockwise rotation were done through bilateral sagittal split osteotomy. Post-surgical orthodontic treatment was started after 6 weeks for alignment and leveling and settling of occlusion. Post-surgical dentoskeletal changes will be reported from orthodontics aspect.

**(P-1332) Infiltration anesthesia for extraction of impacted mandibular third molars**

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**Background:** The achievement of successful local anesthesia is a continual challenge in surgical extraction of third molars. Recently, buccal infiltration of articaine have shown success rates similar to that of inferior alveolar nerve block of articaine and that of lidocaine.

**Objectives:** This study aimed to compare efficacy of 4 % articaine infiltration to that of 2 % lidocaine IANB in surgical removal of impacted mandibular third molars.

**Material and Methods:** A total of 21 patients aged 18-40 needed to remove symmetrically positioned lower third molars in two separate appointments by a split-mouth design were selected according to inclusion criteria. Molars were assigned to two groups as Group A (4% articaine buccal infiltration) and Group B (2% lidocaine IANB) by block randomization method. Forty-two interventions were performed in this study: twenty-one interventions with 2% lidocaine and twenty-one interventions with 4% articaine buccal infiltration. Time to onset, duration, successful anaesthesia, VAS and haemodynamic parameters were evaluated and compared between two groups.

**Results:** The mean time of onset of anesthesia action for articaine buccal infiltration had a prolonged onset of action than the lidocaine IANB ( $p = 0.009$ ). The mean duration of the anesthetic effect was 101.37 min (SD: 32.29) for articaine and 99.79min (SD: 21.33) for lidocaine, the difference in this case being statistically not significant ( $p = 0.781$ ). There was the same successful anesthetic rate of 90.48% in both groups. In comparison of VAS and hemodynamic parameters between two groups, there were no statistically significant difference with the  $p$  value  $>0.05$  in both groups.

**Conclusion:** So, this study can be concluded that articaine infiltration is a simple alternative technique than IANB and a good replacement for IANB in patients taking anticlotting drugs and bleeding disorders like hemophilia to avoid complication related to the nerve block.

**(P-1333) Aesthetic support and retention (strategically placed implant for maxillary kennedy class III)**

**Aung Win**

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**Aim:** Stability; the most beneficial use of an implant with and removable partial denture is to reduce the negative impact of any sensory input resulting from prosthesis movement.

**Case report:** The resented case aimed to present the comprehensive prosthodontics treatment, planned to impact retained maxillary kennedy class III removable denture with chrome cobalt metal framework.

**Conclusion and Clinical implication:** The use of implant retained removable partial denture is an effected and cost effected in conjunction with the conventional mandibular removable partial denture that can enhancing the quality of life.

**(P-1334) Can intravenous midazolam reduce serum cortisol in third molar surgery?**

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**Background:** Surgical removal of impacted mandibular third molars is complicated and difficult, which result in increased anxiety. When anxiety increases, blood cortisol also increases. Cortisol plays a role in several systems in our body including stress response system. Nowadays, uses of sedative agents for intravenous sedation such as propofol, etomidate, ketamine, fentanyl and midazolam are widely used in impacted third molar surgery. A small dose of intravenous midazolam has significant beneficial effects on cortisol level and cardiorespiratory changes. In this study, serum cortisol measurement is done with Mini Vidas Immunoassay Analysis System. Objectives: To study the effectiveness of intravenous midazolam for reducing anxiety in impacted mandibular third molar surgery.

**Materials and Methods:** Total forty patients who came to Department of oral and Maxillofacial Surgery, University of Dental Medicine, Yangon for the need of surgical removal of impacted mandibular third molars are divided into two groups. Twenty patients in group A(study group) were given local anaesthesia with conscious sedation by using intravenous midazolam and another twenty patients in group B (control group) were given local anaesthesia alone. The parameters measured were serum cortisol level before and after surgery, cardiorespiratory changes, visual recognition test for amnesic effect. Results: Before surgery, serum cortisol levels were nearly the same in both groups. But after surgery, serum cortisol levels were decreased in study group and increased in control group. So the effect of midazolam in anxiety reduction was beneficial in mandibular third molar surgery. There was no significant result in cardiorespiratory changes before, during and after surgery. But heart rates were slightly increased during surgery in control group.

**Conclusion:** The use of local anaesthesia with intravenous midazolam as conscious sedation is more advantageous and satisfactory than local anaesthesia alone in surgical removal of impacted mandibular third molar.

**(P-1335) Micro-CT evaluation of voids and gaps after two obturation techniques**

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**Introduction:** The main goal of the root canal obturation is to eliminate leakage pathways. The obturation should be free of voids and gaps to prevent microbial colonization. The aim of this study was to evaluate the presence of voids and gaps in root canals obturated with two sealers (MTA Fillapex and ADseal) and two techniques (Single-cone and Core-carrier techniques) by using micro-computed tomography (micro-CT).

**Methods:** Forty palatal roots of maxillary first molar with oval-shaped canals with apical diameter not greater than #25 file sizes were prepared by using ProTaper Universal rotary system. The roots were randomly allocated into 4 groups, and each group was obturated by using MTA Fillapex sealer with Single-cone, MTA Fillapex sealer with Core-carrier (GuttaCore), ADseal sealer with Single-cone and ADseal sealer with Core-carrier (GuttaCore) techniques (n=10). Roots were scanned with micro-CT scanner (SkyScan 1173; Kontich, Belgium) at 11.97 µm resolution. Volume of voids and gaps was measured by using CTAn software (version 1.13). Percentage of voids and gaps was calculated and statistically analyzed by using Kruskal-Wallis test and Mann-Whitney's U test with a significance level of 5%.

**Result:** Canals obturated with MTA Fillapex sealer with Single-cone technique showed the lowest incidence of void and gap volume ( $0.22\pm 0.33$ ,  $0.76\pm 0.78$  mm<sup>3</sup>), although the result was not significantly different from canals obturated with other techniques. Both the Single-cone and Core-carrier techniques with MTA Fillapex sealer had lower percent volume of voids and gaps than these two techniques with ADseal sealer, in turn, had no significantly difference.

**Conclusion:** No root fillings in this study were free of voids and gaps. The Single-cone technique with MTA Fillapex is a reliable technique for oval shape canals because of relatively simple, time saving, and least gap and void volume in this study.

**(P-1336) Periodontal Status in Patients with Low Bone Mineral Density**

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**Introduction:** Reduced bone mineral density (BMD) lead is the diagnostic feature of osteoporosis and osteopenia leading to skeletal fragility and fracture. The periodontal manifestations in menopause include alveolar bone resorption, clinical attachment loss and tooth loss. The possible mechanisms behind periodontal involvement could be reduced local BMD caused by systemic bone loss leads to altered local tissue response and enhances periodontal infections, genetic factors and changed life style patterns like smoking alcohol consumption etc. These may put an individual at risk for both osteoporosis and periodontal disease. Therefore, systemic bone loss may lead to more severe periodontal destruction.

**Objective:** To study the relation between periodontitis and reduced bone mineral density among pre- and post-menopausal women in Mandalay region.

**Materials and Methods:** Twenty-seven women were undergone the following tests; BMD of heel were measured by using ultrasound bone densitometer. Oral health status and periodontal health were examined. Orthopantomogram (OPG), blood calcium and alkaline phosphatase level were tested. BMD of lumbar spine L1 to L4 were measured by dual-energy X-ray absorptiometry (DXA). Women under age of 35, subjects receiving long term calcium supplements, systemic steroids and hormonal replacement therapy, subjects with history of parathyroid disease, metabolic bone disease and malignancy and subjects who used tobacco in smoked or smokeless form were excluded from the study.

**Result:** The BMD of lumbar spines were significantly lower in the study group than the controls. Osteopenia was observed in 22% whereas osteoporosis was observed in 55% of cases in study group. Presence of pockets was found significantly in reduced BMD group compared to normal BMD. (p value < 0.05)

**Conclusion:** Increased proportion of osteopenia and osteoporosis in pre and post-menopausal women with periodontitis suggests that there will be strong association between reduced BMD and periodontitis.

Keywords: Osteoporosis, DXA, periodontal diseases, BMD.

**(P-1337) Are IMF screws practicable alternative in management of mandibular fracture?**

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**Background:** Many techniques have been described for the achievement of maxillomandibular fixation (MMF) in management of mandibular fractures. Conventional tooth-borne methods such as Erich arch bars and Ivy loop Method are the most commonly used methods for achieving MMF but they have their own drawbacks. In 1989, intermaxillary fixation (IMF) screws have been introduced. They are bone-borne devices which can be used for achieving MMF in management of mandibular fractures. The use of IMF screws for MMF is a practicable alternative to conventional Ivy loop method in the treatment of mandibular fractures.

**Objectives:** To compare the treatment outcomes of MMF using IMF screws and Ivy loop Method in the management of mandibular fractures.

**Materials and Methods:** Twenty patients with mandibular fractures, who came to Department of Oral and Maxillofacial Surgery (DOMS), University of Dental Medicine, Yangon (UDMY) were selected according to inclusion criteria, to compare the treatment outcomes of two methods. The parameters considered were operation time required perforations in the gloves, patient convenience and post-operative occlusion during MMF by using IMF screws and Ivy loop methods.

**Results:** The average operation time taken (both insertion and removal) and glove perforations were more in group (B), Ivy loop method. Patient convenience was better in group (A), IMF screws. There was no statistically significant difference in post-operative occlusion in both groups. Mucosal overgrowth around IMF screws and iatrogenic root contact were the limitations of IMF screws.

**Conclusion:** Use of IMF screws for MMF is a practicable alternative to conventional Ivy loop method in the treatment of mandibular fractures.

**(P-1338) A very rare congenital paramedian mandibular cleft**

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**Background:** A facial cleft is an opening or gap in the face, or a malformation of a part of the face. All structures like bone, soft tissue, skin etc. can be affected. Extrapolated incidence of rare facial clefts is approximately 1.4 to 5.1 per 100,000 live births. The cause of facial clefts is still unclear. It is possible that facial clefts are caused by a disorder in the migration of neural crest cells. Another theory is that facial clefts are caused by failure of the fusion process and failure of inwards growth of the mesoderm. Other theories are that genetics play a part in the development of facial cleft or that they are caused by amniotic bands. Mandibular cleft is one of the facial cleft. It is very rare and only less than 100 cases reported in the literature. The defect can present mild notching of the lower lip or mandibular alveolus to complete mandibular cleavage. Among mandibular clefts, paramedian mandibular cleft is extremely rare and has been documented by only 3 others up to 2011.

**Case presentation:** To report a very rare congenital paramedian mandibular cleft case (bony cleft of the left side of parasymphysis of the mandible without associated soft tissue cleft) in 23 years old male patient who received treatment of autogenous bone graft and ORIF (open reduction and internal fixation) of mandibular defect under general anaesthesia in Department of Oral and Maxillofacial Surgery (University of Dental Medicine, Yangon).

**Conclusion:** This type of oral reconstruction contributed to bone formation stimulation at the bone graft site, maintenance of the anatomical bone form and masticatory function.

**(P-1339) Autologous Mesenchymal Stem Cells Towards the Cure of Severe Refractory Gingivostomatitis and Periodontitis**

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We aim to modify adipose-derived stem cell surface immunomodulation for targeted gingivostomatitis and periodontitis delivery. The proposed work will focus on establishing an animal model to be used will be poodle dogs which often carry oral chronic inflammation. This is an ideal model complementary to human disease. In human, common causes of periodontitis is an immune-mediated inflammatory response targeted against periodontal ligament. Currently, most of the standard treatments concerning the periodontitis are proven ineffective. Some limitations in periodontitis theranostics (diagnostics and therapeutics) include insufficient bone regeneration. Many current stem cells are limited predictable and high degree variability in result. Here, the proposed autologous mesenchymal stem cells have advantages in unique significance no adverse reactions in human and animals.

The anticipated outcome of the proposed study will facilitate gaining the insights and the planning of learning how ASCs would impact systemic immune modulation, reduction of the inflammatory lesion and improvement of clinical signs towards the establishment of the gum disease model to future development of gene therapy.