

Co Host:



# The 6<sup>TH</sup> JSMiD

Joint Scientific Meeting in Dentistry

**July 30th - August 1st, 2021**

# ABSTRACT BOOK

*"Comprehensive Oral Health Improvement  
Through Basic Medical and Clinical Science Before,  
During and After Pandemic Era"*

## CONTENTS

Cover Page .....	1
Contents .....	2
Message from Dean Faculty of Dental Medicine, Universitas Airlangga .....	12
Message from Dean School of Dentistry, Hiroshima University .....	13
Message from Dean Faculty of Dentistry, Hasanuddin University .....	14
Organizing Committee .....	15
Foreword .....	19
General Rundown .....	21
Poster Session Schedule .....	24
Invited Speakers .....	31
Original Research Articles' Abstract	
- ORA-01 Inhibitory Effect Of Lemongrass Extract ( <i>Cymbopogon Citratus</i> ) In Supragingival Plaque Bacteria'S Growth In Gingivitis Patient ( <i>Rabiatul Firdaus</i> ).....	32
- ORA-02 The Effect of Application Of Mangosteen Peel Extract ( <i>Garcinia Mangostana L.</i> ) Towards Pdgf-B Expression On Human Gingival Fibroblast Cell Culture After Wound Healing Scratch Test Assay (In-Vitro Study) ( <i>Felicia Laurens Lesmana</i> ).....	33
- ORA-03 Mothers Parenting Pattern On Tooth Brushing Based On The Theory Of Planned Behavior In Banjarbaru City ( <i>Widodo</i> ) .....	34
- ORA-04 Cellulose Fiber From Coconut Coir For Development Of Dental Composite Filler ( <i>Stella Ilham Isnaini</i> ).....	35
- ORA-05 Mandibular Condyle: Shape And Symmetry On 4-19 Years Old Children (Evaluated From Orthopantomograph) ( <i>Barnabas Bonardo</i> ) .....	36

- ORA-06  
Synthesis Of Cellulose Fiber From Coconut Coir As Potential Application Of Dental Flowable Composite Filler (*Twī Agnita Cevanti*)..... 37
- ORA-07  
Validity And Reliability Of Impact On Family Scale For Indonesian Cleft Lip And Palate Parents: A Pilot Study (*Nizamīar Hanmi*) ..... 38
- ORA-08  
The Pattern Of Collagen, Col1A, Bsp And Mmp-8 In Alveolar Bone Socket Post Tooth Extraction Of Rat Wistar After Induced With Hydroxyapatite Bovine Tooth Graft (*Dian Dwi Pratiwi*) ..... 39
- ORA-09  
Spectroscopy Structure Analysis Of Calcium Phosphate And Ellagic Acid (*Debby Saputera*)..... 40
- ORA-10  
Maternal Oral Health Literacy Role In Managing Children General & Dental Health Needs Related With Anxiety During The Covid-19 Pandemic (*Gilang Rasuna Sabdho Wening*) ..... 41
- ORA-11  
Benefit Of A Combination Of Vitamin D3, K2 And Uv-B Exposure For Increasing Bone Density: Simple Solution For Bone Health During Pandemic Covid-19 (*Amalia Ramadhani Mufida*)..... 42
- ORA-12  
Tandem Repeats Of Lysine And Leucine As A PeptideTag For Protein Immobilization (*Koichi Kato*)..... 43
- ORA-13  
Effects Of Stem Cells From Human Exfoliated Deciduous Teeth Conditioned Media (Shed-Cm) On Metabolism Of Human Umbilical Vein Endothelial Cells (Huvecs), Osteoblasts (Mct3T3-E1 Cells), And Bone Marrow Mesenchymal Stem Cells (Hbmcs) (*Nurul Aisyah Rizky Putranti*) ..... 44
- ORA-14  
Characteristic Maxillofacial Trauma Insidence In Emergency Unit Dental Hospital Of Airlangga University Before And During Pandemic Covid-19 (*I Gusti Putra Swabuana Purwoyudho*) ..... 45
- ORA-15  
Abnormal Pain Sensitivity In A Prenatal Valproic Acid-Induced Mouse Model Of Autism Spectrum Disorder (*Eiji Imado*)..... 46

- ORA-16	The Effect Of Cocoa Pod Husk And Green Tea On Smad3 And Fgf2 Expression In Exposed Dental Pulp ( <i>Irfan Prasetyo</i> ) .....	47
- ORA-17	Remodeling Of The Sagittal Suture Development In Sost Knockout (Sost-/-) Mice Associated With Cranial Flat Bone Growth ( <i>Fan Yi Chao</i> ).....	48
- ORA-18	Physical Modification Of Bovine Amniotic Membrane For Dental Application ( <i>Octarina</i> ).....	49
- ORA-19	Regulation Of Cell Migration By Vasoactive Intestinal Peptide (Vip)-Vpac2 Receptor Signaling ( <i>Satoshi Asano</i> ).....	50
- ORA-20	Development Of Micropore-Forming Polylactide Filaments For Use In 3D Printing ( <i>Isao Hirata</i> ).....	51
- ORA-21	Relationship Between Periodontal Health And Adolescent Physical Performance ( <i>Aulia Ramadhani</i> ).....	52
- ORA-22	A Comparative Study Of Radiopaque Property Of Polyetheretherketone Crown ( <i>Fumiko Nishio</i> ) .....	53
- ORA-23	Validity and Reliability of The Velopharyngeal Insufficiency Effects on Life Outcomes (Velo) Questionnaire as an Instrument for Evaluating The Surgical Outcomes for Cleft Palate Patients ( <i>Annisa Fardhani</i> ).....	54
- ORA-24	Identification Of Toxin-Antitoxin Systems In Staphylococcus Aureus ( <i>Fuminori Kato</i> ).....	55
- ORA-25	Newly Development Of Porous Titanium Bone Reconstruction Material Which Enables Implant Treatment ( <i>Kaien Wakamatsu</i> ).....	56
- ORA-26	Neurogenic Inflammation Pathway On The Up-Regulation Of Voltage-Gated Sodium Channel Nav1.7 In Experimental Flare Up Post Dental Pulpa Tissue Extirpation ( <i>Putu Yuri Divina</i> ).....	57
- ORA-27	Relationship Between Pre-Operative Hematological Profile With Wound Dehiscence Risk In Patient With Cleft ( <i>Stephanie Amel</i> ).....	58

- ORA-28	
Utilization Of The Velo Questionnaire In Cleft Palate Surgery Evaluation For Patients In Remote Areas In Indonesia ( <i>Saifullah Amri</i> ) .....	59
- ORA-29	
Effect Of Nisin A Produced By <i>Lactococcus Lactis</i> To <i>Clostridioides Difficile</i> Strains ( <i>Noriaki Ide</i> ) .....	60
- ORA-30	
The Impact Of Oral Health Seeking Behavior During Covid-19 Outbreak Toward Dental Caries Severity ( <i>Ristya Widi Endah Yani</i> ) .....	61
- ORA-31	
Bacteriocins Produced By <i>Streptococcus Mutans</i> : Distribution And Antimicrobial Activity ( <i>Mi Nguyen Tra Le</i> ) .....	62
- ORA-32	
Isolation/Characterization Of Oral Antimicrobial-Resistant Gram-Negative Bacteria In Residents Of The Long-Term Care Facility ( <i>Azusa Haruta</i> ) .....	63
- ORA-33	
Oral Health Condition Survey Of Cambodian Public Primary School Children ( <i>Tomoki Kumagai</i> ) .....	64
- ORA-34	
The Engagement Of Gamma-Delta T Cells In Dental Pulp Mineralization Via IL-17A ( <i>Tomoki Kumagai</i> ) .....	65
- ORA-35	
Comprehension Gap On HIV/AIDS Oral Manifestations Among Undergraduate Students Of Dentistry And Management Economy In Universitas Airlangga ( <i>Desiana Raditha</i> ) .....	66
- ORA-36	
Prevalence Of Most Common Tongue Lesions Related To Degenerative Diseases In The Elderly ( <i>Fatma Yasmin Mahdani</i> ) .....	67
- ORA-37	
Calciprotein Particles Play a Role in Bone Formation and Vascular Calcification ( <i>Davood Kharaghani</i> ) .....	68
- ORA-38	
Organic Therapy For Oral Submucous Fibrosis ( <i>Meenal Tepan</i> ) .....	69
- ORA-39	
Evaluation Of Dental Gypsum Waste Management (Recycling And Reuse) In A Dental College – A Innovative In-Vitro Study ( <i>Arti R. Gachake</i> ) .....	70

- ORA-40  
Active Compound from Indonesian Mangrove Leaves (*Aegiceras Corniculatum*)  
Extract Exploration for Herbal-Based Mouthwash Development  
(*Martining Shoffa Puspitaningrum*) ..... 71
- ORA-41  
Identification of A Novel Resistant Factor Against Bacteriocin In *Streptococcus*  
*Mutans*(*Naoki Sadaoka*)..... 72
- ORA-42  
Phenotypic Characterisation of Healthy and Inflamed Dental Pulp Cells  
(*Arora S*) ..... 73
- ORA-43  
Association Between Perception Of E-Cigarettes And Their Use In The Current And  
Ever Users Among Youth (*Ameera Syafiq Aly*) ..... 74
- ORA-44  
Clinical Application Of Vitamin C In Melanin Hyperpigmentation Of Gingiva  
(*Rizwan Sanadi*) ..... 75
- ORA-45  
Dna Image Cytometry Using A Velscope As A Possible Adjunct To Oral Biopsy  
(*Pushpanjali Das*) ..... 76
- ORA-46  
Matrix Metalloproteinase-8 Levels in Peri-Miniscrew Crevicular Fluid During Immediate  
and Delayed Orthodontic Loading – a Split Mouth Study  
(*Dhanashree D. Khot*) ..... 77
- ORA-47  
Is The Waist Circumference Of Asian Children Associated With Dental Caries?  
(*Rokiah Mamikutty*) ..... 78
- ORA-48  
The Effect Of *Lactobacillus Rhamnosus* L8020 On Periodontal Pathogens In  
Intellectually Disabled Individuals (*Yuki Oda*)..... 79
- ORA-49  
Comparative Evaluation of The Effect of Micro-Osteoperforations on The Rate of  
Orthodontic Tooth Movement (*Prashant Kumar*)..... 80
- ORA-50  
Comparison of The Effect Laser Irradiation and Conventional Acid Etching on The  
Surface Characteristics and Bond Strength of Bonded Molar Tubes – An In-Vitro Study  
(*Anisha H. Revdekar*)..... 81

-	ORA-51	
	Antibacterial Performance And Shock Absorbance of Mouthguard Material Incorporated With Silver-Nanoparticles-Embedded Eva Masterbatch	
	(Yuriko Yoshida).....	82
-	ORA-52	
	Assessment of Centre of Resistance of Maxillary Lateral Incisor With Different Alveolar Bone Height and Crown Root Ratio – a Fem Study (Shivani) .....	83
-	ORA-53	
	Mandibular Lateral Deviation Detection Of Posteroanterior Cephalograms Using A Deep Learning Approach (Shota Okazaki) .....	84
-	ORA-54	
	A Content Analysis Of Fake Braces Advertisements on Instagram (Nor Azlida Mohd Nor).....	85
-	ORA-55	
	Oral Health Challenges Faced by Parents of Children With Autism Spectrum Disorders (ASD) (Husna Fatimah Mohd Zamri) .....	86
-	ORA-56	
	Demineralized Dentine Material Membrane, Osteoclast, Osteoblast, and RUNX2 Differentiation and Its Potential for Guided Bone Regeneration (Pratiwi Soesilawati).....	87
-	ORA-57	
	The efficacy of Okra Fruit Extract on the Expression of Transforming Growth Factor Beta-1 in The Tooth Socket of Diabetic Wistar Rats (Muhammad Luthfi) .....	88

## Case Reports' Abstract

-	CR-01	
	Management Of Herpes Zoster In Elderly In The Covid-19 Pandemic Era Through Telemedicine (Ida Bagus Pramana Putra Manuaba) .....	89
-	CR-02	
	Management Of Breastfeeding Mother With Pyogenic Granuloma: A Case Report (Ni Wy Rima Tiara Wahyudiana) .....	90
-	CR-03	
	Treatment Of Non-Specific Inflammation Mimicking Oral Sarcoma: A Rare Case Report (Stefanus Ferry Setiawan) .....	91

- CR-04	Management Of Patients With Aphthous Like Ulcer Et Causa Aplastic Anemia In The Covid-19 Pandemic Era: A Case Report ( <i>Lani Berlina Talahatu</i> ).....	92
- CR-05	Malocclusion Associated with Non-Union Mandible Resulting from Inadequate Fracture Treatment: A Case Report ( <i>Eka Pramudita Djimantoro</i> ) .....	93
- CR-06	A Rare Case Of Juvenile Ossifying Fibroma ( <i>Sergio Santoso</i> ).....	94
- CR-07	Case Report: Xerostomia Patient With Type 2 Diabetes Mellitus ( <i>Maslah Siregar</i> ).....	95
- CR-08	Burning Mouth Syndrome Associated With Gord ( <i>Kurnia Hayati Rahman</i> ).....	96
- CR-09	Labial And Palatal Approach For Removal Of Impacted Maxillary Canine Associated With Odontoma: A Case Report ( <i>Olivier Maron Sahetapy</i> ).....	97
- CR-10	Consideration Of The Need For Supporting Examinations In The Diagnosis Of Mumps ( <i>Ari Hapsari Tri Wardani</i> ) .....	98
- CR-11	Ameloblastoma : Hemimandibulectomy And Reconstruction With Costochondral Graft In Patient With Class Iii Angle'S Malocclusion And Anterior Open Bite: A Case Report And Review Of Literature ( <i>Dewati Ayusri Artha</i> ) .....	99
- CR-12	Spontaneous Coronoid-Like Growth After Hemimandibulectomy Of Ameloblastoma In Young Adult Patient: A Case Report ( <i>Defi Marizal</i> ).....	100
- CR-14	Infected Dentigerous Cyst On A Totally Impacted Mesiodens: A Rarest Combination Of Two Ectopic Pathological Entities ( <i>Ferdian Rizky Hutomo</i> ) .....	101
- CR-15	Clinical Appearance Of Acute Pseudomembranous Candidiasis In Children And The Importance Of Good Communication, Information And Education To Patients: A Case Report ( <i>Afryla Femilian</i> ) .....	102
- CR-16	A Consideration Of Surgical Vestibular Deepening In Bilateral Cleft Lip Repair: Serial Case ( <i>Prisilla Mutiara Djehan Pattisahusiwa</i> ) .....	103

- CR-17	Impacted Maxillary Incisors: Surgery Or Conservative Management? Report Of Two Cases With Current Literature ( <i>Nurmaifah</i> ) .....	104
- CR-18	Class II Subdivision Malocclusions-Do They Need a Modified Treatment Approach? ( <i>Veera Bhosale</i> ).....	105
- CR-19	Multifocal Oral Ebv-Positive Mucocutaneous Ulcers: A Case Report ( <i>Sumana Kunmongkolwut</i> ).....	106
- CR-20	Temporomandibular Disorders From Ill-Fitting Dentures ( <i>Ronald Porntirit</i> ) .....	107
- CR-21	The Efficacy Of Myofunctional Therapy Accompanied With Frenectomy And Developed Tongue Work(Out) From Home (Twfh) ( <i>Boosana Kaboosaya</i> ).....	108
- CR-22	Benign Osteoblastoma Of The Mandible With Chronic Infection: A Rare Case ( <i>Husnul Basyar</i> ).....	109
- CR-23	The Management Of Trigeminal Neuralgia Pain Provoked By Sleep Bruxism ( <i>Phenbunya Siripajana</i> ).....	110
- CR-24	Minimally Invasive Restorative Approach: Managing Compromised First Permanent Molars (FPM) in Children ( <i>Tengku Nurfarhana Nadirah Tengku Hamzah</i> ) .....	111
- CR-25	Management of a Multiple Mandibular Fracture in Emergency: Case Report ( <i>Fiqar Achmadi</i> ) .....	112

## Review Articles Abstract

- RA-01	The Importance of Saliva Total Protein and $\alpha$ -Amilase on Cerebral Palsy Children ( <i>Brian Maulani</i> ) .....	113
- RA-02	The Effectiveness Of Using Titanium Mesh With Collagen Membranes, Prf, And Ptf To Addition Of Vertical Bone Alveolar Implant Dental Therapy: Literature Review ( <i>Disti Ayulita</i> ) .....	114

- RA-03	
Hydrogel Scaffold In Pulp Dentin Complex Regeneration ( <i>Elline</i> ) .....	115
- RA-04	
Clinical Dental Risk Management: The Needs And Challenges ( <i>Didin Mirandani</i> ) .....	116
- RA-05	
Correlation Between Oral Health Condition In Down Syndrome Children With Physical Fitness: A Literature Review ( <i>Alit Rahma Estu</i> ) .....	117
- RA-06	
Role Of Salivary Nitric Oxide On Caries Status Of Children With Down Syndrome ( <i>Nita Naomi</i> ) .....	118
- RA-07	
Parents' Socioeconomic Factors Affecting Willingness To Take Care Of Early Childhood Oral Health ( <i>Dyah Nawang Palupi Pratamawari</i> ).....	119
- RA-08	
Teacher`S Role On Regular And Special Need Student`S Oral Health: A Narrative Review ( <i>Barnabas Nonardo</i> ).....	120
- RA-09	
Computer Aided Drugs Discovery Utilization In Conservative Dentistry ( <i>Anastasia Elsa Prahasti</i> ).....	121
- RA-10	
Periodontitis Affects Skeletal Muscle Metabolism Through Increased Proinflammatory Cytokines ( <i>Risma Aprinda Kristanti</i> ) .....	122
- RA-11	
Intake Of Citrus Spp. And Its Relation In Decreased Head And Neck Cancer Risk: A Systematic Review ( <i>Pamela Handy</i> ) .....	123
- RA-12	
Comprehensive Clinical Dental Risk Management Through Dental Care Service Quality ( <i>R. Darmawan Setijanto</i> ) .....	124
- RA-13	
Lifestyle As A Risk Factor Of High Periodontitis Prevalence With And Without Type 2 Dm In Surabaya( <i>Titiek Berniyanti</i> ).....	125
- RA-14	
Capsaicin As An Alternative Herbal Agent To Accelerate The Healing Process Of Fractured Bone (Review Article) ( <i>Fery Setiawan</i> ) .....	126

- RA-15	Accuracy Of Velscope As An Early Diagnosis Instrument In Oral Potentially Malignant Disorders ( <i>Kevin Alfian Nola Anggrarista</i> ) .....	127
- RA-16	Etiology And Risk Factors Of Oral Potentially Malignant Disorders (Opmd) ( <i>Rafdan Affan Ahmada</i> ) .....	128
- RA-17	Management Of Oral Candidiasis In People With Hiv ( <i>Yassir Ahmad Azzaim</i> ) .....	129
- RA-18	Xerostomia In Elderly ( <i>Galuh Damar Jati</i> ) .....	130
- RA-19	Management Of Angular Cheilitis In Elderly Patients ( <i>Erine Tita Febrine</i> ) .....	131
- RA-20	Intricacies Of Oral Cancer ( <i>Revati Shailesh Deshmukh</i> ) .....	132
- RA-21	Oral Manifestations And Pathogenesis Of Covid-19 ( <i>Prashant Rao</i> ) .....	133
- RA-22	The Role Of Static Magnetic Healing Abutment In Osteoblastic Differentiation To Reduce Marginal Crestal Bone Loss ( <i>Leonard Christiaan Nelwan</i> ) .....	134
- RA-23	Xerostomia Risk Factors In The Elderly ( <i>Natasya Fauzia Sukmawati</i> ) .....	135
- RA-24	Potency Of Artificial Saliva For Reducing Xerostomia Symptoms In Elderly: Systematic Review ( <i>Shalma Maulidya Hendrayanto</i> ) .....	136
- RA-25	Association Between Glycated Hemoglobin Levels In Diabetes And Caries Risk ( <i>Nuzulul Hikmah</i> ) .....	137
- RA-26	Management of Oral Hairy Leukoplakia in Patients With HIV Infection ( <i>Amalia Rizka</i> ) .....	138

## MESSAGE FROM DEAN FACULTY OF DENTAL MEDICINE UNIVERSITAS AIRLANGGA

Assalamualaikum wr. wb.

Good morning everyone, I hope all of you are healthy.

My name is Agung Sosiawan. I am the dean of Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia. It is my privilege and pleasure on behalf of my Faculty to welcome you here today.

We are delighted to have you with us in our 6<sup>th</sup> Joint Scientific Meeting in Dentistry. Thank you for attending. That many of you have joined us here serves as a reminder to us how important our 6<sup>th</sup> joint scientific meeting in Dentistry.

Faculty of Dental Medicine Universitas Airlangga is committed to actively hosting academic events, even during the COVID-19 pandemic era, through virtual meeting.

It's a great honour that following the success of our joint scientific meeting in Dentistry in the previous years, in this year, Universitas Airlangga, in collaboration with Hiroshima University and Hasanuddin University, is back to host the 6<sup>th</sup> joint scientific meeting in Dentistry on the 30<sup>th</sup> of July until the 1<sup>st</sup> of August 2021. The theme of our 6<sup>th</sup> joint scientific meeting in Dentistry is "Comprehensive Oral Health Improvement through Basic Medical and Clinical Science before, during, and after Pandemic Era". This theme is interesting, because as a dentist, we must commit to continuously enhance our knowledge and skills, so we can deliver quality dental care to our patients before, during, and after pandemic era.

We are honoured to have remarkable speakers both from Indonesia and overseas in our 6<sup>th</sup> joint scientific meeting in Dentistry. So, prepare yourself to be challenged, excited and inspired. I hope you will find our 6<sup>th</sup> joint scientific meeting in Dentistry useful for your current and future dental career.

I also would like to thank to all of the committee of the 6<sup>th</sup> joint scientific meeting in Dentistry as I know that they will put a great effort into preparing and carrying out this joint scientific meeting.

I want to say once more welcome to all of our speakers, guests, and attendees. It's wonderful to see you here. Thank you for your prompt and kind support to our 6<sup>th</sup> joint scientific meeting in Dentistry.

Thank you very much  
Wassalamu'alaikum Wr Wb

Sincerely,

**Dr. Agung Sosiawan, drg., M.Kes., M.H**

**MESSAGE FROM  
DEAN SCHOOL OF DENTISTRY HIROSHIMA UNIVERSITY**

On behalf of Hiroshima University, I would like to congratulate you on the successful holding of the 6th joint scientific meeting in dentistry. This conference was originally scheduled to be held together with the 8th Hiroshima Conference in March 2020, however, unfortunately last year's conference was canceled due to the world-wide spread of COVID-19.

It is very valuable that this great international conference was realized in the form of an online conference. We would like to express our sincere gratitude to all the organizing committee members of this meeting.

In this meeting, special lectures by faculty members from Hiroshima University and research presentations by young researchers are scheduled, including advanced research on regenerative medicine by a post-graduate student from Airlangga University. This is the fruit of past close interactions between Dental schools in Indonesia and Japan through multiple channels such as undergraduate, post-graduate students, and faculty members. We hope that the scientific meeting will be continued to point out the future of international corroboration so that the international exchange of education and research will not be disturbed due to the pandemic.

**Prof. Kotaro Tanimoto**

Dean

School of Dentistry

Hiroshima University

**MESSAGE FROM  
DEAN FACULTY OF DENTISTRY HASANUDDIN UNIVERSITY**

Bismillahirrahmanirrahim  
Assalamualaikum Wr. Wb

Alhamdulillahirabbil'alamain, all praise and thanks giving to the presence of Allah SWT, that we are all given health and the opportunity to all of us so we can attending this event to upgrade our information and knowledge

The 6<sup>th</sup> JSMID is one of the virtual scientific meeting which held by collaboration of Nasional and International University during pandemic Covid-19. This event give us opportunity to keep sharing and upgrade knowledgment about comprehensive oral health improvement through basis medical and clinical science before, during, and after pandemic era.

I would like to take this opportunity to express my gratitude and respect to our honorable speaker from International and National who was spending time to share they knowledge and valuable experiences with us, and also thank you for all the committee for spirit and great effort to make this event held successfully.

To all participants, I hope you will have productive times of interesting and exciting discussion. I sincerely hopefully that this *"The 6<sup>th</sup> Joint Scientific Meeting in Dentistry (The 6<sup>th</sup> JSMiD)"* will be a great successfull and usefull to all of us. Once again, I wish that all of us participate are more hopeful and enriched. It's been a valuable contribution for us to join in this event.

Thank you very much  
Wassalamu'alaikum Wr Wb

Sincerely,

**Muhammad Ruslin, drg., M.Kes., Ph.D., Sp.BM(K)**

## ORGANIZING COMMITTEE

### The 6<sup>th</sup> Joint Scientific Meeting in Dentistry (The 6<sup>th</sup> JSMiD)

#### COMMITTEE FACULTY OF DENTAL MEDICINE UNIVERSITAS AIRLANGGA

Advisor	: Dr. Agung Sosiawan, drg., M.Kes., M.H Prof. Dr. Ira Widjiastuti, drg., M.Kes., Sp.KG(K) Dr. Muhammad Luthfi, drg., M.Kes Andra Rizqiawan, drg., Ph.D., Sp.BM
Chairperson	: Dr. Dian Agustin Wahjuningrum, drg., Sp.KG(K)
Vice Chairperson	: Maretaningtias Dwi Ariani, drg., M.Kes., Ph.D., Sp.Pros
Secretary/ Secretariat and Registration	: Ninuk Hariyani, drg., M.Kes., MPH., Ph.D Nastiti Faradilla Ramadhani, drg Lucindari Gea Permata, drg
Treasure	: Tania Saskianti, drg., Ph.D., Sp.KGA(K) Nurina Febriyanti Ayuningtyas, drg., M.Kes. Ph.D., Sp.PM
Scientific/ Award / Publication	: Fatma Yasmin Mahdani, drg., M.Kes Eric Priyo Prasetyo, drg., M.Kes., Sp.KG(K) Dr. Alexander Patera Nugraha, drg., M.Imun I Komang Evan Wijaksana, drg., Sp.Perio Arofi Kurniawan, drg., Ph.D Sisca Meida Wati, drg., M.Kes., Ph.D Fery Setiawan, drg., M.Si Eben Bashir Kurniawan
Event	: Mega Moeharyono Puteri, drg., Ph.D. Sp.KGA(K) Dini Setyowati, drg., MPH., Ph.D. Dr. Pratiwi Soesilawati, drg., M.Kes.

**COMMITTEE FACULTY OF DENTAL MEDICINE UNIVERSITAS AIRLANGGA**

IT	: Setyabudi, drg., M.Kes., Sp.KG(K). Rahmad Rifki Fahreza, drg.
Exhibition	: Deny Saputra, drg., M.Kes Imam Safari Azhar, drg., M.Kes. Reza Al Fessi, drg., Sp.BM., M.Ked.Klin Primanda Nur Rahmanian, drg., Sp.Pros.
Liasion Officer	: Karina Erda Saninggar, drg Nurul Rizky Putranti, drg Nadia Kartika Sari, drg., M.Kes. Ramadhan Hardani Putra, drg., M.Kes
Alumni Gathering	: Yohana Hutapea, drg Dyshafilia Carindra, drg Mentari Zaurasari, SKG Hilmy Irsyadi Hanif, SKG Tasya Dentria, SKG
Merchandise and Bazar	: Student Executive Board (BEM Faculty of Dental Medicine, Universitas Airlangga)

**Thank You Submitters and Reviewers**

The committee wishes to extend appreciation to all submitters and reviewers for making The 6<sup>th</sup> Joint Scientific Meeting in Dentistry (The 6<sup>th</sup> JSMiD) 2021 success. The hard works, support and dedication from participants, are expected to benefit from the quality of the presentations

**COMMITTEE SCHOOL OF DENTISTRY HIROSHIMA UNIVERSITY**

Dean Prof. Kotaro Tanimoto	Prof. Yuji Yoshiko
Prof. Makoto Sugita	Prof. Chisa Shukunami
Prof. Hitoshi Komatsuzawa	Prof. Yukio Ago
Prof. Ichiro Takahashi	Prof. Makiko Fuji
Prof. Kazuhiro Tsuga	Prof. Naoya Kakimoto
Prof. Mashiro Irifune	Prof. Kouji Ogta
Prof. Ryuji Terayama	Prof. Mutsumi Miyauchi
Prof. Koichi Kato	Prof. Noriyoshi Mizuno
Prof. Hideki Shiba	Prof. Mariko Naito
Prof. Hitoshi Komatsuzawa	Prof. Yukio Ago
Prof. Ichiro Takanashi	Prof. Makiko Fuji
Prof. Masahiro Irifune	Prof. Naoya Kakimoto
Prof. Toshinobu Takemoto	Prof. Kouji Oota
Prof. Hiroki Nikawa	Prof. Masato Kaku
Prof. Hiroyuki Kawaguchi	Prof. Yoshiyuki Okada
Prof. Noriyoshi Mizuno	Prof. Mariko Naito
Prof. Mariko Naito	Prof. Takeshi Murayama

**Thank You Submitters and Reviewers**

The committee wishes to extend appreciation to all submitters and reviewers for making The 6<sup>th</sup> Joint Scientific Meeting in Dentistry (The 6<sup>th</sup> JSMiD) 2021 success. The hard works, support and dedication from participants, are expected to benefit from the quality of the presentations

## COMMITTEE FACULTY OF DENTISTRY HASANUDDIN UNIVERSITY

Muhammad Ruslin, drg. M.Kes., Ph.D., Sp.BM(K)

Prof. Dr. Edy Machmud, drg., Sp.Pros(K)

Dr. Nurlindah Hamrun, drg., M.Kes

Dr. Eddy Herianto Habar, drg., Sp.Ort(K)

Erni Marlina, drg., Ph.D., Sp.PM

Nursyamsi Djamaluddin, drg., M.Kes

Acing Habibi Mude, drg., Ph.D., Sp.Pros

Yossy Yoanita Ariestiana, drg., Sp.BM

Karima Qurnia Mansjur, drg., Ph.D

### Thank You Submitters and Reviewers

The committee wishes to extend appreciation to all submitters and reviewers for making The 6<sup>th</sup> Joint Scientific Meeting in Dentistry (The 6<sup>th</sup> JSMiD) 2021 success. The hard works, support and dedication from participants, are expected to benefit from the quality of the presentations

## FOREWORD

Good morning and welcome everyone to the 6th Joint Scientific Meeting in Dentistry (JSMiD). The honorable the Dean of Faculty of Dental Medicine Universitas Airlangga, the honorable the Dean of Faculty of Dentistry Hiroshima University, the honorable the Dean of faculty of dentistry Hasanuddin University and all distinguished participant. My name is Dian Agustin Wahjuningrum. It is my pleasure to be with you today. I would like first to say thank you very much to the host and the organizer of the meeting today: Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia. Special appreciation to the co-hosts of today's meeting: School of Dentistry, Hiroshima University, Japan and Faculty of Dentistry, Hasanuddin University, Indonesia. My appreciation also for everyone attending today: all participants, speakers, researchers, academic staff, students, and others. Thank you for your time and desire to provide and get more knowledge and skills.

As we know, even before the pandemic, dentistry is one of the most evolutionary fields. Many products, techniques, and tools come up every day. Thus, for all dentists, it is mandatory to stay updated. That is why Airlangga University, was dedicated its efforts to conduct events to stay in tune with all worldwide changes and challenges. Joint Scientific Meeting in Dentistry (JSMiD) is one of those events which was conducted first in 2011 and was followed by series of conferences implemented biennially. Outstandingly, the previous events achieved the goal to provide forums for deep and effective discussions in dental education and research by different contributors from different regions in the world. With such background, the Joint Scientific Meeting comes back on its 6<sup>th</sup> time. The meeting is conducting for two days: today 31st July, and tomorrow 1<sup>st</sup> August. We hope that the meeting for this year will enrich the successful journey of the meeting. However, due to the recent pandemic situation, the meeting is virtually this year, which may not be usual, but in reality, it provides an extraordinary opportunity as all participants could attend regardless of their country interacting with other partners from the other countries around the world.

The meeting today is under the theme of " Comprehensive oral health improvement through basic medical and clinical science before, during and after pandemic era". As we know that during the pandemic all fields have undergone many changes. This influence, of course, was dramatically in the health field which is the main concern during the COVID-19. As part of global health, oral health also has been affected and thus many improvements have been updated to keep the required care professionally in spite of the ongoing situation. That is why this conference aims to develop and standardize joint programs, dental cutting-edge research, new technologies, and new educational resources in dentistry and oral

health science also for this year we have special program Alumni meeting between Hiroshima university and their alumny.

So, let me give you an overview of the agendas of the meeting. The main agenda is the scientific meeting in dental education and research also alumny meeting. There will be also scientific competition for young researchers. Be ready for that. It will include poster competitions. Moreover, we will enjoy the virtual conference and Global networking at the Hiroshima Alumni meeting. We hope that all agendas will work together to give a comprehensive picture regarding oral health in the recent world. Finally, I would like to pay my deep respect again to all organizers for their efforts. We hope that this meeting will be a big contributor to the future of dentistry and oral health. Thank you again to all the participants for your attendance. We hope that the meeting will be a converting point that will take you a further step in your academic journey and help you in your career life. Be ready to take your notes that you may apply to your study or work, but before it, prepare your mind and heart and take the intention to get the maximum benefits from this experience. Thank you for your attention. Have beneficial and enriching moments.

**Dr. Dian Agustin Wahjuningrum, drg., Sp.KG(K)**

Chairperson

## GENERAL RUNDOWN

### The 6<sup>th</sup> Joint Scientific Meeting in Dentistry (The 6<sup>th</sup> JSMiD)

July 30<sup>th</sup> – August 1<sup>st</sup>, 2021

#### DAY 1: Friday, July 30<sup>th</sup>, 2021

Time (GMT +7)	Agenda
07.30 – 08.00	Preparation
08.00 – 08.25	<ul style="list-style-type: none"> <li>- The zoom meeting room is open</li> <li>- Bumper Video (<i>Attendees are waiting to be admitted</i>)</li> <li>- Profile : <ul style="list-style-type: none"> <li>• Universitas Airlangga</li> <li>• Faculty of Dental Medicine, Universitas Airlangga</li> <li>• Hiroshima University</li> <li>• Hasanuddin University</li> </ul> </li> </ul>
08.25 – 08.30	MC – Opening
08.30 – 08.40	<ul style="list-style-type: none"> <li>- Indonesia Raya (National Anthem)</li> <li>- Hymne Airlangga</li> <li>- Pray</li> </ul>
09.10 – 09.15	Grand Opening
09.15 – 10.45	<p><b>Scientific Session</b></p> <ol style="list-style-type: none"> <li><b>1. Dr. Cortino Sukotjo, DDS, Ph.D, M.MSc (Chicago, USA) University of Illinois, USA</b> “Implant Treatment for Fully Edentulous Patient”</li> <li><b>2. Prof. Lih-Jyh (William) Fuh, D.D.S, Ph.D., FICD (China Medical University, Taiwan)</b> “The Application of Digital Dentistry”</li> </ol> <p><b>Moderator :</b> <b>Yossy Yoanita Ariestiana, drg., Sp.BM</b></p>
10.45 – 13.00	E-Poster Presentation
13.00 – 15.30	<p><b>Scientific Session</b></p> <ol style="list-style-type: none"> <li><b>1. Dr. Yasushi Nakajima (Osaka, Japan) Osaka Dental University, Japan</b> “The Trouble and Solution for Implant Treatment”</li> <li><b>2. Dr. R. Harly Prabowo, drg., M.Sc., Ph.D., Sp.Pros (Surabaya, Indonesia) Universitas Airlangga, Indonesia</b> “Osseointegration, Current State of The Art”</li> </ol>

	<b>3. Seong-Yong Moon, DDS, PhD (School of Dentistry, Chosun University, Korea)</b> “Virtual Reality (VR)/Augmented Reality (AR) Applications in Oral and Maxillofacial Surgery”  <b>Moderator :</b> <b>Muhammad Subhan Amir, drg., Ph.D, Sp.BM</b>
15.30 – 15.35	<b>JSMiD Session on day 1 ends</b>

**DAY 2: Saturday, July 31<sup>st</sup>, 2021**

<b>Time (GMT +7)</b>	<b>Agenda</b>
08.00 – 08.45	Preparation
08.45 – 09.00	<ul style="list-style-type: none"> <li>- The zoom meeting room is open</li> <li>- MC Opening day 2</li> </ul>
09.00 – 11.30	<b>Scientific Session</b> <b>1. Prof. Noriyoshi Mizuno (Hiroshima, Japan) Hiroshima University, Japan</b> “Identification of causative gene in a family case with aggressive periodontitis”  <b>2. Dr Yuichi Mine, B.Sc., M.Sc., Ph.D (Hiroshima, Japan) Faculty of Dentistry, Hiroshima University, Japan</b> “Artificial Intelligence in Medicine and Dentistry”  <b>3. Yong Soo Kim, DDS, CAGS, MSD (Diplomate, American Board of Periodontology)</b> “Minimally Invasive Sinus Surgery, Safe and Easy”  <b>Moderator :</b> <b>Imam Safari Azhar, drg., M.Kes., Sp.Pros.</b>
11.30 – 13.00	E-Poster Presentation
13.00 – 14.40	<b>Scientific Session</b> <b>1. Prof. Dr. I B Narmada , drg., Sp.Ort (Universitas Airlangga, Indonesia)</b> “Management of Impacted Canine in Orthodontic Treatment”  <b>2. Assoc. Prof. Dr. Rajesh Ramasamy, B.BMed, Ph.D, DIC (Universiti Putra Malaysia, Malaysia)</b> “Dental-derived mesenchymal stem cells and Immunomodulation”  <b>Moderator :</b> <b>Reza Al Fessi, drg., Sp.BM., M.Ked.Klin</b>
14.40 – 14.45	<b>JSMiD Session on Day 2 ends</b>

**DAY 3: Sunday, August 1<sup>st</sup>, 2021**

<b>Time (GMT +7)</b>	<b>Agenda</b>
08.15 – 08.45	Preparation
08.45 – 09.00	<ul style="list-style-type: none"> <li>- The zoom meeting room is open</li> <li>- MC Opening day 3</li> </ul>
09.00 – 11.30	<p><b>Scientific Session</b></p> <p><b>1. Dr Takaharu Abe, Ph.D (Hiroshima University, Japan)</b> “Stem cell-based therapy for patients with cleft lip and palate”</p> <p><b>2. Dr Miki Kawada-Matsuo, DDS, Ph.D (Hiroshima University, Japan)</b> “Microbiome Research and Expectations for Clinical Practice in the Dentistry Field”</p> <p><b>3. Assoc. Prof. Ajinkya Pawar, BDS, MDS, FPFA, Ph.D (Nair Hospital Dental College, Mumbai, India)</b> “RESEARCH” as a Step towards “FAME” ”</p> <p><b>Moderator :</b> <b>Tania Saskianti, drg., Ph.D., Sp.KGA(K)</b></p>
11.30 – 13.00	E-Poster Presentation
13.00 – 13.50	<p><b>Scientific Session</b></p> <p><b>1. Prof Anuj Bhardwaj, BDS., MDS (College of Dental Sciences &amp; Hospital Indore, India)</b> “Anatomically Guided Cleaning and Shaping”</p> <p><b>Moderator :</b> <b>Nurina Febriyanti Ayuningtyas, drg., M.Kes., Ph.D., Sp.PM</b></p>
13.50 – 14.20	<p><b>1. Announcement for JSMiD Awards</b></p> <p><b>2. Closing</b></p> <ul style="list-style-type: none"> <li>- Remarks from the JSMiD Chairperson about the total number of national and international attendees</li> <li>- Remarks from Dean Faculty of Medicine Universitas Airlangga</li> <li>- Video resume: from JSMiD preparation to Day 3</li> <li>- MC - closing</li> </ul>

## POSTER SESSION SCHEDULE

DAY 1: Friday, July 30<sup>th</sup>, 2021

### Original Research

Breakout Room	Session	Code	Speaker	Title
1	Original Research	ORA-02	Felicia Laurens Lesmana	The Effect Of Application Of Mangosteen Peel Extract ( <i>Garcinia Mangostana</i> L.) Towards Pdgf-B Expression On Human Gingival Fibroblast Cell Culture After Wound Healing Scratch Test Assay (In-Vitro Study)
		ORA-03	Widodo	Mothers Parenting Pattern On Tooth Brushing Based On The Theory Of Planned Behavior In Banjarbaru City
		ORA-04	Stella Ilham Isnaini	Cellulose Fiber From Coconut Coir For Development Of Dental Composite Filler
		ORA-05	Barnabas Bonardo	Mandibular Condyle: Shape And Symmetry On 4-19 Years Old Children (Evaluated From Orthopantomograph)
		ORA-06	Twii Agnita Cevanti	Synthesis Of Cellulose Fiber From Coconut Coir As Potential Application Of Dental Flowable Composite Filler
		ORA-07	Nizamiar Hanmi	Validity And Reliability Of Impact On Family Scale For Indonesian Cleft Lip And Palate Parents: A Pilot Study
		ORA-08	Dian Dwi Pratiwi	The Pattern Of Collagen, Col1A, Bsp And Mmp-8 In Alveolar Bone Socket Post Tooth Extraction Of Rat Wistar After Induced With Hydroxyapatite Bovine Tooth Graft
		ORA-09	Debby Saputera	Spectroscopy Structure Analysis Of Calcium Phosphate And Ellagic Acid
		ORA-10	Dr. Gilang Rasuna Sabdho Wening, Drg., M.Kes	Maternal Oral Health Literacy Role In Managing Children General & Dental Health Needs Related With Anxiety During The Covid-19 Pandemic
		ORA-11	Amalia Ramadhani Mufida	Benefit Of A Combination Of Vitamin D3, K2 And Uv-B Exposure For Increasing Bone Density: Simple Solution For Bone Health During Pandemic Covid-19
		ORA-12	Koichi Kato	Tandem Repeats Of Lysine And Leucine As A Peptide Tag For Protein Immobilization
		ORA-13	Nurul Aisyah Rizky Putranti	Effects Of Stem Cells From Human Exfoliated Deciduous Teeth Conditioned Media (Shed-Cm) On Metabolism Of Human Umbilical Vein Endothelial Cells (HuveCs) , Osteoblasts (Mct3T3-E1 Cells), And Bone Marrow Mesenchymal Stem Cells (HbmScs)
		ORA-14	I Gusti Putra Swabuana Purwiyudho	Characteristic Maxillofacial Trauma Incidence In Emergency Unit Dental Hospital Of Airlangga University Before And During Pandemic Covid-19
		ORA-15	Eiji Imado	Abnormal Pain Sensitivity In A Prenatal Valproic Acid-Induced Mouse Model Of Autism Spectrum Disorder
		ORA-16	Irfan Prasetyo	The Effect Of Cocoa Pod Husk And Green Tea On Smad3 And Fgf2 Expression In Exposed Dental Pulp

DAY 1: Friday, July 30<sup>th</sup>, 2021

Case Report

2	Case Report	CR-01	Ida Bagus Pramana Putra Manuaba	Management Of Herpes Zoster In Elderly In The Covid-19 Pandemic Era Through Telemedicine
		CR-02	Ni Wy Rima Tiara Wahyudiana	Management Of Breastfeeding Mother With Pyogenic Granuloma: A Case Report
		CR-03	Stefanus Ferry Setiawan	Treatment Of Non-Specific Inflammation Mimicking Oral Sarcoma: A Rare Case Report
		CR-04	Lani Berlina Talahatu	Management Of Patients With Aphthous Like Ulcer Et Causa Aplastic Anemia In The Covid-19 Pandemic Era : A Case Report
		CR-05	Eka Pramudita Djimantoro	Malocclusion Associated with Non-Union Mandible Resulting from Inadequate Fracture Treatment: A Case Report
		CR-06	Sergio Santoso	A Rare Case Of Juvenile Ossifying Fibroma
		CR-07	Maslah Siregar	Case Report: Xerostomia Patient With Type 2 Diabetes Mellitus
		CR-08	Kurnia Hayati Rahman	Burning Mouth Syndrome Associated With Gord
		CR-09	Olivier Maron Sahetapy	Labial And Palatal Approach For Removal Of Impacted Maxillary Canine Associated With Odontoma: A Case Report
		CR-10	Ari Hapsari Tri Wardani	Consideration Of The Need For Supporting Examinations In The Diagnosis Of Mumps
		CR-11	Dewati Ayusri Artha	Ameloblastoma : Hemimandibulectomy And Reconstruction With Costochondral Graft In Patient With Class Iii Angle'S Malocclusion And Anterior Open Bite : A Case Report And Review Of Literature
		CR-12	Defi Marizal	Spontaneous Coronoid-Like Growth After Hemimandibulectomy Of Ameloblastoma In Young Adult Patient: A Case Report

DAY 1: Friday, July 30<sup>th</sup>, 2021

Article Review

3	Article Review	RA-01	Brian Maulani	The Importance Of Saliva Total Protein And A-Amilase On Cerebral Palsy Children
		RA-02	Disti Ayulita	The Effectiveness Of Using Titanium Mesh With Collagen Membranes, Prf, And Ptf To Addition Of Vertical Bone Alveolar Implant Dental Therapy (Literature Review)
		RA-03	Elline	Hydrogel Scaffold In Pulp Dentin Complex Regeneration
		RA-04	Didin Mirandani	Clinical Dental Risk Management: The Needs And Challenges
		RA-05	Alit Rahma Estu	Correlation Between Oral Health Condition In Down Syndrome Children With Physical Fitness: A Literature Review
		RA-06	Nita Naomi	Role Of Salivary Nitric Oxide On Caries Status Of Children With Down Syndrome
		RA-07	Dyah Nawang Palupi Prتامawari	Parents' Socioeconomic Factors Affecting Willingness To Take Care Of Early Childhood Oral Health
		RA-08	Barnabas Bonardo	Teacher' S Role On Regular And Special Need Student' S Oral Health: A Narrative Review
		RA-09	Anastasia Elsa Prahasti	Computer Aided Drugs Discovery Utilization In Conservative Dentistry
		RA-10	Risma Aprinda Kristanti	Periodontitis Affects Skeletal Muscle Metabolism Through Increased Proinflammatory Cytokines
		RA-12	R Darmawan Setijanto	Comprehensive Clinical Dental Risk Management Through Dental Care Service Quality
		RA-13	Titiek Berniyanti	Lifestyle As A Risk Factor Of High Periodontis Prevalence With And Without Type 2 Dm In Surabaya
		RA-14	Fery Setiawan	Capsaicin As An Alternative Herbal Agent To Accelerate The Healing Process Of Fractured Bone (Review Article)
		RA-20	Dr Revati Shailesh Deshmukh	Intricacies Of Oral Cancer
		RA-21	Prashant Rao	Oral Manifestations And Pathogenesis Of Covid-19
		RA-22	Leonard Christiaan Nelwan	The Role Of Static Magnetic Healing Abutment In Osteoblastic Differentiation To Reduce Marginal Crestal Bone Loss
		RA-25	Nuzulul Hikmah	Association Between Glycated Hemoglobin Levels In Diabetes And Caries Risk

DAY 2: Saturday, July 31<sup>st</sup>, 2021

Original Research

1	Original Research	ORA-17	Fan Yi Chao	Remodeling Of The Sagittal Suture Development In Sost Knockout (Sost <sup>-/-</sup> ) Mice Associated With Cranial Flat Bone Growth
		ORA-18	Octarina	Physical Modification Of Bovine Amniotic Membrane For Dental Application
		ORA-19	Satoshi Asano	Regulation Of Cell Migration By Vasoactive Intestinal Peptide (Vip)-Vpac2 Receptor Signaling
		ORA-20	Isao Hirata	Development Of Micropore-Forming Polylactide Filaments For Use In 3D Printing
		ORA-21	Aulia Ramadhani	Relationship Between Periodontal Health And Adolescent Physical Performance
		ORA-22	Fumiko Nishio	A Comparative Study Of Radiopaque Property Of Polyetheretherketone Crown
		ORA-24	Fuminori Kato	Identification Of Toxin-Antitoxin Systems In Staphylococcus Aureus
		ORA-25	Kaijen Wakamatsu	Newly Development Of Porous Titanium Bone Reconstruction Material Which Enables Implant Treatment
		ORA-26	Putu Yuri Divina	Neurogenic Inflammation Pathway On The Up-Regulation Of Voltage-Gated Sodium Channel Nav1.7 In Experimental Flare Up Post Dental Pulpa Tissue Extirpation
		ORA-27	Stephanie Amel	Relationship Between Pre-Operative Hematological Profile With Wound Dehiscence Risk In Patient With Cleft
		ORA-28	Saifullah Amri	Utilization Of The Velo Questionnaire In Cleft Palate Surgery Evaluation For Patients In Remote Areas In Indonesia

DAY 2: Saturday, July 31<sup>st</sup>, 2021

Case Report

2	Case Report	CR-14	Ferdian Rizky Hutomo	Infected Dentigerous Cyst On A Totally Impacted Mesiodens: A Rarest Combination Of Two Ectopic Pathological Entities
		CR-15	Afryla Femilian	Clinical Appearance Of Acute Pseudomembranous Candidiasis In Children And The Importance Of Good Communication, Information And Education To Patients : A Case Report
		CR-16	Prisilla Mutiara Djehan Pattisahusiwa	A Consideration Of Surgical Vestibular Deepening In Bilateral Cleft Lip Repair: Serial Case
		CR-17	Nurmaifah	Impacted Maxillary Incisors: Surgery Or Conservative Management? Report Of Two Cases With Current Literature
		CR-19	Sumana Kunmongkolwut	Multifocal Oral Ebv-Positive Mucocutaneous Ulcers: A Case Report
		CR-20	Ronlada Porntirit	Temporomandibular Disorders From Ill-Fitting Dentures
		CR-21	Boosana Kaboosaya	The Efficacy Of Myofunctional Therapy Accompanied With Frenectomy And Developed Tongue Work(Out) From Home (Twfh)
		CR-22	Husnul Basyar	Benign Osteoblastoma Of The Mandible With Chronic Infection: A Rare Case
		CR-23	Phenbunya Siripajana	The Management Of Trigeminal Neuralgia Pain Provoked By Sleep Bruxism

### Undergraduate Students

3	Undergraduate students	ORA-01	Robiatul Firdaus	Inhibitory Effect Of Lemongrass Extract (Cymbopogon Citratus) In Supragingival Plaque Bacteria'S Growth In Gingivitis Patient
		ORA-40	Martining Shoffa Puspitaningrum	Active Compound From Indonesian Mangrove Leaves (Aegiceras Corniculatum) Extract Exploration For Herbal-Based Mouthwash Development
		RA-11	Pamela Handy	Intake Of Citrus Spp. And Its Relation In Decreased Head And Neck Cancer Risk: A Systematic Review
		RA-15	Kelvin Alfian Nola Anggrarista	Accuracy Of Velscope As An Early Diagnosis Instrument In Oral Potentially Malignant Disorders
		RA-16	Rafdan Affan Ahmada	Etiology And Risk Factors Of Oral Potentially Malignant Disorders (Opmd)
		RA-17	Yassir Ahmad Azzaim	Management Of Oral Candidiasis In People With Hiv
		RA-18	Galuh Damar Jati	Xerostomia In Elderly
		RA-19	Erine Tita Febrine	Management Of Angular Cheilitis In Elderly Patients
		RA-23	Natasya Fauzia Sukmawati	Xerostomia Risk Factors In The Elderly
		RA-24	Shalma Maulidya Hendrayanto	Potency Of Artificial Saliva For Reducing Xerostomia Symptoms In Elderly: Systematic Review

DAY 3: Sunday, August 1<sup>st</sup>, 2021

Original Research

1	Original Research	ORA-29	Noriaki Ide	Effect Of Nisin A Produced By Lactococcus Lactis To Clostridioides Difficile Strains
		ORA-30	Ristya Widi Endah Yani	The Impact Of Oral Health Seeking Behavior During Covid-19 Outbreak Toward Dental Caries Severity
		ORA-31	Mi Nguyen Tra Le	Bacteriocins Produced By Streptococcus Mutans: Distribution And Antimicrobial Activity
		ORA-32	Azusa Haruta	Isolation/Characterization Of Oral Antimicrobial-Resistant Gram-Negative Bacteria In Residents Of The Long-Term Care Facility
		ORA-33	Yuko Iwamoto	Oral Health Condition Survey Of Cambodian Public Primary School Children
		ORA-34	Tomoki Kumagai	The Engagement Of Gamma-Delta T Cells In Dental Pulp Mineralization Via IL-17A
		ORA-35	Desiana Radithia	Comprehension Gap On HIV/AIDS Oral Manifestations Among Undergraduate Students Of Dentistry And Management Economy In Universitas Airlangga
2	Original Research	ORA-36	Fatma Yasmin Mahdani	Prevalence Of Most Common Tongue Lesions Related To Degenerative Diseases In The Elderly
		ORA-38	Meenal Tepan	Organic Therapy For Oral Submucous Fibrosis
		ORA-39	Arti R. Gachake	Evaluation Of Dental Gypsum Waste Management (Recycling And Reuse) In A Dental College – A Innovative In-Vitro Study
		ORA-41	Naoki Sadaoka	Identification Of A Novel Resistant Factor Against Bacteriocin In Streptococcus Mutans
		ORA-43	Ameera Syafiqah Aly	Association Between Perception Of E-Cigarettes And Their Use In The Current And Ever Users Among Youth
		ORA-44	Rizwan Sanadi	Clinical Application Of Vitamin C In Melanin Hyperpigmentation Of Gingiva
3	Original Research	ORA-45	Dr Pushpanjali Das	Dna Image Cytometry Using A Velscope As A Possible Adjunct To Oral Biopsy
		ORA-47	Rokiah Mamikutty	Is The Waist Circumference Of Asian Children Associated With Dental Caries?
		ORA-48	Yuki Oda	The Effect Of Lactobacillus Rhamnosus L8020 On Periodontal Pathogens In Intellectually Disabled Individuals
		ORA-51	Yuriko Yoshida	Antibacterial Performance And Shock Absorbance Of Mouthguard Material Incorporated With Silver-Nanoparticles-Embedded Eva Masterbatch
		ORA-53	Shota Okazaki	Mandibular Lateral Deviation Detection Of Posteroanterior Cephalograms Using A Deep Learning Approach
		ORA-54	Nor Azlida Mohd Nor	A Content Analysis Of Fake Braces Advertisements On Instagram

# INVITED SPEAKERS



Prof. Noriyoshi  
Mizuno  
(Hiroshima  
University, Japan)



Dr. Yuichi Mine  
(Hiroshima  
University, Japan)



Dr. Yasushi Nakajima  
(Osaka Dental  
University, Japan)



Dr. Harly Prabowo  
(Universitas  
Airlangga,  
Indonesia)



Prof. Dr. I B  
Narmada  
(Universitas  
Airlangga,  
Indonesia)



Seong-Yong Moon,  
DDS, Ph.D  
(Chosun  
University,  
Gwangju, Korea)



Dr. Cortino Sukotjo  
(University of  
Illinois, USA)



Prof. Rajesh  
Ramasamy  
(Universiti Putra  
Malaysia,  
Malaysia)



Dr. Takaharu Abe  
(Hiroshima  
University, Japan)



Dr. Miki Matsuo  
(Hiroshima  
University, Japan)



Prof. Ajinkya Pawar  
(Nair Hospital  
Dental College,  
Mumbai, India)



Prof. Anuj Bhardwaj  
(College of Dental  
Sciences &  
Hospital Indore,  
India)



Prof. Marc Tennant  
(The University of  
Western Australia,  
Australia)



Prof. Lih-Jyh Fuh  
(China Medical  
University, Taiwan)



Dr. Yongsoo Kim  
(Diplomate,  
American Board  
of Periodontology)

## ORA-01

## INHIBITORY EFFECT OF LEMONGRASS EXTRACT (*Cymbopogon citratus*) IN SUPRAGINGIVAL PLAQUE BACTERIA'S GROWTH FOR GINGIVITIS PATIENT

Robiatul Firdaus<sup>1</sup>, Shafira Kurnia S.<sup>2</sup>, Agung Krismariono<sup>2</sup>

<sup>1</sup> Faculty of Dental Medicine Airlangga University, Surabaya, Indonesia.

<sup>2</sup>Departement of Periodontology Faculty of Dental Medicine Airlangga University, Surabaya, Indonesia.

### ABSTRACT

**Introduction:** Based on data from Riset Kesehatan Dasar 2018, prevalence of periodontitis in Indonesia is 74.1%. Gingivitis is a mild form of periodontal disease with inflammation of the gingival tissue. Generally gingivitis therapy is done with scaling root planning (SRP) and antibiotic medications. However, it can cause problems on the gingival, so alternative therapies are needed from lemongrass which contains essential oils, flavonoids, saponins, tannins and alkaloids as antibacterial. **Purpose:** The purpose of this research to determine the inhibitory effect of lemongrass extract (*Cymbopogon citratus*) in supragingival plaque bacterial's growth for gingivitis patients, which is in line with the third goal of the 2030 Sustainable Development Goals (SDGs), healthy and prosperous life. **Methods:** This research is a laboratory experimental study. The extract of lemongrass manufactured through maceration method and serial dilution method to obtain extracts with various concentrations. The inhibition effect test was carried out by spectrophotometric method with a specific wavelength. Minimum Inhibitory Concentration (MIC) value determined by the absorbance percentage using a spectrophotometer. **Results:** The absorbance percentage of supragingival plaque bacterial colonies in lemongrass plant extract with concentrations of 100%, 50%, 25%, 12.5%, 6.25%, 3.125%, 1.56%, 0.78% respectively were 87.8%, 83.1%, 78.6%, 76.7%, 50.8%, 30.9%, 17.9%, and 5.7% of the positive control. The statistical test results obtained a significance of 0.00 ( $p < 0.05$ ). **Conclusion:** Extracts of lemongrass (*Cymbopogon citratus*) have an inhibitory effect against the growth of supragingival plaque bacteria in gingivitis patients with Minimal Inhibitory Concentration (MIC) at 12,5% with 68,8% inhibition.

**Keywords:** Lemongrass, gingivitis, supragingival plaque bacteria, Minimum Inhibitory Concentration (MIC).

Correspondence: Robiatul Firdaus, Faculty of Dental Medicine Airlangga University, Surabaya, Indonesia, robiatul.firdaus-2020@fkg.unair.ac.id, 0895349194309

## ORA-02

# THE EFFECT OF THE APPLICATION OF MANGOSTEEN PEEL ECTRACT (GARCINIA MANGOSTANA L.) TOWARDS PDGF-B EXPRESSION ON HUMAN GINGIVAL FIBROBLAST CELL CULTURE AFTER WOUND HEALING SCRATCH TEST ASSAY (IN-VITRO STUDY)

Felicia Laurens Lesmana<sup>1</sup>, Gde Djodi Satria Rurus<sup>4</sup>, Naura Athiyyah Sativa<sup>4</sup>, Rozhaline Apriliany Fanddhy<sup>4</sup>, Indra Mulyawan<sup>2</sup>, Ni Putu Mira Sumarta<sup>2</sup>, David B. Kamadjaja<sup>2</sup>, Coen Pramono D<sup>2</sup>, Tobiumei Kei<sup>3</sup>, Andra Rizqiawan<sup>2</sup>

<sup>1</sup> Resident of Oral and Maxillofacial Surgery, Universitas Airlangga, Surabaya, Indonesia

<sup>2</sup> Department of Oral and Maxillofacial Surgery, Universitas Airlangga, Surabaya, Indonesia

<sup>3</sup> Department of Oral and Maxillofacial Surgery, Division of Cervico-Gnathostomology, Graduate School of Biomedical Sciences, Hiroshima University, Hiroshima, Japan

<sup>4</sup> Undergraduate Student, Universitas Airlangga, Surabaya, Indonesia

## ABSTRACT

**Background:** PDGF-B holds a major role towards fibroblast cell proliferation in wound healing processes. The enhancement of PDGF-B growth factor accelerates the migration and proliferation of fibroblast cells. Several researches in Indonesia recently utilizes natural ingredients for wound healing, mangosteen as an example. Mangosteen peel comprises of numerous benefits, one being to accelerate the proliferation of fibroblast cells. The application of mangosteen peel extract is able to suppress the inflammation process and accelerate cell proliferation. Scratch test also showed significant cell proliferation and migration, thus is expected to accelerate the wound healing process.

**Purpose:** To investigate the effect of mangosteen peel extract application towards PDGF-B expression on scratched Human Gingival Fibroblast cell culture. **Methods:** Human Gingival Fibroblast cell culture was divided into 4 categories: control of 24 and 48 hours, the treatment of 24 and 48 hours. All of the samples were initially scratched, followed by application of mangosteen peel extracts. The concentration used in the experiment is 800µg/ml followed by RNA extraction which was processed by PCR assay. **Result:** The 24 hours group, both control and treatment, showed a brighter band than the 48 hours group. **Conclusion:** The application of the mangosteen peel extract on Scratched Human Gingival Fibroblast Cell Culture increased the expression of PDGF-B during the first day (24 hours), and the expression was decreased on the second day (48 hours).

**Keywords:** PDGF-B, mangosteen peel, Human Gingival Fibroblast cell, wound healing scratch test, PCR

*Correspondence:* Andra Rizqiawan, DMD, PhD, OMFS. Department of Oral and Maxillofacial Surgery Universitas Airlangga. Prof. Dr. Moestopo no. 47 St., Surabaya, Indonesia. andra.ara@fkg.unair.ac.id. +6281390909100

ORA-03

## MOTHERS PARENTING PATTERN ON TOOTH BRUSHING BASED ON THE THEORY OF PLANNED BEHAVIOR IN BANJARBARU CITY

Widodo<sup>1</sup>, R. Darmawan Setijanto<sup>2</sup>, Taufan Bramantoro<sup>3</sup>

<sup>1</sup>. Department of Dental Public Health, Faculty of Dental Medicine, Universitas Lambung Mangkurat, Banjarmasin, Indonesia

Graduate Student of Doctoral Programe, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>2,3</sup>. Department of Dental Public Health, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

### ABSTRACT

**Background:** Mothers parenting behavior in brushing teeth affects childrens dental health. Measurement of maternal parenting based on the theory of planned behavior can be used to predict the strength or weakness of the intention to perform the behavior. **Purpose:** This research is to analyze the influence of the value of the elements of the theory of planned behavior, namely the value of attitudes, subjective norms and perceived control on the value of intentions and behavior of mothers parenting in brushing the teeth of children aged 6 years in the city of Banjarbaru. **Methods:** Observational analytic cross sectional with simple random sampling technique. A total of 82 mothers from first grade students at 3 elementary schools in the urban area of Banjarbaru were sampled. **Results:** The average value of attitudes:5.8, subjective norm: 4.8, perceived control: 5, intention: 7, and behavior: 20. Path analysis of path 1 model on the elements of the theory of planned behavior on intention: p-value = 0.0001. Path analysis of path 2 model on intention to behavior: p-value= 0.0001. **Conclusion:** There is an influence of elements of the theory of planned behavior on intentions. There is an influence of intention on behavior. Intention is a mediator of the influence of the elements of the theory of planned behavior on the behavior of brushing teeth parenting.

**Keywords:** attitude, subjective norms, perceived control, intention, behavior, mothers parenting

Corresponding Author: Widodo, Department of Dental Public Health, Faculty of Dental Medicine, Universitas Lambung Mangkurat, Jl. Veteran No. 128.B Banjarmasin Indonesia, email: [widodo@ulm.ac.id](mailto:widodo@ulm.ac.id) Mobile Phone number. +6281250412982

## ORA-04

**CELLULOSE FIBER FROM COCONUT COIR FOR DEVELOPMENT OF DENTAL COMPOSITE FILLER**

**Twī Agnita Cevanti<sup>1)</sup> & <sup>2)</sup>, Nur Shiyama Purnama Sari<sup>3)</sup>, Steella Ilham Isnaini<sup>3)</sup>, Mahardika F. Rois<sup>3)</sup>, Heru Setyawan<sup>3)</sup>, Adioro Soetojo<sup>\*2)</sup>, and Ira Widjiastuti<sup>2)</sup>**

<sup>1)</sup>Department of Dentistry, Hang Tuah University, Kampus UHT AR Hakim Surabaya 60111, Indonesia

<sup>2)</sup>Department of Conservation Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Surabaya 60132, Indonesia

<sup>3)</sup>Department of Chemical Engineering, Institut Teknologi Sepuluh Nopember, Kampus ITS Sukolilo Surabaya 60111, Indonesia

**ABSTRACT**

**Background:** Fiber-reinforced composite technology is currently being developed as an innovative solution. The fibers used today are synthetic which has many problems. That's why the potential of natural fibers is widely explored to replace synthetic fibers. **Purpose:** This study aims to treat cellulose obtained from coconut coir for use as filler for flowable composites in restoration-based applications. **Methods:** The method used was bleaching using NaOH and peroxide, cross-linking using NaOH and Urea, and nucleation using ethanol as an organic antisolvent before being dried by a sublimation process. **Results:** The morphology of the fibers produced and the antibacterial ability became the central point of the observation. The XRD test results formed identical C-N bonds with Nitrocellulose, and a double peak shift occurred at the main peak of cellulose. The FTIR test results showed the formation of a cross-linking bond between cellulose and Nitrogen from Urea to form fibers. The fiber morphology obtained from the SEM images showed that the cellulose from coconut coir fiber was in the form of short fibers measuring 111.95 - 155.2 micrometers with a rough surface and porous inside (hollow tube). The nucleation in 70% ethanol produced fiber and particulate appearance. Inhibition test results of cellulose-based on coconut coir fiber had inhibition of *S. mutans* bacteria where the nanocellulose had an inhibitory power. **Conclusion :** it can be suggested that fiber coconut coir could be used as a promising alternative filler composite in dental material.

**Keywords:** coconut coir, cellulose, fibers, filler, composite

**Correspondence:** Adioro Soetojo, Department of Conservation Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Surabaya 60132, Indonesia, [adioro-s@fkg.unair.ac.id](mailto:adioro-s@fkg.unair.ac.id), +62 81654515806

ORA-05

## MANDIBULAR CONDYLE: SHAPE AND SYMMETRY ON 4-19 YEARS OLD CHILDREN: AN ORTHOPANTOMOGRAPH EVALUATION

**Barnabas Bonardo, Tania Saskianti and Mega Moeharyono Puteri, Brian Maulani, Nita Naomi, Alit Rahma Estu**

Pediatric Dentistry Department, Faculty of Dental Medicine, Universitas Airlangga  
Surabaya, Jawa Timur, Indonesia

### ABSTRACT

**Background:** The prevalence of TMD (temporomandibular disorder) in children varies widely. TMD can cause permanent facial deformities, affect the occlusion and speech where these things will affect children's growth, development and quality of life. For prevention, early detection is needed. However, early detection is often not possible due to a lack of understanding of the normal shape of condyle. Research on the normal shape of condyle and symmetry in children has not been done much. **Purpose:** To evaluate the shape of normal condyles in a population of children aged 4-19 years, determine the most dominant shape and symmetry **Methods:** 220 mandibular condyles of 110 children aged 4-19 years (mean 11.4 years) were analyzed retrospectively using orthopantomograph. Condyle types in primary, mixed and permanent dentition were categorized according Yale (convex, rounded, flat, angled) and Chaudhry classification (oval, diamond, bird beak, crooked). Right and left mandibular condyle symmetry was observed according to a previous study by Ribeiro. **Results:** In primary, mixed, and permanent dentition the most dominant condyle shapes were (Yale, Chaudhry) 91.6% rounded, 100% oval; 95.8% rounded, 97.9% oval; 98% rounded, 97% oval respectively. Asymmetry right and left mandibular condyles were not found in primary dentition, 2 cases in mixed dentition and 3 cases in permanent dentition. **Conclusion:** In children aged 4-19 years, the normal condyles found are: rounded, convex, angled (Yale) and oval, diamond, bird beak (Chaudhry). The condyles are dominated by rounded and oval shapes. The incidence of asymmetry right and left mandibular condyles increases with age.

**Keywords:** Children, condyle shape, condyle symmetry, human & health

**Correspondence:** Tania Saskianti, Email: [tania-s@fkg.unair.ac.id](mailto:tania-s@fkg.unair.ac.id), Tel +6281232014445

## ORA-06

**SYNTHESIS OF CELLULOSE FIBER FROM COCONUT COIR AS POTENTIAL APPLICATION OF DENTAL FLOWABLE COMPOSITE FILLER**

**Twi Agnita Cevanti<sup>1 & 2</sup>, Mahardika F. Rois<sup>3</sup>, Nur Shiyama Purnama Sari<sup>3</sup>, Steella Ilham Isnaini<sup>3</sup>, Sella Ramadhani Alya Sasono<sup>3</sup>, Ghaly Muhammad Bahreisy Firdaus<sup>3</sup>, Heru Setyawan<sup>3</sup>, Adioro Soetojo<sup>2</sup>, and Ira Widjiastuti<sup>2</sup>**

<sup>1</sup>Department of Dentistry, Hang Tuah University, Kampus UHT AR Hakim Surabaya 60111, Indonesia

<sup>2</sup>Department of Conservation Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Surabaya 60132, Indonesia

<sup>3</sup>Department of Chemical Engineering, Institut Teknologi Sepuluh Nopember, Kampus ITS Sukolilo Surabaya 60111, Indonesia

**ABSTRACT**

**Background:** Natural fibers should be further developed for natural fiber technology as a composite reinforcement in the field of dental. But natural fibers have relatively poor interaction with the matrix and low durability. The adhesion becomes weaker between the highly hydrophilic natural fibers and the hydrophobic matrix. **Purpose:** This study aims to explore the potential of coconut coir to substitute the existing synthetic fiber as a dental flowable composite filler. A low modulus elasticity and crosslinking ability material required for the basis material would be fulfilled by coconut coir. **Methods:** Cellulose fiber from coconut coir was synthesized through delignification using an organic solvent, bleaching by peroxide in alkali, dissolve using alkali and crosslinking agent, and nucleating process through freeze-drying. The variation observed in this study was the concentration of ethanol as an antisolvent agent and the rate of nucleation. **Results:** Among the concentration studied, ethanol 96% showed the best nucleation ability of the cellulose, followed by 70% and 50%. Observing the SEM images, it was also found that the increase in nucleation rate caused the fiber became thinner and stronger. In contrast, the low nucleation rate caused the cellulose fibers tended to have a flake-like shape. XRD patterns of the samples showed the change in the crystalline phase of cellulose from amorphous (1b-cellulose) to crystalline (1a-cellulose) during chemical treatment. **Conclusion:** The coconut coir has high potential as raw material to be engineered as filler in a dental flowable composite.

**Keywords:** Cellulose, Coconut coir, Dental Composite, Filler

**Correspondence:** Adioro Soetojo, Department of Conservation Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Surabaya 60132, Indonesia [adioro-s@fkg.unair.ac.id](mailto:adioro-s@fkg.unair.ac.id)

ORA-07

**VALIDITY AND RELIABILITY OF IMPACT ON FAMILY SCALE FOR  
INDONESIAN CLEFT LIP AND PALATE PARENTS: A PILOT STUDY**

**Nizamiar Hanmi<sup>1</sup>, Reza Al Fessi<sup>2</sup>, Andra Rizqiawan<sup>2</sup>, David Buntoro Kamadjaja<sup>2</sup>**

<sup>1</sup> Graduate Student of Oral and Maxillofacial Surgery Department, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

<sup>2</sup> Department of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

**ABSTRACT**

**Introduction:** The condition of children with cleft lip and palate can affect the mental health of their parents or caregivers which has implications for the quality of life of children. The biggest impact on the family is the financial impact and the social impact. There are still limited instruments to measure the burden on parents of children with cleft lip and palate. A cross-sectional study was conducted in this study to test the validity and reliability of the Impact On Family Scale (IOFS). **Methods:** The IOFS questionnaire was translated into Indonesian by 2 bilingual translators. Data collection is done by filling out a questionnaire of 30 respondents during Community Service activities January 2018 – December 2019 conducted in Nusa Tenggara (Kupang Regency, Bima Regency, and Selong Regency). Scoring is done using a Likert scale. The validity test was carried out with the Pearson Bivariate test. The reliability test was carried out with the Chronbach's Alpha test. **Results:** The IOFS questionnaire was adapted into Indonesian and applied to respondents. A total of 31 statements showed validity  $r > 0.361$  ( $p < 0.05$ ) and 29 statements showed reliability  $> 0.6$  ( $p < 0.05$ ). **Conclusion:** Measurements using the IOFS adaptation method in this population obtained 27 valid and reliable questionnaire statements. This instrument can be applied to assess the burden of parents or caregivers who have children with cleft lip and palate in Nusa Tenggara, Indonesia. A total of 31 statements showed validity  $r > 0.361$  ( $p < 0.05$ ) and 29 statements showed reliability  $> 0.6$  ( $p < 0.05$ ).

**Keywords:** Cleft Lip and Palate, Quality of life, Validity, Reliability, Impact on Family scale

**Corresponding Author:**

Reza Al Fessi, drg., M. Ked.Klin., Sp.BM., Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Airlangga University. Jl. Major General Prof. Dr. Moestopo No. 47 Surabaya 60132, Indonesia. E-mail: [reza.al.fessi@fkg.unair.ac.id](mailto:reza.al.fessi@fkg.unair.ac.id), Tel: +621252368632

## THE PATTERN OF COLLAGEN, COL1A, BSP AND MMP-8 IN ALVEOLAR BONE SOCKET POST TOOTH EXTRACTION OF RATTUS NORVEGICUS STRAIN WISTAR AFTER INDUCED WITH HYDROXYAPATITE BOVINE TOOTH GRAFT

Nanik Zubaidah<sup>1\*</sup>, Yosefin Adventa<sup>2</sup>, Dian Dwi Pratiwi<sup>3</sup>, Latief Mooduto<sup>1</sup>, Ernie Maduratna Setiawati<sup>4</sup>, Sri Kunarti<sup>1</sup>

1. Department of Conservative Dentistry, Faculty of Dental Medicine Universitas Airlangga, Indonesia
2. Faculty of Dental Medicine Universitas Airlangga, Indonesia
3. Conservative Dentistry Specialist Program, Faculty of Dental Medicine Universitas Airlangga, Surabaya, Indonesia.
4. Department of Periodontology, Faculty of Dental Medicine Universitas Airlangga, Indonesia

### ABSTRACT

**Background:** Alveolar bone defects can occur as a result of tooth extraction and also endodontic surgical procedures such as hemisection. Regenerative dentistry by using bone graft is promising in clinical settings. **Aims:** To explore the increase of collagen density, type I collagen (Col1A), bone sialoprotein (BSP) and matrix metalloproteinase-8 (MMP-8) in alveolar bone socket post tooth extraction of Rattus Norvegicus strain Wistar after inducing with hydroxyapatite bovine tooth graft (HAp-BTG). **Methods:** Twenty eight Wistar rats were randomly divided into 2 groups, treatment and control and 2 sub-groups, day 14th and 28th. Extraction to the lower left incisor of Wistar rat was performed. The post extraction socket was filled with PEG as the control group and PEG+HAp-BTG as the treatment group. On 14<sup>th</sup> and 28<sup>th</sup> day, mandible the Wistar rats was taken. By using Masson's Trichrome staining on histopathological examination, the collagen density was observed using a microscope with 400x of magnification. The Col1A, BSP and MMP-8 were examined by immunohistochemistry, and observed by a light microscope 1000x magnification. **Results:** There is not significant different in collagen density between the treatment and control groups, whereas Col1A, BSP and MMP-8 were significantly different between treatment and control groups. It showed that HAp-BTG can induce the increasing of Col1A that has a pivotal role in strengthening the connective tissue in dental socket, rather than collagen in general. **Conclusion:** HAp-BTG has a potential to speed-up the recovery of dental socket post extraction and increase the strength of connective tissue by inducing Col1A.

**Keywords:** Bovine tooth graft, dental health, collagen, osteogenesis, bone regenerative

\*Corresponding author: Nanik Zubaidah, [nanik-z@fkg.unair.ac.id](mailto:nanik-z@fkg.unair.ac.id)

## SPECTROSCOPY STRUCTURE ANALYSIS OF ELLAGIC ACID AND CALCIUM PHOSPHATE

Debby Saputera<sup>1</sup>, Intan Nirwana<sup>2</sup>, Michael Josef Kridanto Kamadjaja<sup>3</sup>

<sup>1</sup> Student of Doctoral Study Program, Faculty of Dentistry, Airlangga University, Surabaya, East Java, Indonesia.

<sup>2</sup> Department of Dental Materials, Faculty of Dentistry, Airlangga University, Surabaya, East Java, Indonesia.

<sup>3</sup> Department of Prosthodontics, Faculty of Dentistry, Airlangga University, Surabaya, East Java, Indonesia.

### ABSTRACT

**Background :** Ellagic acid is a polyphenol found in pomegranates. has a stimulant of osteoblastogenesis, is osteoinductive and has anti-inflammatory properties. Bovine bone xenograft is osteoconductive, the property of the bone graft matrix that supports the attachment of bone-forming cells. Fourier Transform Infrared (FTIR) is an instrument that uses spectroscopic principles. Infrared spectroscopy is useful for the identification of organic compounds because of its very complex spectrum consisting of many peaks. **Purpose :** To determine the chemical bonds of ellagic acid, calcium phosphate and their combination to the spectrum of functional groups produced. **Method :** using FTIR characterization was carried out on ellagic acid powder, bovine bone xenograft powder and a combination of samples with a ratio of 50:50 **Result :** The FTIR results for the combination of ellagic acid and calcium phosphate showed a shift in wavenumber that could be analyzed. **Conclusion :** The results of the identification of functional groups in the combination of calcium phosphate and ellagic acid contain different functional groups and when combined the compounds are still strong in ellagic acid.

**Keywords :** calcium phosphate, ellagic acid, FTIR

Corresponding : Intan Nirwana, Department of Dental Materials, Faculty of Dentistry, Airlangga University, Surabaya, East Java, Indonesia. Kampus A, UNAIR, Jl. Mayjen Prof. Dr. Moestopo No.47 Pacar Kembang, Tambaksari, Surabaya City, East Java 60132. E-mail: [intan-n@fkg.unair.ac.id](mailto:intan-n@fkg.unair.ac.id). Phone: +62 31-5030255/ 5020256

## MATERNAL ORAL HEALTH LITERACY ROLE IN MANAGING CHILDREN GENERAL & DENTAL HEALTH NEEDS RELATED WITH ANXIETY DURING THE COVID-19 PANDEMIC

Gilang Rasuna Sabdho Wening,<sup>1</sup> Darmawan Setijanto<sup>2</sup>, Cahyo Pulunggono<sup>3</sup>, Mutiara Aryanita<sup>4</sup>, Eksa Arinda Pramesty<sup>5</sup>

<sup>1,2</sup> Dental Public Health Division, Faculty of Dental Medicine, Universitas Airlangga, Surabaya – Indonesia

<sup>3,4,5</sup> Dental Students, Faculty of Dental Medicine, Universitas Airlangga, Surabaya – Indonesia

### ABSTRACT

**Background:** A mother must prepare cognitive preparations to manage children's health status, especially on this covid-19 pandemic as it is today. Cognitive preparations, in this case, include the level of maternal oral health literacy, maternal nutritional literacy, and basic knowledge of efforts to prevent children's dental caries, which will later affect the health status of children, especially in aspects of dental and oral health including children's dental caries and child development. **Purpose:** To identify a model of the mother's cognitive readiness in managing the health status of growth and development, teeth, and children's mental readiness to visit health facilities during the COVID-19 pandemic, which will then be followed up by holding health programs in the form of interactive talk shows and distributing educational modules aimed at improving cognitive preparation mother. **Methods:** The study was conducted by providing a questionnaire link and informed consent and then being asked to answer based on the suitability of the questions. Furthermore, the data obtained will be collected, grouped, and processed by cross-tabulation using SPSS software. **Result:** Respondents with good oral health literacy were 50 respondents (50%), while those who were not good were 50 respondents (50%). Respondents with an excellent nutritional literacy level were 56 respondents (56%), while those who were less good were 44 respondents (44%). Respondents with a good level of basic knowledge in caries prevention efforts were 65 respondents (65%), while those who were less good were 35 respondents (35%). **Conclusion:** Some respondents still have less cognitive readiness. Therefore, empowerment programs were conducted by interactive Talkshow and educational modules as digital information guides. Resulting in improvement of cognitive readiness of respondents, and showing 84% increasing status in oral health literacy.

**Keywords:** oral health literacy, dental caries, health status, anxiety, Covid-19

*Correspondence:* Dr. Gilang Rasuna Sabdho Wening. DDS., MPH. Lecturer in Dental Public Health Division, Faculty of Dental Medicine, Universitas Airlangga, Surabaya – Indonesia. Email: [gilang-r-s-w@fkg.unair.ac.id](mailto:gilang-r-s-w@fkg.unair.ac.id)

## ORA-11

## BENEFIT OF A COMBINATION OF VITAMIN D3, K2 AND UV-B EXPOSURE FOR INCREASING BONE DENSITY: SIMPLE SOLUTION FOR BONE HEALTH

Sindy Cornelia Nelwan<sup>1</sup>, Udijanto Tedjosongko<sup>1</sup>, Satiti Kuntari<sup>1</sup>, Daniel Haryono Utomo<sup>2</sup>, Tania Saskianti<sup>1</sup>, Mega Moeharyono Puteri<sup>1</sup>, Devi Dharmawan<sup>1</sup>, Yufita Fitriani<sup>1</sup>, Pradita Agung Kurnia<sup>1</sup>, Amalia Ramadhani Mufida<sup>1</sup>, Nadhia Zahria Fajrin<sup>1</sup>, Retno Pudji Rahayu<sup>3</sup>, Nunthawan Nowwarote<sup>1,4</sup>

<sup>1</sup>Department of Pediatric Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

<sup>2</sup>Department of Dental Forensic, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

<sup>3</sup>Department of Oral Pathology and Maxillofacial, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

<sup>4</sup>Centre de Recherche des Cordeliers, INSERM UMRS 1138, Molecular Oral Pathophysiology, Université de Paris, Sorbonne Université, Paris-France

### ABSTRACT

**Background:** Bones and jaw require nutrients to maintain optimal bone density. Environmental and habitual factors affect 20 - 40 % of bone density and several nutrients such as vitamin D, especially for UV-B exposures that essential for bone growth. Inadequate bone nutrition in the developmental phase of children leads to bone deformities. Research of the impact of nutrition on bone strength historically geared towards minerals, vitamin D, protein, and vitamin K. Covid-19 pandemic increase all activities doing from home leads vitamin D deficiency. This study aims to examine the role of vitamin D3, K2 supplementation and UV-B exposure on bone density, reflected by the osteoblast cell formation. **Purpose:** The aim of this study is to evaluate the role of vitamin D3, K2 and UV-B exposure in osteoblast cells deposition. **Methods:** Pre and post-experimental laboratory study was conducted using Wistar rat (*Rattus norvegicus*), which were divided into six groups. 0.00045 mg/day of vit D and 0.81 mcg/day of vit. K2 were administered. 290-315 nm of UV-B was given 3x/week with 25 minutes each. Applying HE (Hematoxylin Eosin) test, the level of osteoblast cell was calculated after 21-day treatment. **Results:** Descriptive test result showed that the highest mean score was obtained from Vit D3+ K2 group. ANOVA test result showed sig < 0,05 ( $p < 0.05$ ), indicating a significant difference. **Conclusion:** Combination of vitamin D3 and K2 were significantly increase osteoblast cells formation.

**Keywords:** Vitamin D3; Vitamin K2 ; Osteoblast; Bone density

**Correspondence:** Sindy Cornelia Nelwan, Department of Pediatric Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia, [sindy-c-n@fkg.unair.ac.id](mailto:sindy-c-n@fkg.unair.ac.id), +62811346979.

## ORA-12

## TANDEM REPEATS OF LYSINE AND LEUCINE AS A PEPTIDE TAG FOR PROTEIN IMMOBILIZATION

Ayana Nakano<sup>1,2</sup>, Isao Hirata<sup>1</sup>, Binh Vinh Pham<sup>1,3</sup>, Ajay Shakya<sup>1,4</sup>, Kotaro Tanimoto<sup>2</sup>, Koichi Kato<sup>1,5</sup>

<sup>1</sup>Department of Biomaterials, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan

<sup>2</sup>Department of Orthodontics and Craniofacial Developmental Biology, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan

<sup>3</sup>Faculty of Odonto-Stomatology, Ho Chi Minh City University of Medicine and Pharmacy, Ho Chi Minh, Vietnam

<sup>4</sup>Department of Community Dentistry, Chitwan Medical College & Hospital, Tribhuvan University, Bharatpur, Nepal

<sup>5</sup>Nanomedicine Research Division, Research Institute for Nanodevice and Bio Systems, Hiroshima University, Higashi-Hiroshima, Japan

### ABSTRACT

**Introduction:** In search for peptide motifs that permits efficient immobilization of fusion proteins onto polymer surfaces under physiological conditions, a KLKLKLKLKL (KL5) decapeptide was designed and fused to epidermal growth factor (EGF), basic fibroblast growth factor (bFGF), and stromal cell-derived factor-1 $\alpha$  (SDF-1 $\alpha$ ). The present was directed to evaluate the feasibility of the KL5 peptide as peptide motif for protein immobilization. **Methods:** KL5-fusions with EGF, bFGF, and SDF-1 $\alpha$  were prepared through genetic engineering. The structure of these fusion proteins was analyzed by polyacrylamide electrophoresis, circular dichroism spectroscopy, and in silico structural prediction. Adsorption of fusion proteins were studied on several polymer surfaces by surface plasmon resonance analysis and bioassays using cultured human mesenchymal stem cells (hMSCs). **Results:** The result of structural analyses suggest that the KL5 peptide is exposed to the outside and has a negligible effect on the structure of the protein partners. However, it was found that the efficiency of KL5 as a peptide motif greatly depended on protein partners. Our results show that KL5 exerts most effectively its function as a peptide motif when fused to neutral proteins such as EGF. Indeed, the number of living hMSCs determined after 7-day culture was larger on the polystyrene and polycaprolactone surfaces with EGF tethered through the KL5 peptide than control surfaces. **Conclusion:** KL5 is useful as a peptide motif for tethering a specific class of protein partners.

**Keywords:** protein immobilization, genetic engineering, peptide motif, growth factor, mesenchymal stem cells

**Correspondence:** Koichi Kato, Department of Biomaterials, Graduate School of Biomedical and Health Sciences, Hiroshima University, 1-2-3 Kasumi, Minami-ku, Hiroshima, 734-8553 Japan, Email address: kokato@hiroshima-u.ac.jp, Phone number: +81-82-257-5645

## ORA-13

**EFFECTS OF STEM CELLS FROM HUMAN EXFOLIATED DECIDUOUS TEETH  
CONDITIONED MEDIA (SHED-CM) ON METABOLISM OF HUMAN UMBILICAL  
VEIN ENDOTHELIAL CELLS (HUVECS), OSTEOBLASTS (MCT3T3-E1 CELLS),  
AND BONE MARROW MESENCHYMAL STEM CELLS (HBMSCS)**

Nurul Aisyah Rizky Putranti<sup>1</sup>, Ryo Kunimatsu<sup>1</sup>, Tomoka Hiraki<sup>1</sup>, Kengo Nakajima<sup>1</sup>, Kodai Rikitake<sup>1</sup>, Takaharu Abe<sup>1</sup>, Kazuyo Ando<sup>1</sup>, Ayaka Nakatani<sup>1</sup>, Shuzo Sakata<sup>1</sup>, Kotaro Tanimoto<sup>1</sup>

<sup>1</sup>Department of Orthodontics and Craniofacial Developmental Biology, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan

**ABSTRACT**

**Background:** Stem cell from human exfoliated deciduous teeth conditioned media (SHED-CM) has been reported may be used as better alternative to bone regeneration therapy because it contains growth factor and cytokines. However, the effect of SHED-CM on the properties of various cell type are still unclear. **Purpose:** In this study, we investigate the effect of stem cell from human exfoliated conditioned media (SHED-CM) on the properties of various cell type and its utility in bone tissue regeneration. **Methods:** Stem cell were isolated from deciduous tooth and was cultured. The effects of vascular endothelial growth factor (VEGF) in SHED-CM on the luminal architecture, proliferative ability and angiogenic potential of human umbilical vein endothelial cells (HUVECs) were determined. The effects of SHED-CM on the proliferation of human bone marrow mesenchymal stem cells (hBMSCs) and mouse calvarial osteoblastic cells (MCT3T3-E1), and their expression of ALP, OCN and RUNX2 were investigated. **Results:** VEGF blockade in SHED-CM, suppressed the proliferative capacity and angiogenic potential of HUVECs, indicating that VEGF in SHED-CM accelerated cell growth and enhanced the mRNA expression of ALP, OCN and RUNX2 **Conclusion:** SHED-CM promoted the metabolism of HUVECs, MC3T3-E1 cells and hBMSCs, indicating its utility in bone tissue regeneration therapy.

**Keywords:** Stem cell from human exfoliated deciduous teeth conditioned media (SHED-CM), Stem cell therapy, bone tissue regeneration, Angiogenesis

**Correspondence:** Ryo Kunimatsu D.D.S., Ph.D,  
Department of Orthodontics and Craniofacial Developmental Biology, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan  
[ryokunimatsu@hiroshima-u.ac.jp](mailto:ryokunimatsu@hiroshima-u.ac.jp)  
+81 82 257 5686

**ORA-14**

**CHARACTERISTIC MAXILLOFACIAL TRAUMA INSIDENCE IN EMERGENCY UNIT DENTAL HOSPITAL OF AIRLANGGA UNIVERSITY BEFORE AND DURING PANDEMIC COVID 19**

**I G Putra Swabuana Purwoyudho<sup>1</sup>, M. Subhan Amir<sup>2</sup> and Ganendra Anugraha<sup>2</sup>**

<sup>1</sup>Residency Program of Oral and Maxillofacial Surgery Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

<sup>2</sup>Departement of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

**ABSTRACT**

Maxillofacial Trauma is one of dental emergency cases that should be treated immediately to prevent any further complication. During the pandemic covid-19, Indonesian government released regulation for citizen to stay at home thus consequently, the visitor attendance to health facilities has been decreased due to awareness of cross transmission of Sars Cov-2 Virus. The aim of the study was to compare the incidence of maxillofacial trauma cases during and before pandemic covid-19. We initiated a retrospective study to monitor the presentation of maxillofacial trauma cases in dental hospital of Airlangga University. Data were collected from the medical record between March until November 2020 and compared with 9 months before pandemic, June 2019 until February 2020. There was a significant decrease in the number of visits (78 %) during pandemic than before. 19 visits during pandemic with the highest incidence in March (6 cases) compared with 41 visits before pandemic with the highest incidence in January (12 cases). Before pandemic the highest cases were Fracture with 65% cases, 60% laceration, 17% Avulsion and 29% miscellaneous. During pandemic, there was a difference in composition with laceration was the highest cases 47% followed by fracture 42%, avulsion 10% and 15% miscellaneous. The occurrence of the Covid-19 pandemic in Indonesia caused a change in the general picture of dental and oral health services, namely a decrease in the number of patients and also distribution of cases. This data is very important in retrieval related to dental and oral health services, especially to reduce the complication of maxillofacial trauma cases in the future.

**Keywords:** Maxillofacial, Emergency, Trauma, Covid-19

**Corresponding Author:**

Ganendra Anugraha, drg., Sp.BM., FICS

Email: ganendra@fkg.unair.ac.id

Departemen Bedah Mulut dan Maksilofasial, Fakultas Kedokteran Gigi Universitas Airlangga Surabaya, Jl Mayjen Prof. Dr. Moestopo 47 (60132)

Tel : 08563068016

ORA-15

**ABNORMAL PAIN SENSITIVITY IN A PRENATAL VALPROIC ACID-INDUCED MOUSE MODEL OF AUTISM SPECTRUM DISORDER**

**Eiji Imado<sup>1,2</sup>, Sun Samnang<sup>3</sup>, Abrar Rizal Abawa<sup>3</sup>, Satoshi Asano<sup>1,3</sup>, Kazuhiro Tsuga<sup>3,4</sup>, Masahiro Irifune<sup>2,3</sup>, Yukio Ago<sup>1</sup>**

<sup>1</sup>Department of Cellular and Molecular Pharmacology, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan

<sup>2</sup>Department of Dental Anesthesiology, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan

<sup>3</sup>School of Dentistry, Hiroshima University, Japan

<sup>4</sup>Department of Advanced Prosthodontics, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan

**ABSTRACT**

**Introduction:** Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by asynchronous development in several areas such as communication, social behaviors, cognitive capabilities, and sensory responsiveness. Among the sensory abnormalities recognized as important features of ASD is either heightened or reduced sensitivity to pain. Individuals with ASD may experience pain in unusual ways, but mechanisms underlying altered pain sensitivity and processing in ASD remain unknown. In the present study, we investigated the behavioral responses to noxious and non-noxious stimuli in a prenatal valproic acid (VPA)-induced mouse model of ASD and subsequently analyzed the pain signaling. **Methods:** Pregnant ICR mice were intraperitoneally injected with either VPA (500 mg/kg) or saline on embryonic day 12.5. Nociceptive effects were evaluated using the hot plate test. Tactile threshold was determined by von Frey test. **Results:** Male offspring of VPA-treated mothers showed thermal hyperalgesia and mechanical allodynia. Intraplantar injection of capsaicin, a TRPV1 agonist, evoked pain-related behaviors such as licking or biting the injected paw, and these effects were enhanced in VPA-treated male offspring. In contrast, altered pain sensitivity was not observed in female offspring of VPA-treated mothers. In the dorsal horn of the spinal cord in prenatal VPA-treated male offspring, the numbers and staining intensities of Iba1-positive cells were increased and the cell bodies became enlarged, indicating the microglial activation. **Conclusion:** These findings suggest that prenatal VPA treatment causes hyperalgesia and allodynia in a sex-dependent manner. Prenatal VPA-treated mice might be a useful model for future investigations into the pathologic mechanisms contributing to ASD.

**Keywords:** autism spectrum disorder (ASD), valproic acid (VPA), hyperalgesia, allodynia, microglia

**Corresponding Author:**

Name Yukio Ago

Email: yukioago@hiroshima-u.ac.jp

Tel: +81-82-257-5640

ORA-16

**THE EFFECT OF COCOA POD HUSK AND GREEN TEA ON SMAD3 AND FGF2 EXPRESSION IN EXPOSED DENTAL PULP**

**Tamara Yuanita<sup>1</sup>, Irfan Prasetyo<sup>2</sup>, I Dewa Ayu Listiana<sup>2</sup>, Irma Drismayanti<sup>2</sup>, Galih Sampoerno<sup>1</sup>**

<sup>1</sup> Lecturer at the Department of Conservative Dentistry, Faculty of Dental Medicine, Airlangga University, Indonesia

<sup>2</sup> Conservative Dentistry Specialist Education Program, Faculty of Dental Medicine, Airlangga University, Indonesia

**ABSTRACT**

**Background:** Direct pulp capping employing calcium hydroxide has been used to maintain the health and vitality of the pulp and encourage pulp cells to form reparative dentin. Calcium hydroxide was recommended as a material of direct pulp capping because it has beneficial properties. However, calcium hydroxide has also several weaknesses. Cocoa pod husk and green tea contain high polyphenols which are useful as antibacterial, anti-inflammatory, and antioxidant properties. Calcium hydroxide combined with cocoa pod husk extract and green tea extract is expected to increase the effectiveness of calcium hydroxide as a pulp capping material. **Purpose:** This research aims to prove the effect of cocoa pod husk and green tea extract on the Smad3 and FGF2 expression in mice perforation dental pulp. **Methods:** A total of 54 rats were used in this study, then the study sample was divided into three groups consisting of group given calcium hydroxide treatment with distilled water, next group given calcium hydroxide with cocoa pod husk extract and last group given calcium hydroxide with green tea extract, then cavities are restored. On days 3<sup>rd</sup>, 7<sup>th</sup> and 14<sup>th</sup>, experimental animals from each treatment group were killed to see the Smad3 and FGF2 expression. **Result:** Data analysis with Tukey HSD test showed no significant difference for Smad3 and FGF2 expression on two test group. **Conclusion:** Cocoa pod husk and green tea extract have the same ability to increase the Smad3 and FGF2 expression in exposed dental pulp.

**Keywords:** antioxidant, cocoa pod, green tea, Smad3, FGF2

**Corresponding author:** Tamara Yuanita, Department of Dental Conservative Dentistry, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia, Phone: +628155130747, email [tamara-y@fkg.unair](mailto:tamara-y@fkg.unair)

ORA-17

## REMODELING OF THE SAGITTAL SUTURE DEVELOPMENT IN SOST KNOCKOUT (SOST<sup>-/-</sup>) MICE ASSOCIATED WITH CRANIAL FLAT BONE GROWTH

FanYi Chao,<sup>1</sup> Kazutaka Ikeda<sup>2</sup>, Shinnosuke Higuchi<sup>3</sup>, Kotaro Tanimoto<sup>2</sup>, Chisa Shukunami<sup>3</sup>, Saiji Shimoe<sup>1</sup>, Masato Kaku<sup>1</sup>

<sup>1</sup>Department of Functional Restorations, Hiroshima University Graduate School of Biomedical and Health Sciences, Hiroshima, Japan

<sup>2</sup>Department of Orthodontics, Hiroshima University Graduate School of Biomedical and Health Sciences, Hiroshima, Japan

<sup>3</sup>Department of Molecular Biology and Biochemistry, Basic Life Sciences, Institute of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan

### ABSTRACT

**Background:** Several studies have demonstrated that sutures are areas of cranial growth and development. Sclerostin, which was encoded by *SOST* gene, suppresses bone formation by inhibiting the Wnt/ $\beta$ -catenin signaling pathway. Loss-of-function mutations of *SOST* gene in *Sost*<sup>-/-</sup> mice resulted in increased bone formation, leading to thickening of the calvaria. **Purpose:** The present study was performed to examine the histological changes associated with growth of the sagittal sutures in *Sost*<sup>-/-</sup> mice. **Methods:** Five male wild-type controls and *Sost*<sup>-/-</sup> mice were sacrificed at 10, 15, 30, 60 days after birth. Their calvarias were fixed in 4% Paraformaldehyde for 1 day at 4°C and rinsed in phosphate buffer. The specimens were decalcified in 18% EDTA for 2 weeks at 4°C, dehydrated, and embedded in paraffin. The skulls were cut on the frontal plane into 7  $\mu$ m thick sections. These sections were stained with tartrate-resistant acid phosphatase (TRAP), counterstained with hematoxylin, and observed microscopically. Cranial bone thicknesses were measured using Keyence BZ-X800 Analyzer software (KEYENCE, Osaka, Japan). **Results:** The *Sost*<sup>-/-</sup> mice presented relatively narrow suture widths compared with the age-matched WT controls. In the 10-day-old *Sost*<sup>-/-</sup> mice, the sutures displayed synostosis. In the 15-day-old *Sost*<sup>-/-</sup> mice, the sutures showed stenosis. As many osteoclasts in the sagittal sutures, higher growth rates of cranial bone, and thicker bone plates were observed in *Sost*<sup>-/-</sup> mice. **Conclusion:** Our findings demonstrate that loss-of-function mutations of the *SOST* gene have an anabolic effect on bone remodeling, which may be related to the abnormality of calvaria in *Sost*<sup>-/-</sup> mice.

**Keywords:** Cranial Sutures; Bone Development; Gene Knockout; *Sost* protein; Craniosynostoses

### Correspondence:

Name: Masato Kaku

Affiliation: Department of Functional Restorations, Hiroshima University Graduate School of Biomedical and Health Sciences, Hiroshima, Japan

Email address: mkaku@hiroshima-u.ac.jp

Tel: +81-80-257-5442

## ORA-18

## PHYSICAL MODIFICATION OF BOVINE AMNIOTIC MEMBRANE FOR DENTAL APPLICATION

Octarina<sup>1,2</sup>, Elly Munadziroh<sup>3</sup> and Fathilah Abdul Razak<sup>4</sup><sup>1</sup>Student of Doctoral Program, Faculty of Dental Medicine, Universitas Airlangga, Surabaya 60132, Indonesia<sup>2</sup>Department of Dental Material, Faculty of Dentistry, Universitas Trisakti, Jakarta 11440, Indonesia<sup>3</sup>Department of Dental Material, Faculty of Dental Medicine, Universitas Airlangga, Surabaya 60132, Indonesia<sup>4</sup>Department of Oral and Craniofacial Sciences, Faculty of Dentistry, Universitas of Malaya, Kuala Lumpur 50603, Malaysia**ABSTRACT**

**Background:** Collagen sponge are used as biomaterial in the field of tissue engineering. Bovine amniotic membrane (BAM) contains collagen and growth factors that will accelerate wound healing after dental extraction procedure. The physical structure of the BAM in the form of a thin sheet will be difficult when applied to the extraction socket. **Purpose:** The aims of this study was to modify the physical structure of BAM in the form of a thin sheet into a sponge after that analyze its characteristics by SEM and FTIR. **Methods:** Fresh BAM was washed and divided into 2 parts. The first part in the form of sheets is immediately freeze dried. The second part was cut into pieces then added PBS in a ratio of 1:1. BAM and PBS are then blended until they form a slurry and are sticky like jelly, then freeze drying. After fabrication BAM and modified BAM, then it characterized by FTIR and SEM. **Result:** The result of fabrication BAM looks like a thin sheet, while the modified BAM looks like a sponge that has a porous structure by using SEM analysis. FTIR analysis showed the collagen content in the presence of functional groups amide A, Amide B, amide I, amide II, amide III in BAM and modified BAM. **Conclusion:** In this study, modification of BAM will form a porous physical structure like a sponge without losing its collagen as main component.

**Keywords:** biomaterial, bovine amniotic membrane, physical modification, characteristic analysis

*Correspondence:*

Prof. Elly Munadziroh,

Department of Dental Material, Faculty of Dental Medicine, Universitas Airlangga, Surabaya 60132, Indonesia. Email address: [elly-m@fkg.unair.ac.id](mailto:elly-m@fkg.unair.ac.id). Phone number: +6231-5030255

## ORA-19

## REGULATION OF CELL MIGRATION BY VASOACTIVE INTESTINAL PEPTIDE (VIP)–VPAC2 RECEPTOR SIGNALING

Satoshi Asano<sup>1,2</sup>, Misa Yamasaka<sup>1</sup>, Kairi Ozasa<sup>1</sup>, James A. Waschek<sup>3</sup>, Yukio Ago<sup>1,2</sup>

<sup>1</sup> School of Dentistry, Hiroshima University, Hiroshima, Japan

<sup>2</sup> Department of Cellular and Molecular Pharmacology, Division of Basic Life Sciences, Institute of Biomedical and Health Sciences, Hiroshima University, Japan

<sup>3</sup> Department of Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine, Semel Institute for Neuroscience and Human Behavior, University of California, Los Angeles, CA, USA

### ABSTRACT

**Introduction:** Phosphoinositide (PI) metabolism is critically involved in cell migration, and its functional breakdown promotes cancer cell migration and metastasis. Lamellipodia are formed at the leading edge of migrating cells, and lamellipodium formation is regulated by the metabolism of PI(4,5)P<sub>2</sub>, an inositol phospholipid, into PI(3,4,5)P<sub>3</sub>. The synthesized PI(3,4,5)P<sub>3</sub> promotes the translocation of WASP family verprolin homologous protein-2 (WAVE2) to the plasma membrane and regulates Rac-mediated actin filament remodeling. WAVE2 drives lamellipodium formation by enhancing actin nucleation via the actin-related protein 2/3 (ARP2/3) complex. In the present study, we investigated whether VPAC2/VIPR2, a receptor for vasoactive intestinal peptide (VIP), has a potential role in regulating cell migration. **Methods:** Cell migration was investigated by random migration or transwell migration assay. WAVE2 localization was examined by immunostaining with anti-WAVE2 antibody. The interaction between WAVE2, ARP3 and actin was examined by immunoprecipitation. **Results and Conclusion:** We first demonstrated that VIP induced the phosphorylation of AKT, a downstream molecule of PI(3,4,5)P<sub>3</sub>, through the VPAC2 receptor. Silencing of VPAC2 in human breast cancer cells MCF-7 inhibited VIP-induced cell migration. In contrast, the overexpression of VPAC2 enhanced cell migration. In MDA-MB-231 breast cancer cell line, overexpressed VPAC2 was accumulated to lamellipodia and colocalized with WAVE2. Conversely, VPAC2 silencing reduced the expression of WAVE2 and PI(3,4,5)P<sub>3</sub> on the plasma membrane. Additionally, VPAC2 silencing reduced the interaction between WAVE2, ARP3, and actin. In conclusion, our results suggest that VIP–VPAC2 receptor signaling controls tumor migration by regulating WAVE2-mediated actin nucleation and elongation for lamellipodium formation through the synthesis of PI(3,4,5)P<sub>3</sub>.

**Keywords:** cell migration, phosphatidyl inositol, vasoactive intestinal peptide (VIP), VPAC2, WASp family Verprolin-homologous protein-2 (WAVE2)

### Corresponding Author:

Yukio Ago

Email: yukioago@hiroshima-u.ac.jp

Tel: +81-82-257-5640

## DEVELOPMENT OF MICROPORE-FORMING POLYLACTIDE FILAMENTS FOR USE IN 3D PRINTING

**Isao Hirata and Koichi Kato**

Department of Biomaterials, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima – Japan

### ABSTRACT

**Introduction:** The purpose of this study is to expand the variation of filaments for biodegradable scaffold modeling. The mechanical strength and biodegradation rate of polylactic acid (PLA) can be adjusted by introducing micropores inside. We report on the fabrication of 3D-printed PLA filaments aimed at introducing micropores into the biodegradable scaffold. **Materials & Methods:** Sodium chloride (NaCl) and PLA pellets were grinded using a mill. These pulverized products were kneaded with a twin-screw extruder to produce kneaded pellets. A 1.75 mm diameter NaCl kneaded PLA composite filament was fabricated from the kneaded pellets using a single screw extruder. The composite filaments were loaded into a 3D printer to produce NaCl-kneaded PLA 3D printed bodies. The composite filaments and printed bodies were immersed in water, and the elution weights of NaCl inside were measured. The pellets, the filaments, and the 3D printed bodies were observed by X-ray CT. **Results:** By immersing the 3D printed bodies in water, the clarity printed bodies became cloudy and the weight of the printed bodies decreased significantly. From these results, it is considered that NaCl particles in the printed bodies dissolved and became micropores. In addition, as a result of X-ray CT, micropores were found from the tomogram that almost all NaCl in the print was eluted. **Conclusion:** It is possible to control the porosity of 3D printed body by changing the amount of NaCl mixed during the preparation of NaCl-kneaded PLA filaments.

**Keywords:** 3D printer, composite filament, scaffold, micropore, porosity

**Correspondence:** Isao Hirata, Department of Biomaterials, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima – Japan, isao@hiroshima-u.ac.jp, +81-82-257-5648

ORA-21

**RELATIONSHIP BETWEEN PERIODONTAL HEALTH AND ADOLESCENT PHYSICAL PERFORMANCE**

**Aulia Ramadhani<sup>1,2</sup>, Aryo Dwipo Kusumo<sup>1,2</sup>**

<sup>1</sup>Department of Dental Public Health, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>2</sup>Master Student of Health Policy and Administration, Faculty of Public Health, Universitas Airlangga, Surabaya, Indonesia

**ABSTRACT**

**Background:** Oral health problems, including periodontal tissue problems, are important issues that need attention because they can affect a person's quality of life and performance. The prevalence of the periodontal disease in all age groups in Indonesia is 96.58%. **Purpose:** This study aims to determine the effect of periodontal disease on adolescent physical performance. **Methods:** This research was conducted in an analytic observational manner. The population of this research is adolescents aged 12-14 years in junior high schools in Surabaya, East Java, Indonesia as many as 101 students. Data collection used the Modified Gingival Index (MGI) method and the International Physical Activity Questionnaire (IPAQ). The data analysis used was the ETA correlation test. **Results:** In the distribution of dental health knowledge, most of the respondents had a low level of knowledge of 88.1%, low physical activity of 44.6%, and good gingival health based on the Modified Gingival Index of 52.5%. **Conclusion:** There is a significant difference in the level of respondents' Modified Gingival Index based on the respondent's experience of getting dental and oral care and the last time he received dental and oral care.

**Keywords:** Gingival Index, Adolescent, Physical Examination, Physical Activity

**Correspondence:** Aulia Ramadhani. Department of Dental Public Health, Faculty of Dental Medicine, Universitas Airlangga, Surabaya. Jl. Mayjen Prof. Dr. Moestopo No.47, Surabaya, Indonesia. Email: aulia.ramadhani@fkg.unair.ac.id. Phone: (+6231) 5030255

## ORA-22

## A COMPARATIVE STUDY OF RADIOPAQUE PROPERTY OF POLYETHERETHERKETONE CROWN

Nishio F<sup>1</sup>, Morita K<sup>1</sup>, Abekura H<sup>1</sup>, Yamaoka H<sup>2</sup>, Kakimoto N<sup>3</sup>, Tsuga K<sup>1</sup><sup>1</sup>Department of Advanced Prosthodontics, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan.<sup>2</sup>Section of Imaging Diagnosis, Department of Clinical Support, Hiroshima University Hospital.<sup>3</sup>Department of Oral and Maxillofacial Radiology, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan.**ABSTRACT**

**Background:** Polyetheretherketone (PEEK) is a high-performance plastic that is attracting attention as a substitute material for dental prosthetic metal. In recent years, many studies for clinical application of PEEK have been reported. However, there have been only a few reports on the radiopaque properties of PEEK in dentistry, and as a result, it may be difficult to identify and remove crown of unknown radiopaque properties if they are accidentally ingested or aspirated. **Purpose:** The purpose of this study was to investigate the physical and the radiopaque properties with four type crowns of full metal cast crown (FMC), CAD/CAM zirconia crown (ZC), CAD/CAM hybrid resin crown (HRC) which are currently widely used in clinical practice and CAD/CAM PEEK crown (PC) which would be new substitute material for dental prosthetic metal. **Methods:** Firstly, four types of crowns with similar shapes, FMC, ZC, HRC, and PC, were fabricated using standard procedures. Secondly, density and Vickers hardness tests for these crowns were measured. Finally, X-rays and computed tomography scan (CT) were taken. **Results:** The density measured value was larger in the order of FMC, ZC, HRC, and PC. The Vickers hardness value were larger in the order of ZC, FMC, HRC, and PC. PEEK was found to have very few artifacts in CT, although the X-ray contrast was lower than the other crowns. **Conclusion:** This result suggested enough to detect the accidental ingested and aspirated PEEK crown in the clinical site.

**Keywords:** polyetheretherketone, radiopaque, property material

**Correspondence:**

Name: Fumiko Nishio

Email: fumiko0708@hiroshima-u.ac.jp

Tel: +81-82-257-5677

ORA-23

**VALIDITY AND RELIABILITY OF THE VELOPHARYNGEAL INSUFFICIENCY EFFECTS ON LIFE OUTCOMES (VELO) QUESTIONNAIRE AS AN INSTRUMENT FOR EVALUATING THE SURGICAL OUTCOMES FOR CLEFT PALATE PATIENTS**

**Annisa Fardhani<sup>1</sup>, Muhammad Subhan Amir<sup>2</sup>**

<sup>1</sup> Resident of Oral and Maxillofacial Surgery, Universitas Airlangga, Surabaya, Indonesia

<sup>2</sup> Department of Oral and Maxillofacial Surgery, Universitas Airlangga, Surabaya, Indonesia

**ABSTRACT**

Introduction: Cleft palate is the most common cause of velopharyngeal insufficiency (VPI). Treatment options for VPI consist of surgery or prosthetic management, supplemented with speech therapy. One of parameter to asses treatment outcomes is quality of life that describing a person's well-being. The Velopharyngeal Insufficiency Effects on Life Outcomes (VELO) instrument was developed to capture the effects of VPI on patients' lives after the treatment. We aim to adopt the VELO instrument for Indonesian patients. Methods: The original VELO questionnaire consisted of children VELO for  $\geq 8$  years old patients (5 instrument, 23 questions) and parent VELO for  $< 8$  years old patients (6 instrument, 26 questions) were translated to Indonesian language. All patients or their parents completed the VELO questionnaire 6 months after surgery. VELO score were tabulated and tested for validity and reliability using Pearson's correlation and Cronbach's alpha. Results: Six children and 14 parent were able to complete the questionnaire independently. Thirteen questions from children VELO and 12 questions from parent VELO passed the validity test ( $R_{xy} > R_{table}$ ). Children VELO had perfect Reliability (Cronbach  $\alpha$  0.945) and parent VELO had strong Reliability (Cronbach  $\alpha$  0.886). Conclusion: The translation of VELO questionnaire showed moderate validity for children VELO and low validity for parent VELO; both demonstrated good reliability.

**Keywords:** Surgical outcome, cleft palate, velopharyngeal insufficiency, VELO questionnaire.

**Corresponding Author:**

Muhammad Subhan Amir

Email: subhan.fkgunair@gmail.com

Tel: +6282264793464

ORA-24

## IDENTIFICATION OF TOXIN-ANTITOXIN SYSTEMS IN STAPHYLOCOCCUS AUREUS

Fuminori Kato<sup>1</sup>, Masayori Inouye<sup>2</sup>

<sup>1</sup>Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima City, Japan

<sup>2</sup>Center for Advanced Biotechnology and Medicine, Rutgers-RWJMS, Piscataway, New Jersey, USA

### ABSTRACT

**Background:** Bacterial toxin-antitoxin (TA) systems are widely distributed in bacteria and consist of a toxin that self-inhibits essential cellular functions (e.g., DNA replication, transcription, translation) and an antitoxin that neutralizes its cognate toxin. TA systems play important physiological roles in various biological processes, including pathogenicity, biofilm formation, and persister cell formation in the presence of antibiotics. *Staphylococcus aureus* is a Gram-positive pathogenic bacterium causing various diseases including minor skin infections to life-threatening diseases. Multidrug-resistant strains, including methicillin-resistant *S. aureus*, make therapy against *S. aureus* infections increasingly difficult. **Purpose:** In this study, we aimed to identify and characterize novel TA systems in *S. aureus*. **Methods:** Using a combination of manual base-by-base screening of the entire genome and gene operon prediction, we first identified eight potential candidates for TA systems on the chromosome of *S. aureus*, and then demonstrated that four of the eight were novel TA systems by a host killing-rescue assay in *Escherichia coli* and *S. aureus*. We further characterized the function of toxin protein. **Results:** We newly identified four TA systems in *S. aureus*. The four newly identified TA systems did not exhibit sequence similarity to already-known bacterial TA systems and their homologues were present in other *Staphylococcus* species, indicating their uniqueness to staphylococci. **Conclusion:** We believe that our study makes a significant contribution to the literature because our methods could potentially be used to identify unannotated TA systems in other species of bacteria.

**Keywords:** Bacteria, hypothetical gene, cell death,

Correspondence: Fuminori Kato

Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima City, Japan

Email: fkyato@hiroshima-u.ac.jp

Tel: +81-822571975

## ORA-25

## NEWLY DEVELOPMENT OF POROUS TITANIUM BONE RECONSTRUCTION MATERIAL WHICH ENABLES IMPLANT TREATMENT

**Kaien Wakamatsu, Kazuya Doi, Reiko Kobatake, Yusuke Makihara, Yoshifumi Oki, Hanako Umehara, Takayasu Kubo and Kazuhiro Tsuga**

Department of Advanced Prosthodontics, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima - Japan.

### ABSTRACT

**Background:** Porous titanium (Ti) is used for the reconstruction of large bone defects due to its excellent biocompatibility and mechanical strength. The quality of osseointegration of implants placed in bone reconstructed with porous Ti is, however, unknown. **Purpose:** The purpose of this study was to evaluate the osseointegration of implants at sites reconstructed with porous Ti. **Methods:** Hollow porous pure Ti (outer diameter 6 mm, inner diameter 2 mm, length 4 mm, 85% porosity) and similar-sized porous hydroxyapatite (HA: porosity 75%) samples were prepared and applied in New Zealand white rabbit (male, 17 weeks old) femurs. Four weeks later, an implant socket was created for a custom pure Ti implant (diameter 2 mm, length 4 mm). An implant placed at a parent bone site served as the control. Four weeks later, histological and histomorphometric evaluations were conducted. **Results:** Osseointegration was observed in all groups. There was no significant difference in the bone formation ratio and bone-implant contact ratio across all groups for the whole area. At the marrow portion of the bone defect, superior bone formation ratio and bone-implant contact ratio were observed with porous Ti and porous HA compared to the control (Bone formation ratio; Control- $1.8 \pm 3.0\%$ , HA- $23.0 \pm 3.0\%$ , Ti- $23.6 \pm 5.0\%$ , Bone-implant contact ratio; Control- $5.4 \pm 5.3\%$ , HA- $28.9 \pm 10.7\%$ , Ti- $41.6 \pm 14.0\%$ ). Porous Ti demonstrated good osteoconduction and osseointegration abilities, similar to HA. **Conclusion:** This is the first report of implant treatment at sites reconstructed with Porous Ti, which is a suitable material for bone reconstruction before implant treatment in load-bearing situations that allow subsequent prosthetic treatment.

**Keywords:** Biomaterial; large bone defects; osseointegration; porous titanium

### Correspondence:

Kaien Wakamatsu

Department of Advanced Prosthodontics, Graduate School of Biomedical and Health Sciences, Hiroshima University

1-2-3 Kasumi, Minami-ku, Hiroshima, Japan

Email address: kwaka@hiroshima-u.ac.jp

Phone number: +81-82-257-5677

## NEUROGENIC INFLAMMATION PATHWAY ON THE UP-REGULATION OF VOLTAGE-GATED SODIUM CHANNEL NAV1.7 IN EXPERIMENTAL FLARE UP POST DENTAL PULP TISSUE EXTIRPATION

Galih Sampoerno<sup>1\*</sup>, K. Kuntaman<sup>2</sup>, Eddo Supriyanto<sup>3</sup> and Putu Yuri Divina<sup>3</sup>

<sup>1</sup>Department of Conservative Dentistry, Faculty of Dentistry Airlangga University, Surabaya-Indonesia

<sup>2</sup>Department of Microbiology, Faculty of Medicine Airlangga University, Surabaya-Indonesia

<sup>3</sup>Conservative Dentistry Specialist Program, Faculty of Dentistry Airlangga University, Surabaya-Indonesia

### ABSTRACT

**Background:** Dental caries is still a major problem, that can cause irreversible pulpitis. In endodontic treatment, pain or swelling can occur immediately during root canal treatment of teeth, called flare ups. **Purpose:** The purpose of this study is to explain the role of neurogenic inflammation in the occurrence of post-root canal flare ups based on the vitality of pulp tissue based on the expression of CGRP, Nav1.7 nerve cells and HSP70 expression in macrophages. **Methods:** The laboratory experimental study was conducted using fifteen Sprague Dawley mice were divided into 3 groups. Control group, the pulp tissue extirpation group and the LPS group, followed by extirpation of pulp tissue. Sample was collected from apical field of the mandibular incisor. Examination using immunohistochemical methods. **Results:** The results showed that there were significant differences in Nav1.7, HSP70 and Nav1.7 expression. There was a significant increase in the expression of CGRP and HSP70. There was a significant decrease in Nav1.7 expression. **Conclusion:** The conclusions of this study were Extirpation of the pulp tissue causes an increase in the expression of CGRP, HSP70 and Nav1.7 in the pulp tissue. Increased CGRP in nerve cells and HSP70 in macrophage cells caused an increase in TNF, which led to an increase in Nav1.7. An increase in CGRP can directly cause an increase in Nav1.7 through the AC and PLC pathways. The administration of LPS followed by extirpation of the pulp tissue causes over-expression of HSP70, which will inhibit TRAF6, causing a decrease in TNF, which causes a decrease in Nav1.7.

**Keywords:** flare up, neurogenic Inflammation, HSP70, Nav1.7, CGRP

### Correspondence:

Galih Sampoerno

Department of Conservative Dentistry, Faculty of Dentistry Airlangga University, Surabaya-Indonesia. Jl. Mayjen. Prof. Dr. Moestopo no. 47, Surabaya 60132, Indonesia.

Email : [galih-s@fkg.unair.ac.id](mailto:galih-s@fkg.unair.ac.id). Phone number : +6285335882223

## ORA-27

**RELATIONSHIP BETWEEN PRE-OPERATIVE HEMATOLOGICAL PROFILE WITH WOUND DEHISCENCE RISK IN PATIENT WITH CLEFT**

Stephanie Amelia Christanto<sup>1</sup>, I Dewa Gde Agung Nanda Krismaya<sup>1</sup>, Coen Pramono D<sup>2</sup>, Ni Putu Mira Sumarta<sup>2</sup>,

<sup>1</sup> Resident of Oral and Maxillofacial Surgery, Universitas Airlangga, Surabaya, Indonesia

<sup>2</sup> Department of Oral and Maxillofacial Surgery, Universitas Airlangga, Surabaya, Indonesia

**ABSTRACT**

**Introduction:** Pre-operative hematological profile abnormality in patient with cleft lip and palate were often related with nutrition intake and its vulnerability to infection. Furthermore, the abnormality was also associated with post-operative complication, such as wound dehiscence. Since it involved good aesthetic and proper function restoration, the complication inevitably had a significant value. The purpose of this paper is to analyze the relationship between pre-operative hematological profile and wound dehiscence risk in labioplasty and palatoplasty cleft patients. **Methods:** Cross-sectional investigation was done by collecting medical record during Cleft Surgery Charity by Universitas Airlangga between 2015-2019. Data of hematological profile related with event and type of wound dehiscence were assessed based on 2-weeks-post-surgery clinical pictures using total sampling technique and were analyzed using chi-square with p-value significance  $\leq 0.05$  and Spearman Correlation Test. **Result:** Data from 286 patients were collected, 8% showed anemia, 54.4% presented leukocytosis, and 31.1% showed thrombocytosis. Wound dehiscence event rate was found in 69 cases, predominantly in palatoplasty. There was no significant relationship between anemia, leukocytosis, thrombocytosis and wound dehiscence event ( $p > 0.05$ ). Spearman Correlation Test revealed that leukocytosis was the only factor that had a weak positive relationship with wound dehiscence. **Conclusion:** Pre-operative anemia, leukocytosis, and thrombocytosis have not affected the risk of wound dehiscence occurrence in labioplasty and palatoplasty. Hematological profile abnormality did not have any direct influence toward wound healing, while wound dehiscence might be affected by various factors, such as: soft tissue tension, type of cleft, and width of cleft.

**Keywords:** lip and palate cleft, hematological profile, wound healing, good quality of life

**Corresponding Author:**

Ni Putu Mira Sumarta, DMD, Ph.D, OMFS, Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Airlangga University. Jl. Major General Prof. Dr. Moestopo No. 47 Surabaya 60132, Indonesia. Email: [niputu.mira@fkg.unair.ac.id](mailto:niputu.mira@fkg.unair.ac.id) Tel: +62817307913

ORA-28

## UTILIZATION OF THE VELO QUESTIONNAIRE IN CLEFT PALATE SURGERY EVALUATION FOR PATIENTS IN REMOTE AREA IN INDONESIA

Saifullah Amri<sup>1</sup>, Muhammad Subhan Amir<sup>2</sup>

<sup>1</sup> Residency Program of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

<sup>2</sup> Departement of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

### ABSTRACT

**Introduction:** Most of the cleft palate surgery performed by the Department of Oral and Maxillofacial Surgery Airlangga University are in remote areas. Though evaluation of surgical outcome is important; we face challenges in distance, time and resources to perform direct examination. **Purpose:** This study evaluates the surgery outcome of cleft palate surgeries in a limited resource setting using the VELO questionnaire. **Methods:** Original VELO questionnaires were translated to the Indonesian language and given to patients or guardians of pediatric patients to be filled according to the instructions. This questionnaire was administered twice; before surgery in person and six months after surgery by phone. Results of the questionnaire were tabulated and analyzed. **Results:** There was an increase in VELO scores before and after for both the parent type questionnaire (50.4 [9.1], 84.8 [9.1],  $p < .05$ ) and child type questionnaire (52.6 [10.6], 85.8 [7.1],  $p < .05$ ). VELO scores were also found significantly changed in three different cleft palate types; Unilateral Cleft Lip and Palate (UCLP), Bilateral Cleft Lip and Palate (BCLP), and Cleft Palate Only (CPO). **Conclusion:** Our results showed that there is an increase in VELO score after the cleft palate surgery. Utilizing the VELO questionnaire is feasible as a cleft palate surgical outcome evaluation tool in a limited resource setting.

**Keywords:** Cleft palate; VELO questionnaire; surgery outcome.

Correspondence: Saifullah Amri, Residency Program of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Universitas Airlangga Surabaya, Jl Mayjen Prof. Dr. Moestopo 47 (60132), Email: [amri.dentist@gmail.com](mailto:amri.dentist@gmail.com), Tel: 082310259191

## ORA-29

**EFFECT OF NISIN A PRODUCED BY LACTOCOCCUS LACTIS TO CLOSTRIDIODES DIFFICILE STRAINS**

Noriaki Ide<sup>1,2</sup>, Miki-Kawada Matsuo<sup>1</sup>, Mi Nguyen Tra Le<sup>1</sup>, Hiromi Nishi<sup>3</sup>, Hiroyuki Kawaguchi<sup>2,3</sup>, Hitoshi Komatsuzawa<sup>1</sup>

<sup>1</sup>Department of Bacteriology, Hiroshima University Graduate School of Biomedical and health sciences, Hiroshima Japan

<sup>2</sup>Department of Dental Education, Hiroshima University Graduate School of Biomedical and health sciences, Hiroshima Japan

<sup>3</sup>Department of Advanced General Dentistry, Hiroshima University Hospital, Hiroshima Japan

**ABSTRACT**

**Background:** Clostridioides difficile is an enteric bacterium that is known to cause antibiotic-associated diarrhea in hospitals around the world. Chemotherapeutic agents such as vancomycin and metronidazole are used to treat C. difficile. However, because C. difficile is a spore-forming bacterium, and the emergence of drug-resistant strains has become a problem in recent years, it is expected to develop alternative antibacterial agents for the elimination or growth suppression of this bacterium. **Purpose:** In this study, we examined the effect of nisin A, an antimicrobial peptide produced by Lactococcus lactis, as an alternative treatment to chemotherapeutic agents.

**Methods:** We used the direct method and the minimum inhibitory concentration (MIC) method to determine the susceptibility of nisin A against 1 laboratory strains and 10 clinical isolates of C. difficile. The MIC method was also used to verify the susceptibility to various antibacterial agents including metronidazole, which is a therapeutic agent for C. difficile. The inhibitory effect of nisin A on C. difficile spore was also examined. **Results:** Susceptibility testing revealed that nisin A had an antibacterial effect against all C. difficile strains. However, the effects were found to be diverse among strains, showing high to low susceptibility to nisin A. We also found that nisin A inhibited the spore germination. **Conclusion:** These results indicate that nisin A is a possible candidate for clinical use against C. difficile infection. However, several C. difficile strains showed low susceptibility to nisin A suggesting the existence of resistance factors to nisin A.

**Keywords:** first keyword; Clostridioides difficile, second keyword; Lactococcus lactis, nisin A

**Correspondence:**

Noriaki Ide

Department of Dental Education, Hiroshima University Graduate School of Biomedical and health sciences, Hiroshima Japan

1-2-3 Kasumi, Minami-ku, Hiroshima, Japan, 734-8551

Email: noriide@hiroshima-u.ac.jp

Tel: +81-82-257-5555

ORA-30

**THE IMPACT OF ORAL HEALTH SEEKING BEHAVIOR DURING COVID-19 OUTBRAKE TOWARD DENTAL CARIES SEVERITY**

**Ristya Widi Endah Yani<sup>1</sup>, Darmawan Setijanto<sup>2</sup>**

<sup>1</sup>Dental Public Health Department, Faculty of Dentistry, University of Jember, Jember – Indonesia

<sup>2</sup>Dental Public Health Department, Faculty of Dental Medicine, Airlangga University, Surabaya – Indonesia

**ABSTRACT**

**Background:** Most Indonesian people have a specific culture of oral health seeking behavior. They are only visit their dentist when they felt pain in their teeth or mouth, especially during the Covid-19 pandemic. Due to their anxiety about the Covid-19 virus infection, and in addition of the government's policy that limiting visits to health center, people to choose another choice. **Purpose:** This study aimed to assess the effects of oral health seeking behavior during COVID-19 on dental caries severity in the Summersari, Jember district community. **Methods:** An analytical observational study was conducted with a cross sectional approach in March 2021 at Summersari District, Jember Regency. From 37.347 of 26-45 years old population, there were 101 involved in this study. Simple random sampling was conducted. Their demographic characteristics, oral health seeking behavior, and dental caries severity were recorded and analyzed descriptively, then continued with the Ordinal Regression test. **Results:** The age of respondents was in the age range of 26-35 years (81.2%) and 55.4% of respondents were women. Their education level mostly undergraduate (61.4%). Assessing oral health behavior revealed that 77.23% of respondents did not visit professional dental services and 75.25% of them experienced caries with moderate to severe severity. The ordinal regression test showed that there was significant effect of oral health seeking behavior toward dental caries severity. **Conclusion:** There is an impact of oral health seeking behavior on the severity of dental caries during the out brake of Covid-19 pandemic.

**Keywords:** Health Behaviour, Dental Caries, Covid-19 outbrake.

Correspondence: Darmawan Setijanto, Dental Public Health Department, Faculty of Dental Medicine, Airlangga University, Surabaya - Indonesia, [r-darmawan-s@fkg.unair.ac.id](mailto:r-darmawan-s@fkg.unair.ac.id), 08123073991

ORA-31

## BACTERIOCINS PRODUCED BY STREPTOCOCCUS MUTANS: DISTRIBUTION AND ANTIMICROBIAL ACTIVITY

Mi Nguyen-Tra Le<sup>1,2</sup>, Miki Kawada-Matsuo<sup>1,2</sup>, Junzo Hisatsune<sup>2,3</sup>, Motoyuki Sugai<sup>2,3</sup>, Hitoshi Komatsuzawa<sup>1,2</sup>

<sup>1</sup> Department of Bacteriology, Hiroshima University Graduate School of Biomedical and Health Sciences, Hiroshima, Japan

<sup>2</sup> Project Research Center for Nosocomial Infectious Diseases, Hiroshima University, Hiroshima, Japan

<sup>3</sup> Antimicrobial Resistance Research Center, National Institute of Infectious Diseases, Higashi Murayama, Japan

### ABSTRACT

**Background:** Streptococcus mutans produces various kinds of bacteriocins (peptide antibiotics), referred to as mutacins, to compete against the other oral bacteria and establish its colonization on the tooth surface. **Purpose:** This study investigated the distribution of different mutacin genes among 125 S. mutans isolates, their antibacterial spectrum, and mutacin expression in each strain. **Methods:** Genes coding for mutacins I, II, III, IV, Smb, and K8 were identified based on their genome sequences. Antibacterial activities of each strain against 8 oral streptococci and 10 oral non-streptococci were evaluated using soft-agar overlay assay. Expression of each mutacin gene was analyzed using quantitative PCR method. **Results:** Among 125 S. mutans genomes, 115 isolates were identified with at least one bacteriocin, including Mutacin I (17 strains, 13.6%), II (5 strains, 4.0%), III (2 strains, 1.6%), IIIb (5 strains, 4.0%), IV (67 strains, 53.6%), Smb (32 strains, 25.6%), and K8 (23 strains, 18.4%). Eighty-four isolates (67.2%) carried a single mutacin, 26 isolates (20.8%) carried double mutacins, and 5 isolates (4.0%) carried triple mutacins. Mutacin-coding genes of Mutacin I, II, III, IIIb were conservative, while Mutacin IV, Smb, and K8 harbored several variants. Different mutacins demonstrated different antibacterial pattern against 18 bacterial species. Expression of mutacins in double- and triple- mutacins isolates were lower than those in single-mutacin isolates. **Conclusion:** Different mutacin types displayed distinct antibacterial spectrum against oral streptococci and non-streptococci, suggesting the diverse bacterial composition within dental plaques colonized by different S. mutans clones. Mutacins could become promising therapeutics for certain Gram-positive infections.

**Keywords:** Streptococcus mutans, bacteriocins, mutacins, antimicrobial activity

### Correspondence:

Name: Mi Nguyen Tra Le

Affiliation: Department of Bacteriology, Graduate School of Biomedical and Health Sciences, Hiroshima University

Address: 1-2-3 Kasumi, Minami-ku, Hiroshima City, Japan

Email: lenguyentrami@hiroshima-u.ac.jp

Tel: +81 82-257-5636

ORA-32

## ISOLATION/CHARACTERIZATION OF ORAL ANTIMICROBIAL-RESISTANT GRAM-NEGATIVE BACTERIA IN RESIDENTS OF THE LONG-TERM CARE FACILITY

Azusa Haruta<sup>1</sup>, Miki Matsuo<sup>2</sup>, Mineka Yoshikawa<sup>1</sup>, Maho Takeuchi<sup>1</sup>, Le Nguyen Tra Mi<sup>2</sup>, Koji Yahara<sup>3</sup>, Toshiki Kajihara<sup>3</sup>, Syoko Kutsuno<sup>3</sup>, Hiroki Ohge<sup>4</sup>, Kazuhiro Tsuga<sup>1</sup>, Motoyuki Sugai<sup>3</sup>, Hitoshi Komatsuzawa<sup>2</sup>

<sup>1</sup> Department of Advanced Prosthodontics, Hiroshima University, Hiroshima, Japan

<sup>2</sup> Department of Bacteriology, Hiroshima University, Hiroshima, Japan

<sup>3</sup> Antimicrobial Resistance Research Center, National Institute of Infectious Diseases, Higashimurayama City, Tokyo

<sup>4</sup> Department of Infection Diseases, Hiroshima University Hospital, Hiroshima, Japan

### ABSTRACT

**Background:** Antimicrobial resistance is global issue. Recently, antimicrobial resistant bacteria (ARB) has been found in oral cavity. Since oral bacteria including ARB is a risk of aspiration pneumonia, oral care is recommended for diseases prevention. In oral care, disinfectant is sometimes used, however, there are no reports regarding the susceptibility of oral ARB, especially Gram-negative ARB, to disinfectants. Therefore, it is necessary to investigate the prevalence of oral Gram-negative ARB and the susceptibility of oral-used disinfectants. **Purpose:** The aim of our study is to isolate and characterize oral Gram-negative ARB from long-term care facility (LTCF) residents. **Methods:** In this study, we isolated the third generation cephalosporin-resistant and carbapenem-resistant bacteria from oral cavity of the residents in the LTCFs, examined the resistance genes, and performed the susceptibility test of some disinfectants. **Results:** The prevalence of oral Gram-negative ARB was 24%. Fifty-nine antibiotic-resistant Gram-negative isolates were isolated. Among them, 11 isolates (19%) from 10 residents (6%) carried ESBL genes. The susceptibility of 4 disinfectants in some strains were higher than those used in the oral cavity. **Conclusion:** We isolated oral Gram-negative ARB from 24% of the residents in 6 LTCFs. Some strains showed a low susceptibility to some disinfectants. It is proposed that we need to consider the existence of ARB in the oral cavity and pay attention to disinfectants usage for oral care.

**Keywords:** antimicrobial resistance, disinfectant, oral care, susceptibility, long-term care facility

**Correspondence:** Azusa Haruta, Department of Advanced Prosthodontics, Hiroshima University, harutazusa@hiroshima-u.ac.jp, +81-82-257-5677

## ORA-33

## ORAL HEALTH CONDITION SURVEY OF CAMBODIAN PUBLIC PRIMARY SCHOOL CHILDREN

Yuko Iwamoto<sup>1</sup>, Yuria Asao<sup>1</sup>, Noy Kimheang<sup>2</sup>, Sun Samnang<sup>2</sup>, Kosuke Ueda<sup>3</sup>, Shogo Yakushiji<sup>3</sup>, Sakura Shimizu<sup>3</sup>, Chieko Mitsuata<sup>1</sup> and Katsuyuki Kozai<sup>1</sup>

<sup>1</sup> Department of Pediatric Dentistry, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan

<sup>2</sup> International Dental Course, School of Dentistry, Hiroshima University, Hiroshima, Japan

<sup>3</sup> School of Dentistry, Hiroshima University, Hiroshima, Japan

**ABSTRACT**

**Background:** In Cambodia, the lack of dentists is due to genocide of knowledgeable people caused by the civil war in the late 1970s and many people have few opportunities exist for health education. Furthermore, exposure to a sucrose-rich diet has increased with the recent economic growth, and many children experience dental caries. **Purpose:** We report on the annual survey conducted to evaluate the oral condition of primary school children in Cambodia. **Methods:** Oral examination was conducted for 1,047 school children (4th-6th grade) at a public primary school located in the center of Siem Reap City from 2017 to 2019. We analyzed the condition of dental caries and dental plaque adhesion, gingiva, and dental calculus deposition. **Results:** Oral examinations revealed a high prevalence of dental caries in primary and permanent teeth (over 95% each year). Mean number of decayed and filled teeth (DFT), and percentage of decayed and filled teeth (DFT rate) tended to decrease. The prevalence of plaque adhesion and gingivitis observed about 90% of the total children. Almost half of the children had dental calculus deposition. **Conclusion:** With reference to the results of this survey, we would like to convey the importance of teeth and raise awareness of oral hygiene through brushing introduction and dietary habits education. We will further strengthen cooperation and aim to establish a system that can be handled by Cambodian dentists. Considering Southeast Asia as a whole, there are also regional disparities, so we would like to spread such efforts across countries.

**Keywords:** dental caries, gingivitis, oral health, child, Cambodia

**Correspondence:** Yuko Iwamoto, Department of Pediatric Dentistry, Graduate School of Biomedical and Health Sciences, Hiroshima University, 1-2-3 Kasumi Minami-ku Hiroshima-city HIROSHIMA Japan, yuko-tulip@hiroshima-u.ac.jp,+81-82-257-5698

## THE ENGAGEMENT OF GD T CELLS IN DENTAL PULP MINERALIZATION VIA IL-17A

Tomoki Kumagai<sup>1</sup>, Satoru Shindo<sup>2</sup>, Katsuhiko Takeda<sup>1</sup> and Hideki Shiba<sup>1</sup>

<sup>1</sup> Department of Biological Endodontics, Hiroshima University, Hiroshima, Japan

<sup>2</sup> Department of Oral Science and Translational Research, Nova Southeastern University, Florida, USA

### ABSTRACT

**Introduction:** gd T cells express T cell receptors gd (TCR- gd) and are known to relate to both innate and adaptive immune responses. However, the role of gd T cells in dental pulp remains unknown. We investigated the effect of gd T cells on calcification in human dental pulp stem cells (HDPSCs), focusing on IL-17A. **Materials & methods, and Result:** Dental pulp tissues were obtained under informed consent at Hiroshima University Hospital (Ethical approval number: E-133-3). Peripheral blood mononuclear cells (PBMCs) were collected from three healthy volunteers under informed consent at Hiroshima University Hospital (Ethics approval number: E-1771-1). Immune fluorescence microscopy revealed the infiltration of IL-17A-positive gd T cells in inflamed pulp. Flow cytometry analysis demonstrated most of the CD3-positive cells in healthy pulp tissue were gd T cells. In addition, 90% of the CD3-positive cells in PBMCs which had been treated with IL-2 and zoledronate were differentiated to gd T cells. IL-17A was detected in the culture supernatant of the gd T cells by ELISA. Staining of ALP and alizarin red revealed that recombinant IL-17A as well as the gd T cells-supernatant enhanced the calcification of HDPSCs. **Conclusion:** The present findings suggest gd T cells infiltrate in inflamed pulp tissue and produce IL-17A and that gd T cells may be involved in pulp tissue calcification via IL-17A.

**Keywords:** gd T cell, IL-17A, pulp inflammation, calcification

### Corresponding Author:

Name Tomoki Kumagai

Email: d204073@hiroshima-u.ac.jp

Tel: +8180-6333-9376

ORA-35

**COMPREHENSION GAP ON HIV/AIDS ORAL MANIFESTATIONS AMONG UNDERGRADUATE STUDENTS OF DENTISTRY AND MANAGEMENT ECONOMY IN UNIVERSITAS AIRLANGGA**

**Desiana Radithia<sup>1</sup>, Diah Savitri Ernawati<sup>1</sup>, Adiastruti Endah Pramardiati<sup>1</sup>, Nurhana binti Suhaimi<sup>2</sup>, Kurnia Hayati Rahman<sup>3</sup>**

1.Lecturers of Department of Oral Medicine. Faculty of Dental Medicine. Universitas Airlangga. Surabaya – Indonesia 60132.

2.Undergraduate student. Faculty of Dental Medicine. Universitas Airlangga. Surabaya – Indonesia 60132.

3.Resident of Oral Medicine Specialist Study Program. Faculty of Dental Medicine. Universitas Airlangga. Surabaya – Indonesia 60132.

**Abstract**

**Introduction.** HIV/AIDS stands as a global public health problem. Young people are at the highest risk of getting infected. Oral manifestations of HIV/AIDS are mostly resulted as opportunistic infection due to the immunodeficiency condition. Knowledge, attitude and perception about HIV/AIDS are important aspects to fully-comprehend the disease, its risk and management. Students of Dentistry and Management Economy must have a sufficient knowledge on this disease and recognize its significant impact on the field of their study. Their knowledge may come from many sources, either formal education or informal sources. **Methods.** This is an observational analytic study on undergraduate students of Dentistry and Management Economy of Universitas Airlangga. Data was collected by questionnaire and analyzed with SPSS software using Two-sample T-Test to identify the gap of comprehension level between two groups. **Result.** Dentistry students obtained a higher number of correct answer (more than 50% correct) (83,8%) compared to Economy students (22,5%). Analysis using statistical test Two-sample T-Test showed a significant gap of comprehension level. **Conclusion.** Undergraduate students of Dentistry were at the higher level of comprehension than Management Economy students on oral manifestations of HIV/AIDS, mainly because Dentistry students received a formal source of knowledge regarding this topic.

**Keywords:** HIV/AIDS, oral manifestation, comprehension level

**Corresponding author:** Desiana Radithia. Faculty of Dental Medicine Universitas Airlangga. Jln. Prof. Dr. Moestopo 47. Surabaya – Indonesia 60132. Email: [deisy.radithia@fkg.unair.ac.id](mailto:deisy.radithia@fkg.unair.ac.id)

## PREVALENCE OF MOST COMMON TONGUE LESIONS RELATED TO DEGENERATIVE DISEASES IN THE ELDERLY

Adiastuti Endah Parmadiati<sup>1</sup>, Diah Savitri Ernawati<sup>1</sup>, Fatma Yasmin Mahdani<sup>1</sup>, Nurina Febriyanti Ayuningtyas<sup>1</sup>, Meircurius Dwi Condro Surboyo<sup>1</sup>, Aulya Setyo Pratiwi<sup>1</sup>, Riyan Iman Marsetyo<sup>1</sup>, Candrika Ramya Inastu<sup>2</sup>, Vint Erawati<sup>2</sup>

<sup>1</sup>Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

<sup>2</sup>Undergraduate Student of Dental Medicine, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

### ABSTRACT

**Introduction:** Population aged 60 years old and above are growing in number. It is estimated that the elderly population in Indonesia will be 40.95 million in 2030 and 48.19 million in 2035. The increase was due to the increasing life expectancy in Indonesia; a fact that will have an impact on general and oral health in the future. Tongue lesions are related to degenerative diseases such as diabetes mellitus, hypertension and heart disease. The purpose of this study was to determine the prevalence of tongue lesions related to degenerative diseases in the elderly at Ketabang Public Health Center, Surabaya City, East Java. **Methods:** This is an observational descriptive study with a cross-sectional design. Intraoral soft tissue examination was performed by the general dentist and oral medicine specialist in elderly patients coming to Ketabang Public Health Center between January and March 2020. **Results:** During this period, there were 85 elderly patients with degenerative diseases and prevalence of tongue lesions, namely fissured tongue (77.6%), coated tongue (67.1%), crenated tongue (32.9%), tongue depapillation (29.4%), lingual varices (12.9%), and oral melanotic macule (1.1%). **Conclusion:** Fissured tongue is the most common tongue lesion found in 77% elderly patients with degenerative diseases. Fissured tongue often develops with age and in patients with hyposalivation related to diabetes mellitus and anti-hypertension drugs.

**Keywords:** oral medicine, geriatric dentistry, tongue, mouth diseases

**Correspondence:** Fatma Yasmin Mahdani, Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Jl. Mayjen Prof. Dr. Moestopo No.47 Surabaya 60132-Indonesia, email: fatmayasminmahdani@fkg.unair.ac.id, Phone +6285230336092

ORA-37

## CALCIPROTEIN PARTICLES PLAY A ROLE IN BONE FORMATION AND VASCULAR CALCIFICATION

Davood Kharaghani<sup>1</sup>, Shohei Kohno<sup>1</sup>, Eben Bashir Kurniawan<sup>2</sup>, Tomonori Hoshino<sup>1</sup>, Tomoko Minamizaki<sup>1</sup> and Yuji Yoshiko<sup>1</sup>

<sup>1</sup> Department of Calcified Tissue Biology, Hiroshima University Graduate School of Biomedical and Health Sciences, Minami-ku, Hiroshima, Japan

<sup>2</sup> Hiroshima University School of Dentistry, Minami-ku, Hiroshima, Japan

### ABSTRACT

**Introduction:** Vascular calcification has been considered to coexist with bone loss in many epidemiological studies. Circulating calcium phosphate nanoparticles, known as calciprotein particles (CPPs), are associated with the occurrence of cardiovascular events and mortality. CPPs may be internalized into cells to modulate cellular activities, e.g., CPPs enhance inflammatory cytokine production in endothelial cells and osteo-chondrogenic dedifferentiation in vascular smooth muscle cells (VSMCs). However, functional outcomes of CPPs in bone remain largely unknown. We employed CPPs to evaluate their effects on calcium accumulation in osteoblast versus vascular smooth muscle cells. **Methods:** CPP formation was evaluated in a cell-free assay. IP6 (inositol hexaphosphate), an active ingredient of SNF472 for calciphylaxis in phase III clinical studies, was used to inhibit CPP formation. Mouse osteoblastic MC3T3-E1 cells and mouse VSMCs (MOVAS cells) were used to determine the effect of CPPs on calcium accumulation. An aberrant expression of genes involved in the bone-vascular axis was also evaluated on these models with or without IP6. **Result:** The addition of calcium/phosphate to serum in a cell-free system indicated the formation of CPPs in the presence or absence of IP6. However, CPP formation was delayed when IP6 was used as an inhibitor. IP6 dose-dependently suppressed calcium accumulation not only in MOVAS cells but also in MC3T3-E1 cells with accompanying changes in expression of genes of interest. **Conclusion:** CPPs may be involved in extracellular matrix calcification. IP6 may suppress not only vascular calcification but also bone mineralization with and without CPPs.

**Keywords:** CPPs, the bone-vascular axis, calcification, osteoblasts, vascular smooth muscle cells, IP6

### Corresponding Author:

Name Yuji Yoshiko

Email: yyuji@hiroshima-u.ac.jp

Tel: +81-82-257-5620

ORA-38

## COMPARISON OF CURCUMIN-PIPERINE COMBINATION WITH ANTIOXIDANT THERAPY IN ORAL SUBMUCOUS FIBROSIS – A RANDOMIZED, OPEN-LABEL STUDY

Tepan Meenal<sup>1</sup>, Hebbale Manjula<sup>1</sup>, Rashmi Agarwal<sup>1</sup>, Patil Amol<sup>2</sup>

1 Department of Oral Medicine and Radiology, Bharati Vidyapeeth Deemed to be University, Dental College and Hospital, Pune, Maharashtra, India

2 Department of Orthodontics and Dentofacial Orthopedics, Bharati Vidyapeeth Deemed to be University, Dental College and Hospital, Pune, Maharashtra, India

### ABSTRACT

**Introduction:** Oral Submucous fibrosis (OSMF) predominantly involves the buccal mucosa, retromolar area, and the soft palate in the oral cavity. The mucosa in the involved areas gradually becomes pale followed by progressive stiffness of subepithelial tissues. The medical management includes cessation of habits with systemic intake of vitamins, antioxidants, iron supplements and lycopene, topical application of triamcinolone acetonide, intralesional injection of hyaluronidase, hydrocortisone, placental extract and interferon gamma. Curcumin, a yellow pigment in curry powder, exhibits anti-inflammatory, antioxidant, anticarcinogenic, antimutagenic, antifibrotic and antiulcer activities. **Objectives:** To evaluate and compare the therapeutic response of curcumin-piperine combination with antioxidants in OSMF patients. **Materials and method:** Patients with OSMF were allotted by stratified blocked randomization. The patients were divided in groups of four, out of which two were allotted to the experimental group and two were allotted to the control group. Both the groups were given anti-oxidants with physiotherapy. Experimental group patients were additionally given 6 gm of the study medication (curcumin-piperine tablets) daily in three divided doses, each containing 1054.6mg of curcuminoids and 2.5mg piperine. The patients were asked to have 2 tablets with breakfast, 2 tablets with lunch and 2 with dinner. Improvement in burning sensation and mouth opening was evaluated every 15 days during both the active as well as follow-up periods (six months). **Results:** Burning sensation improved in both the groups, however complete resolution was noted in curcumin group. Experimental group showed a 10% increase in mouth opening, against 2% in control group. This increase was highly significant statistically in experimental compared to control group. **Conclusion:** This combination of medication (i.e. curcumin-piperine) which has anti-inflammatory, antioxidant and anticarcinogenic properties may be used along with physiotherapy in the management of early/moderate cases of OSMF.

**KEY WORDS:** curcumin - piperine, burning sensation, mouth-opening

*Correspondence:* Assistant Professor, Department of Oral Medicine and Radiology, Bharati Vidyapeeth Deemed to be University, Dental College and Hospital, Pune, Maharashtra, India  
[meenal.tepan@bharatividyaapeeth.edu](mailto:meenal.tepan@bharatividyaapeeth.edu); +9109371008881

ORA-39

## EVALUATION OF DENTAL GYPSUM WASTE MANAGEMENT (RECYCLING AND REUSE) IN A DENTAL COLLEGE – A INNOVATIVE IN-VITRO STUDY

Arti Gachake<sup>1</sup>, Sachin Potdar<sup>2</sup>

<sup>1</sup> Assistant Professor, Department of Prosthodontics and crown and bridge, Bharati Vidyapeeth Dental College & Hospital, Pune-India.

<sup>2</sup> certified dental technician, Department of Prosthodontics and crown and bridge, Bharati Vidyapeeth, Dental College & Hospital, Pune-India.

### ABSTRACT

**Background:** In 21st century, necessity and understanding the significance of being eco-friendly in each and every aspect and dental practice carries a larger impact on the environment, mainly due to the increased amount of metallic and non-metallic waste being generated by different dental procedures. **Purpose:** Green dentistry is more environment friendly, conserves time and money by reducing waste, decreasing pollution and also conserves energy. **Methods:** 1. Initial sorting out of the dental models/casts. 2. Dehydration- hot air oven at 250°C for 3 hours to be moisture free, crushed into fragments under a customized mechanical press, enabling further process of pulverization. 3. In a pulveriser we receive fine micro grained powder, ready for reuse. Statistical analysis - Data obtained was entered for each dental gypsum product in Microsoft Excel 2007. The differences in the weight noted before and after recycling and percentage of water retained, calculated. **Results:** Innovative in-vitro study conducted on 60 working models/casts to evaluate the efficiency of dental gypsum waste management, to assess the overall weight of the gypsum products and the percentage of water content at the end of recycling. The overall mean weight of die stone type I denture was {132.52- 112.27} and mean water content was 16% whereas the mean weight of dental stone g was {94.222- 79.357} and mean water content was 15.77%. **Conclusion:** This innovative study aims to recycle, reuse and evaluate the efficiency of dental gypsum waste management.

**Keywords:** dental gypsum products; recycle and reuse; green dental initiative.

Correspondence: Dr. Arti Gachake, Assistant Professor, Department of Prosthodontics and crown and bridge, Bharati Vidyapeeth Dental College & Hospital, Pune-India, C-1, Flat 702, Shivranjan Towers, Behind Hotel Rajwada, Someshwarwadi Road, Baner road, Pune- 21, arti.gachake3@gmail.com, 9890204244.

## ORA-40

## ACTIVE COMPOUND FROM INDONESIAN MANGROVE LEAVES (*AEGICERAS CORNICULATUM*) EXTRACT EXPLORATION FOR HERBAL-BASED MOUTHWASH DEVELOPMENT

Martining Shoffa Puspitaningrum<sup>1</sup>, Yuniar Rizqianti<sup>1</sup>, Desintya Rahmadhani<sup>1</sup>, Viol Dhea Kharisma<sup>2</sup>, Mada Triandala Sibero<sup>3</sup>, Rini Devijanti Ridwan<sup>4</sup>, Nastiti Faradilla Ramadhani<sup>5</sup>, Alexander Patera Nugraha<sup>6\*</sup>

<sup>1</sup>Undergraduate Student, Faculty of Dental Medicine, Universitas Airlangga

<sup>2</sup>Master Program in Biology, Department of Biology, Faculty of Mathematic and Natural Science, Universitas Brawijaya, Malang, Indonesia

<sup>3</sup>Marine Science Department, Faculty of Fisheries and Marine Science, Diponegoro University, Semarang, Indonesia

<sup>4</sup>Oral Biology Department, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>5</sup>Dentomaxillofacial Department, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>6</sup>Orthodontic Department, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

### ABSTRACT

**Introduction:** Mangrove (*Aegiceras corniculatum*) as abundant Indonesia's natural marine resource which can be explored due to its potential as immunoregulatory, antibacterial and antioxidant agent for periodontal disease. **Objective:** to investigate the active compound from Indonesian Mangrove Leaves extract (*A. corniculatum*) (MLE) for herbal-based mouthwash development through in silico and in vitro study. **Materials and Methods:** Phytochemistry and liquid chromatography-high resolution mass spectrometry (LC-HRMS) were done to explore MLE active compounds. Chemistry screening and interaction, absorption, distribution, metabolism, and excretion (ADME), molecular docking simulation and visualization of MLE active compound as anti-inflammatory, antioxidant, and antibacterial was investigated in silico. Inhibition zone of MLE against *Aggregatibacter actinomycetemcomitans* (Aa), *Porphyromonas gingivalis* (Pg), and *Fusobacterium nucleatum* (Fn) as periodontopathogenic bacterias was carried out by diffusion method. Doxycycline 100 mg was used as a positive control, as a treatment group there were 5 groups, namely the 0%, 25%, 50%, 75%, 100% MLE. **Results:** Alkaloid, Saponin, Flavonoid, Triterpenoid, Steroid, Tanin and Quinon were detected in MLE. The high concentration of (-)Epicatechin and Coumaric Acid (CA) were found in MLE. MLE in 100% concentration has the most effective ability to inhibit *F. nucleatum*, *P. gingivalis*, *A. Actinomycetemcomitans* growth in vitro. (-)Epicatechin has higher negative binding affinity than CA which can enhance Heat Shock Protein (HSP)-30,-70,-90, Interleukin-10, FOXP3 and also inhibit Interleukin-6, Peptidoglycan, Flagellin, and Dectin in silico. **Conclusion:** Indonesian Mangrove Leaves extract (*Aegiceras corniculatum*) (MLE) has antioxidant, anti-inflammatory and antibacterial activity that can be a potential raw material for Herbal-based Mouthwash development.

**Keyword:** Mangrove leaves extract, (-)Epicatechin, Periodontopathogenic bacterias, Herbal-based Mouthwash

\*Correspondence: Alexander Patera Nugraha, Orthodontic Department, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia, Email: alexander.patera.nugraha@fkg.unair.ac.id

## ORA-41

## IDENTIFICATION OF A NOVEL RESISTANT FACTOR AGAINST BACTERIOCIN IN STREPTOCOCCUS MUTANS

Naoki Sadaoka<sup>1</sup>, Miki Kawada-Matsuo<sup>2</sup>, Mi Nguyen Tra Le<sup>2</sup>, Katsuhiro Takeda<sup>1</sup>, Hideki Shiba<sup>1</sup>, Hitoshi Komatsuzawa<sup>2</sup>

<sup>1</sup>Department of Biological Endodontics, Graduate School of Biomedical and Health Sciences, Hiroshima University

<sup>2</sup>Department of Bacteriology, Graduate School of Biomedical and Health Sciences, Hiroshima University

### ABSTRACT

**Background:** Streptococcus mutans, a commensal bacterium in the oral cavity, is a cariogenic one. S. mutans has been reported to produce multiple bacteriocins. **Purpose:** In this study, we investigated the mechanism of bacteriocin resistance in S. mutans, focusing on mutacinK8, one of the S. mutans bacteriocins. **Methods:** We performed genome analysis using S. mutans mutacinK8 gene-carrying (K8+) and non-carrying (K8-) for comparing gene regions and amino acid sequence of K8+ with those of K8-. Direct assay was utilized for susceptibility test. Quantitative PCR (qPCR) was performed for gene expression. **Results:** K8+ specifically had a region involved in mutacin K8 production (K8 region), but the K8- lacked this region. Through detailed examination of individual resistance factors, in the K8+, characteristic mutations were found in scnFEG (located downstream of the K8 region) and lctFEG (a resistant factor against nukacin, which is a same type of bacteriocin as mutacin K8). Furthermore, the Direct method and qPCR revealed that ScnFEG was involved in nukacin resistance in the K8+ via TCS and that the expression of this resistance factor was induced by nukacin, respectively. **Conclusion:** LctFEG has been reported as a nukacin resistance factor in K8-. However, in this study, nukacin resistance in the K8 + strains was ScnFEG, whose expression was induced by the same TCS as in K8- strains, but not LctFEG. Differences in the amino acid sequences of LctFEG and ScnFEG were observed between K8+ and K8-, suggesting that the resistance factors differ due to the differences in these sequences.

**Keywords:** first keyword; Streptococcus mutans second keyword; mutacinK8 third keyword; bacteriocin resistance.

**Correspondence:** Naoki Sadaoka, Department of Biological Endodontics, Graduate School of Biomedical and Health Sciences, Hiroshima University, 1-2-3, Kasumi, Minami-ku, Hiroshima, JAPAN, 734-8551, d202656@hiroshima-u.ac.jp, +8182-257-5656.

ORA-42

## PHENOTYPIC CHARACTERISATION OF HEALTHY AND INFLAMED DENTAL PULP CELLS.

Arora S,<sup>1</sup> Cooper PR,<sup>1</sup> Ratnayake JT,<sup>1</sup> Friedlander LT,<sup>1</sup> Rizwan S,<sup>2</sup> Seo B,<sup>1</sup> Rich AM,<sup>1</sup> Hussaini HM<sup>1</sup>

<sup>1</sup>Faculty of Dentistry, Sir John Walsh Research Institute, University of Otago, Dunedin, New Zealand.

<sup>2</sup>School of Pharmacy, University of Otago, Dunedin, New Zealand.

### ABSTRACT

**Introduction:** Dental pulp cells (DPCs) containing stem cells subpopulation are emerging as an attractive tool in regenerative endodontics. Literature on characterisation of inflamed dental pulp cells (iDPCs) is limited. This study aims to isolate and culture the dental pulp cells from healthy / hDPCs and carious or inflamed teeth / iDPCs, and to characterise them for their phenotypic profile.

**Methods:** Pulp tissues were obtained from healthy and carious teeth (n=5 each) using explant technique. Both hDPCs and iDPCs were characterised for mesenchymal expression using immunocytochemistry (ICC). Cells proliferation studies were done by generating growth curves and colony forming efficiency. Further, the expression of inflammatory and mineralisation / regeneration markers (TLR-2, TLR-4, TLR-9, TNF $\alpha$ , IL-1 $\beta$ , IL-6, IL-8, DSPP, DMP-1) in hDPCs and iDPCs were determined using quantitative real-time reverse-transcription polymerase chain reaction.

**Results:** DPCs were cultured successfully from both hDPCs and iDPCs. They showed typical spindle morphology with positive vimentin expression. No statistical difference was observed in the proliferation rate and colony forming efficiency between hDPCs and iDPCs. However, gene expression of TLR-2, TLR-4, TLR-9, IL-6, IL-8, DMP1 and DSPP were significantly higher in iDPCs than hDPCs.

**Conclusion:** This study has shown that hDPCs and iDPCs can be isolated and cultured from healthy and inflamed human dental pulp tissue. From gene analysis point of view, they have maintained their respective phenotypic expression in-vitro.

**Keywords:** dental pulp cells, stem cells, tooth pulp

### Corresponding Author:

Shelly Arora

Department of Oral Diagnostic and Surgical Sciences,

Faculty of Dentistry,

Sir John Walsh Research Institute,

University of Otago,

Dunedin, New Zealand.

e-mail: [arosh907@student.otago.ac.nz](mailto:arosh907@student.otago.ac.nz)

ORA-43

**ASSOCIATION BETWEEN PERCEPTION OF E-CIGARETTES AND THEIR USE IN THE CURRENT AND EVER USERS AMONG YOUTH**

**Ameera Syafiqah Aly<sup>1</sup>, Rokiah Mamikutty<sup>2</sup>, Jamaludin Marhazlinda<sup>2</sup>**

<sup>1</sup>Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia

<sup>2</sup> Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia; Oral Health Program, Ministry of Health Malaysia.

**Background:** Understanding how perception of e-cigarettes relate to their use among youth is essential for planning health prevention and intervention programmes. **Purpose:** This review investigated the association between perceptions of e-cigarettes and their use in the current and ever users among youth. **Methods:** Seventeen databases were searched for published studies on e-cigarette-related perceptions and use in the English language from October, 2019 to January, 2021. Title and abstract, and full-text were screened, followed by data extraction and risk of bias assessment by two independent reviewers, with referral to the third reviewer for un-resolved discrepancies. Meta-analysis followed by sensitivity analysis and publication bias assessment was performed. **Results:** Meta-analysis revealed that compared to the non-users, the ever e-cigarettes users were two or almost three times more likely to have perceived e-cigarette as less harmful (OR: 2.12, 95% CI: 1.59-2.81), less addictive (OR: 2.28, 95% CI: 1.81-2.88), and disagreed that e-cigarette's vapour is harmful (OR: 2.67, 95% CI: 2.42-2.94). Meanwhile, the current e-cigarette users were seven and four times more likely to disagree that e-cigarette is harmful (OR: 7.66, 95% CI: 6.23-9.44), and e-cigarette aerosol is dangerous (OR: 4.78, 95% CI: 3.73-6.13) than the non-users. Regarding perceived benefits, both ever-user and current e-cigarette users have significantly perceived e-cigarettes as less harmful and helpful to quit smoking. Quality of evidence was graded as low to very low-quality (GRADE). **Conclusion:** Perception of e-cigarettes is associated with the use among youth. Thus health promotion and prevention programmes can be geared to tackle how the youth perceived e-cigarettes.

**Keywords:** Electronic Nicotine Delivery Systems, E-cigarettes, Vaping, Youth, Perception

**Corresponding Author:**

Name: Dr. Jamaludin Marhazlinda

Senior Lecturer

Department of Community Dentistry and Clinical Prevention, Faculty of Dentistry,  
University of Malaya, 50603 Kuala Lumpur, Malaysia

Tel: 03-79674805, Fax: 03-79674532

Email: marhazlinda@um.edu.my

ORA-44

## CLINICAL APPLICATION OF VITAMIN C IN MELANIN HYPERPIGMENTATION OF GINGIVA

**Rizwan Sanadi<sup>1</sup>, Revati Deshmukh<sup>2</sup>**

<sup>1</sup> PhD Student, Bharati Vidyapeeth Deemed to be University Dental College & Hospital, Pune-Satara Road, Katraj-Dhankawadi, Pune – 411043 Maharashtra, India

<sup>2</sup> PhD Guide, Bharati Vidyapeeth Deemed to be University Dental College & Hospital, Pune-Satara Road, Katraj-Dhankawadi, Pune – 411043 Maharashtra, India

### ABSTRACT:

**Background:** Melanin hyperpigmentation of gingiva occurs as a diffused, or as irregularly shaped brown, light-brown, deep brown to bluish black discoloration. It is an aesthetic concern especially in individuals with a high smile line. Gingival depigmentation is a periodontal plastic surgical procedure aimed at reducing melanin hyperpigmentation by various techniques: 1) surgical techniques, 2) non-surgical techniques (application of Vitamin C, 90% phenol) and 3) masking the pigmented gingiva. Vitamin C is a water soluble vitamin which inhibits the tyrosinase enzyme activity and thereby reduces melanin synthesis.

**Purpose:** To evaluate the role of Vitamin C to prevent repigmentation of gingiva after surgical depigmentation.

**Methods:** Systemically healthy individuals in the age range of 20 – 45 years with the chief complaint of black looking gums were selected for the study. Subjects taking medications that cause melanin hyperpigmentation, smokers, drug addicts or alcoholics, subjects with autoimmune or endocrine disorders, pregnant and lactating mothers were excluded. Selected sites were assigned as Site A (surgical depigmentation + Vitamin C injection) and Site B (surgical depigmentation). Vitamin C was administered at Site A at 2weeks, 1month and three months interval after surgical depigmentation. The subjects were recalled for assessment of clinical parameters.

**Results:** There was a statistically significant difference seen for the values between the sites ( $p < 0.05$ ) for DOPI score one month and three months with higher values in Site B.

**Conclusion:** Clinical application of Vitamin C in melanin hyperpigmentation of gingiva is an effective, safe, simple and minimally invasive technique for physiological gingival melanin hyperpigmentation.

**Keywords:** melanin hyperpigmentation, gingival depigmentation, vitamin C, melanin synthesis.

### Correspondence:

Dr Rizwan Sanadi

PhD Student, Bharati Vidyapeeth Deemed to be University Dental College & Hospital, Pune-Satara Road, Katraj-Dhankawadi, Pune – 411043 Maharashtra, India

Email: [driz28@yahoo.com](mailto:driz28@yahoo.com) Tel: +919730858235

ORA-45

## DNA IMAGE CYTOMETRY USING A VELSCOPE AS A POSSIBLE ADJUNCT TO ORAL BIOPSY

Pushpanjali Das,<sup>1</sup> Revati Deshmukh<sup>2</sup>

<sup>1</sup>Bharati Vidyapeeth Deemed to be University, Pune – India

<sup>2</sup>Bharati Vidyapeeth Deemed to be University, Pune – India

### ABSTRACT

**Background:** DNA ploidy status may serve as an adjunct in the prediction of malignancy. DNA image cytometry has been utilized in this short study that aids in evaluation of DNA Index, count of aneuploid and normal cells giving a prior indication whether biopsy was mandatory. Velscope accurately identifies the perimeters of the lesion. **Purpose:** To assess the DNA ploidy status and evaluate the susceptibility for malignancy using a velscope. **Methods:** 15 cases of Oral Potentially Malignant Disorders, 5 cases of Healthy Oral Mucosa Velscope with Velscan Brush Biopsy Kit. Cytology specimens were collected using brush biopsy under velscope scan and sent for DNA Ploidy analysis via Image Cytometry. **Results:** Maximum neoplastic cell count was 3124 with a mean DNA Index of 2.24 in oral submucous fibrosis. While Oral Erythroplakia had maximum value of mean DNA Index of 2.68 and cell count of 5579 aneuploid category. **Conclusion:** DNA ploidy via image cytometry has proven to be an excellent indicator of aneuploidy which helps in early detection of malignant transformation potential in oral potentially malignant disorders and aids in reducing the biopsy induced anxiety thus making them more acceptable to histopathological diagnosis.

**Keywords:** DNA Ploidy Evaluation; Oral Potentially Malignant Disorders; Velscope; Malignancy Transformation; Oral Submucous Fibrosis; Oral Leukoplakia; Oral Erythroplakia

**Correspondence:** Dr Pushpanjali Das, Bharati Vidyapeeth Deemed to be University Dental College and Hospital, Bharati Vidyapeeth Deemed to be University Dental College and Hospital, Medical College Road, Katraj, Dhankawadi, dr.pushpanjali.das@gmail.com, 07003476173.

ORA-46

## MATRIX METALLOPROTEINASE-8 LEVELS IN PERI-MINISCREW CREVICULAR FLUID DURING IMMEDIATE AND DELAYED ORTHODONTIC LOADING – A SPLIT MOUTH STUDY

Dhanashree D Khot,<sup>1</sup> Veera I Bhosale,<sup>2</sup> Seyedah Sara Kamyab<sup>3</sup>; Alpana Subodh Moghe<sup>4</sup>; Amol Somaji Patil<sup>2</sup>

<sup>1</sup>Post Graduate Student, Department of Orthodontics and Dentofacial Orthopaedics, Bharati Dental College and Hospital, Bharati Vidyapeeth Deemed to be University, Pune, India.

<sup>2</sup>Professor, Department of Orthodontics and Dentofacial Orthopaedics, Bharati Dental College and Hospital, Bharati Vidyapeeth Deemed to be University, Pune, India.

<sup>3</sup>PhD Scholar, Department of Cell and Molecular Biology, Rajiv Gandhi Institute of IT and Biotechnology, Bharati Vidyapeeth Deemed to be University, Pune, India.

<sup>4</sup>Associate Professor, Department of Cell and Molecular Biology, Rajiv Gandhi Institute of IT and Biotechnology, Bharati Vidyapeeth Deemed to be University, Pune, India

### ABSTRACT

**Objectives:** To compare the matrix metalloproteinase 8 (MMP-8) levels in peri-mini-screw crevicular fluid (PMCF) in immediate and delayed loaded mini-screw implants at different time intervals.

**Materials and Methods:** Titanium orthodontic mini-screws were placed bilaterally between maxillary second premolar and maxillary first molar in attached gingiva of 15 patients for en-masse retraction. This was a split mouth study wherein mini-screws on one side were loaded immediately and those on the other side were loaded on 8<sup>th</sup> day after mini-screw placement. The PMCF was taken from the peri- miniscrew crevice of the immediately loaded implants at 24 hrs, 8<sup>th</sup> day and 28<sup>th</sup> day after loading and from delayed loaded implants at 24 hours, on 8<sup>th</sup> day, 9<sup>th</sup> day and on 28<sup>th</sup> day. ELISA kits were used to determine MMP-8 levels in the PMCF samples. Unpaired 't' test, Anova F and Tukey's Post Hoc tests were used for statistical evaluations. **Results:** Although there were slight alterations in the levels of MMP-8 in PMCF, there was no statistically significant difference in the MMP-8 levels between both the sides. There was statistically significant decrease in the levels of MMP-8 between 24hrs after mini-screw placement to 28<sup>th</sup> day of loading in the delayed loading side (p<0.05). **Conclusion:** There was no significant difference between immediate loading and delayed loading in terms of biologic response to mechanical stress.

**Key words:** Mini-screws, Stability, Immediate Loading, Delayed Loading, Peri-miniscrew crevicular fluid, MMP-8.

### Corresponding Author:

Name: Dhanashree Khot

Email: [drdhanashreepm@gmail.com](mailto:drdhanashreepm@gmail.com)

Tel: +918888317909

## ORA-47

## IS THE WAIST CIRCUMFERENCE OF ASIAN CHILDREN ASSOCIATED WITH DENTAL CARIES?

Rokiah Mamikutty,<sup>1,2</sup> Ameera Syafiqah Aly<sup>1,2</sup> and Marhazlinda Jamaludin<sup>1</sup>

<sup>1</sup> Department of Community Oral Health and Clinical Prevention, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia

<sup>2</sup> Oral Health Programme, Ministry of Health Malaysia, Federal Territory of Putrajaya, Malaysia

### ABSTRACT

**Background:** Dietary sugar is the shared risk factor for dental caries and obesity. Both conditions are a public health concern in Asia. However, the association between these conditions was inconclusive. Body mass index (BMI) may not be the best anthropometric measurement to measure obesity for the Asian population. **Purpose:** This review aimed to investigate whether waist circumference (WC) associates with dental caries among children in Asia. **Methods:** We searched twenty-six databases for published studies in the English language from inception until Jun 2019. Two calibrated reviewers independently screened and selected the studies according to the piloted eligibility criteria. The reviewers then extracted the data and assessed the risk of bias using the Agency for Healthcare Research and Quality (AHRQ) for cross-sectional studies and the Newcastle-Ottawa Scale (NOS) for cohort studies independently. Discrepancies were resolved by discussion and reference to the third reviewers. **Results:** Of 4532 studies retrieved, five studies were eligible, one cohort and four cross-sectional studies, with a total sample of 7738, all with low risk of bias. Harvest plot analysis demonstrated a negative association between WC and caries severity, but no significant association with caries prevalence for primary dentition. In contrast, WC has no significant association with caries severity, but revealed a negative association with caries prevalence for permanent dentition. In mixed dentition, a negative association between WC and caries prevalence was also observed. **Conclusion:** The association between WC and caries is inconclusive due to limited evidence. More studies are required to gather sufficient data for better understanding.

**Keywords:** waist circumference, dental caries, child, Asia

### Correspondence:

Rokiah Mamikutty, Department of Community Oral Health and Clinical Prevention, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia; Oral Health Programme, Ministry of Health Malaysia, Federal Territory of Putrajaya, Malaysia, Email address: rokiah73@gmail.com, Tel. 0135305712

## THE EFFECT OF LACTOBACILLUS RHAMNOSUS L8020 ON PERIODONTAL PATHOGENS IN INTELLECTUALLY DISABLED INDIVIDUALS

Yuki Oda<sup>1)</sup>, Chiaki Furutani<sup>1)</sup>, Tsuyoshi Taji<sup>2)</sup>, Yuika Mizota<sup>3)</sup>, Yuriko Yoshida<sup>1)</sup>, Kota Miyahara<sup>1)</sup>, Hironori Miyazaki<sup>1)</sup>, Masako Morimoto<sup>1)</sup>, Hisaho Yamaguchi,<sup>1)</sup> Yoshifumi Nishio<sup>1)</sup>, Yoshiyuki Okada<sup>1)</sup>, Hiroki Nikawa<sup>2)</sup>

<sup>1)</sup> Department of Special Care Dentistry, Hiroshima University Hospital, Japan

<sup>2)</sup> Department of Oral Health Science, Graduate School of Biomedical and Health Science, Hiroshima University, Japan

<sup>3)</sup> Dental Hygienists Section, Hiroshima University Hospital, Japan

### ABSTRACT

**Background:** Individuals with intellectual disability (ID) have high prevalence of periodontal disease. Periodontal disease is generally associated with *Porphyromonas gingivalis* (P. gingivalis), *Tannerella forsythia* (T. forsythia), and *Treponema denticola* (T. denticola). Bovine milk fermented with *Lactobacillus rhamnosus* L8020 (L8020 yogurt) reduces the oral carriage of periodontal pathogens in vitro. **Purpose:** The aim of this study was to find the effect of daily intake of L8020 yogurt on red complex; P. gingivalis, T. forsythia, T. denticola, in patients with ID by using double-blinded, placebo-controlled randomized clinical trial. **Methods:** 31 patients were randomly divided into 2 groups, L8020 group in which the patients consumed L8020 yogurt and placebo group. They were asked to consume allocated yogurt after breakfast for 90 days. Dental plaque was collected at baseline and 90 days after the consumption. Extracted DNA was analyzed by next generation sequencer. The study protocol was approved by the ethical committee of Hiroshima University (Epidemiology-No. E-342). Statistical analysis used to comparison between two groups were student's t-test, Mann-Whitney U test, Fisher's exact test. Analysis of longitudinal parameters were used for Covariance analysis.

**Results:** The relative abundance of red complex and T. forsythia were significantly reduced in L8020 group compared with placebo group in species level (P=0.0100, P=0.0335). **Conclusion:** The results suggest that continuous consumption of L8020 yogurt could reduce the risk of periodontal diseases in individuals with ID.

**Keywords:** Intellectual disability, periodontal disease, *Lactobacillus rhamnosus*, next generation sequencer

**Correspondence:** name; Hiroki Nikawa

Affiliation; Department of Oral Health Science, Graduate School of Biomedical and Health Science, Hiroshima University, Japan

Address; 1-2-3 Kasumi Minami-ku Hiroshima City, Hiroshima, Japan

Email; [hiroky@hiroshima-u.ac.jp](mailto:hiroky@hiroshima-u.ac.jp)

Telp; +81-082-257-5788

## ORA-49

## COMPARATIVE EVALUATION OF THE EFFECT OF MICRO-OSTEOPERFORATIONS ON THE RATE OF ORTHODONTIC TOOTH MOVEMENT

Prashant Kumar<sup>1</sup>, Abdulqadir H. Rampurawala MDS,<sup>2</sup> Veera I. Bhosale<sup>3</sup>, Amol S. Patil<sup>4\*</sup>

<sup>1</sup>Postgraduate, Department of Orthodontics and Dentofacial Orthopedics, Dental College and Hospital, Bharati Vidyapeeth Deemed To Be University, Pune, Maharashtra, India.

prashantkumar14@gmail.com

<sup>2</sup>Postgraduate, Department of Orthodontics and Dentofacial Orthopedics, Dental College and Hospital, Bharati Vidyapeeth Deemed To Be University, Pune, Maharashtra, India.

[aqrampura@gmail.com](mailto:aqrampura@gmail.com)

<sup>3</sup>Professor and Head, Department of Orthodontics and Dentofacial Orthopedics, Dental College and Hospital, Bharati Vidyapeeth Deemed To Be University, Pune, Maharashtra, India.

ira.bhosale@yahoo.in.

<sup>4</sup>Professor, Department of Orthodontics and Dentofacial Orthopedics, Dental College and Hospital, Bharati Vidyapeeth Deemed To Be University, Pune, Maharashtra, India.

[amolp66@gmail.com](mailto:amolp66@gmail.com)

### ABSTRACT

**Introduction:** Prolonged orthodontic treatment time has always been a major concern among individuals, especially adults, leading them to avoid treatment or seek alternative options. Micro-osteoperforations is a safe, minimally invasive and cost-effective treatment modality that initiates the regional acceleratory phenomenon (RAP) by inducing controlled micro-trauma in the inter-dental bone. The aim of this study was to evaluate the effect of micro-osteoperforations on the rate of tooth movement in en-masse space closure cases. **Material and Methods:** Twenty adults were divided into control and experimental groups. The experimental group received 3 micro-osteoperforations in the inter-dental regions between all six anterior teeth as well as distal to the canines at monthly intervals for two consecutive months in both maxillary and mandibular arch. Alginate impressions were taken for dental casts at each monthly visit for 4 months (T<sub>0</sub> to T<sub>4</sub>). Linear measurements were recorded on each cast using a digital caliper with an accuracy of 0.01 mm. **Results:** There was a statistically significant difference between both the groups. Micro-osteoperforations significantly increased the rate of tooth movement. The patients did not report any pain or discomfort during or after the procedure, or any other complications. **Conclusions:** Micro-osteoperforation is an effective, comfortable, and safe procedure to expedite orthodontic tooth movement and thereby significantly reduce the duration of orthodontic treatment.

### Key Words

Micro-osteoperforations, regional acceleratory phenomenon, accelerated tooth movement

**Corresponding Author:** Amol S. Patil, Department of Orthodontics and Dentofacial Orthopedics, Dental College and Hospital, Bharati Vidyapeeth Deemed To Be University, Pune - 411043, Maharashtra, India.

e-mail: [amolp66@gmail.com](mailto:amolp66@gmail.com)

Mobile: +91-7774048166

## COMPARISON OF THE EFFECTS OF LASER IRRADIATION AND CONVENTIONAL ACID ETCHING ON THE SURFACE CHARACTERISTICS AND BOND STRENGTH OF BONDED MOLAR TUBES - AN IN-VITRO STUDY

Anisha H Revdekar,<sup>1</sup> Anand Sabane,<sup>2</sup> Veera I Bhosale,<sup>3</sup> Amol Patil<sup>4</sup>

<sup>1</sup>Post Graduate Student, Department of Orthodontics and Dentofacial Orthopaedics, Bharati Dental College and Hospital, Bharati Vidyapeeth Deemed to be University, Pune, India

<sup>2</sup>Associate Professor, Department of Orthodontics and Dentofacial Orthopaedics, Bharati Dental College and Hospital, Bharati Vidyapeeth Deemed to be University, Pune, India.

<sup>3</sup>Professor and Head of Department, Department of Orthodontics and Dentofacial Orthopaedics, Bharati Dental College and Hospital, Bharati Vidyapeeth Deemed to be University, Pune, India

<sup>4</sup>Professor, Department of Orthodontics and Dentofacial Orthopaedics, Bharati Dental College and Hospital, Bharati Vidyapeeth Deemed to be University, Pune, India.

### ABSTRACT

**Introduction:** The aim of study is to determine if laser irradiated enamel may be a viable alternative to acid etching for orthodontic bonding of molar tubes. **Method:** 60 extracted permanent molars were divided into 3 groups of 20 each. Group I was irradiated with Er:YAG laser for 15 secs, group II with Er;Cr:YSGG laser for 15 secs and group III was etched with 37% phosphoric acid. 10 samples from each group were observed under scanning electron microscope and later all 60 samples were bonded with molar tubes. Molar tubes were debonded and shear bond strength was recorded. Adhesive remnant index was measured under electron microscope (2000X). **Results:** Shear bond strength with Er:YAG laser etching was significantly higher than with acid etching and Er;Cr:YSGG laser etching. Er:YAG laser etching and Er;Cr:YSGG laser etching showed Type III etching pattern with microcracks while acid etching showed Type I etching pattern. Adhesive remnant index was significantly higher for Er:YAG laser etching as compared to conventional acid etching. **Conclusion:** Er:YAG and Er;Cr:YSGG laser etching is a viable alternative to acid etching for bonding of bondable molar tubes.

**Keywords:** Er:YAG laser, Er;Cr:YSGG laser, shear bond strength, scanning electron microscopy, adhesive remnant index

### Corresponding Author –

Address for Correspondence - Dr. Anisha H Revdekar, Department of Orthodontics and Dentofacial Orthopedics, Bharati Dental College and Hospital, Bharati Vidyapeeth Deemed to be University, Pune- 411043, Maharashtra, India.

Telephone - +91-9769995582

Email – [revdekaranisha@gmail.com](mailto:revdekaranisha@gmail.com)

## ANTIBACTERIAL PERFORMANCE AND SHOCK ABSORBANCE OF MOUTHGUARD MATERIAL INCORPORATED WITH SILVER-NANOPARTICLES-EMBEDDED EVA MASTERBATCH

Yuriko Yoshida<sup>1,2</sup>, Hiroshi Churei<sup>1</sup>, Takahiro Wada<sup>3</sup>, Yasuo Takeuchi<sup>4</sup>, Motohiro Uo<sup>3</sup>, Yoshiyuki Okada<sup>2</sup>, Toshiaki Ueno<sup>1</sup>

<sup>1</sup>Department of Sports Medicine/Dentistry, Tokyo Medical and Dental University, Tokyo, Japan.

<sup>2</sup>Department of Special Care Dentistry, Hiroshima University Hospital, Hiroshima, Japan.

<sup>3</sup>Department of advanced Biomaterials, Tokyo Medical and Dental University, Tokyo, Japan.

<sup>4</sup>Department of periodontology, Tokyo Medical and Dental University, Tokyo, Japan.

### ABSTRACT

**Introduction:** Despite there is a risk that mouthguard will be contaminated through contact with various oral and soil bacteria, there is still no antibacterial activated mouthguard. The aim of this study was to develop a new mouthguard material that has an antibacterial property on its surface using silver nanoparticles. **Methods:** An experimental material was fabricated by thermoforming with a sheet made of EVA co-polymer masterbatch which contains silver nanoparticles at 5,000 ppm (Japan Ion Co., Japan) and a commercial EVA mouthguard sheet (Erkodent Co., Germany). Antibacterial efficacy against *Streptococcus sobrinus*, *Porphyromonas gingivalis* and *Escherichia coli* was assessed by ISO22196 test with minor modifications. To confirm shock-absorbing capability, impact test was performed by free falling a steel ball (impact load; 648.9N). Peak intensity (PI) and time to PI were analyzed. **Results:** In vitro the growth of bacteria were suppressed on sheet of an experimental material compared with a commercial EVA mouthguard sheet. PI and time to PI of experimental material was 405.7 N and 0.39 msec respectively. There were no significant differences of the impact test data between the material and commercial mouthguard sheet. **Conclusion:** The results suggested that the new-developed experimental mouthguard material had strong enough antibacterial activity, and had equivalent shock absorption to commercial mouthguard sheet.

**Keywords:** mouth guard, silver-nanoparticle, impact test, antibacterial material

Corresponding Author:

Name: Toshiaki Ueno

Email: yoshiyu@hiroshima-u.ac.jp

Telp: +81-82-257-5788

ORA-52

**ASSESSMENT OF CENTRE OF RESISTANCE OF MAXILLARY LATERAL INCISOR WITH DIFFERENT ALVEOLAR BONE HEIGHT AND CROWN ROOT RATIO - A FEM STUDY**

**Shivani**

**Abstract**

**Objective:** Measure and Compare the CRes of maxillary lateral incisor with different alveolar bone height and crown-to-root ratio with root resorption by applying a force of 1N labiolingually by Finite Element Analysis. **Materials and Methods:** Eight 3-dimensional models of maxillary lateral incisor of different alveolar bone height and root resorption were formulated. The alveolar bone and root length as the sole difference of these models was considered to have 13 (normal situation), 12, 10.5, 8 and 5 mm heights and root length 0mm, less than 2mm, more than 2mm but less than one third of original root length, and root resorption more than one third of original root length. The CRes is derived from the M/F ratio which produced the bodily movement by using the formula  $M = F \times d$ . **Results:** Bone loss causes CRes movement toward the apex and as the amount of apical root resorption increases, the CRes moves coronally. The study also suggested M/F ratio required to produce bodily movement increases in association with alveolar bone loss and decreases with root resorption. **Conclusions:** The study showed applied force and moment magnitudes must be reduced in proportion to maintain physiologically tolerable movements with minimal damage to the supporting structures. This necessitates modifications in the applied force system to produce the same movement as in a tooth with a healthy supporting structure.

**Key Words:** Alveolar bone loss, center of resistance, crown-root ratio, finite element method.

## MANDIBULAR LATERAL DEVIATION DETECTION OF POSTEROANTERIOR CEPHALOGRAMS USING A DEEP LEARNING APPROACH

Shota Okazaki,<sup>1</sup> Yuichi Mine,<sup>1</sup> Yuki Yoshimi,<sup>2</sup> Shota Ito,<sup>2</sup> Saori Takeda,<sup>1</sup> Kotaro Tanimoto,<sup>2</sup> Takeshi Murayama<sup>1</sup>

<sup>1</sup> Department of Medical System Engineering, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima – Japan

<sup>2</sup> Department of Orthodontics and Craniofacial Developmental Biology, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima – Japan

### ABSTRACT

**Background:** Artificial intelligence (AI) is rapidly attracting for its application in the medical field due to its ability to solve complex tasks. Mandibular lateral deviation is easily recognized in patients with severe facial asymmetry. Since this condition leads to functional impairment, facial symmetry affects the satisfaction of orthodontic treatment. Assessment of the mandibular deviation in posteroanterior (PA) cephalograms are complex but clinically important steps in orthodontic treatment planning. **Purpose:** We examined the applicability of deep learning-based convolutional neural network (CNN), a branch of AI, to the detection of mandibular lateral deviation. **Methods:** A CNN model, AlexNet, was employed in this study. The total of 450 PA cephalograms were analyzed retrospectively. Two orthodontists annotated four landmarks: neck of crista galli, right and left latero-orbital, and menton. Then, the horizontal reference line (a straight line connecting the right and left latero-orbital) and vertical reference line (VRL; a perpendicular line to the horizontal reference line through the neck of crista galli) were defined. The distance between menton and VRL was measured and defined the datasets of less than 4 mm (L4; 354 images) and more than 4 mm (M4; 96 images). The all images were split in 80% of training dataset and 20% of test dataset and trained into the AlexNet algorithm. **Results:** The classification accuracy, precision, recall, F1 score, and area under the curve of models were 86%, 68%, 68%, 68%, and 0.8, respectively. **Conclusion:** These results suggested that AI is potentially applicable to computer-aided diagnosis of mandibular deviation.

**Keywords:** Artificial intelligence; Convolutional neural network; Deep learning; Mandibular deviation; Posteroanterior cephalograms

**Correspondence:** Yuichi Mine, Department of Medical System Engineering Graduate School of Biomedical and Health Sciences Hiroshima University, 1-2-3 Kasumi Minami-ku Hiroshima City Hiroshima Japan, mine@hiroshima-u.ac.jp, +81 82-257-5446.

## A CONTENT ANALYSIS OF FAKE BRACES ADVERTISEMENTS ON INSTAGRAM

Nor Azlida Mohd Nor<sup>1</sup>, Yasmin Kamarudin<sup>2</sup>, Muhammad Husaini Ab-Aziz<sup>3</sup>, Chanthiriga Ramasindarum<sup>4</sup>

<sup>1</sup> Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, Universiti Malaya, Kuala Lumpur, Malaysia

<sup>2</sup> Department of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, Universiti Malaya, Kuala Lumpur, Malaysia

<sup>3</sup> Beranang Dental Clinic, Selangor State Oral Health Division, Ministry of Health, Malaysia

<sup>4</sup> Research Cluster Officer, Institutes of Research Management and Services, Universiti Malaya, Kuala Lumpur, Malaysia

### ABSTRACT

**Background:** “Fake braces” is a term used to describe fixed orthodontic appliances that are ‘installed’ by unlicensed providers. In recent years, it has gained much popularity in Malaysia. Their services are typically marketed using social media to influence young people. **Purpose:** This study aimed to conduct a content analysis on Instagram posts by fake braces providers. **Methods:** Initial screening of Instagram accounts was done using relevant hashtags (#fakebraces, #cheapbraces). Public Instagram accounts that fulfilled the inclusion criteria were assigned a code and followed for a one-month period. Two assessors were involved in extracting information from the accounts. Data were coded and analysed descriptively using Microsoft Excel. **Results:** Thirty-eight Instagram accounts were analysed. Within the one-month timeframe, 2831 images/videos were posted, receiving 7165 likes, and videos were viewed 21,918 times. Majority of the posts were related to fake braces services (e.g. location, operation time and price). Approximately 14.5% of posts were related to other dental services (whitening, veneer) and 7.7% were related to braces procedures. Majority of fake braces installation were provided via home services and 23.7% offered both home and door-to-door services. Cost for braces installation per arch ranged from MYR 50 to MYR 180, and complete installation (upper and lower) ranged from MYR 150 to MYR 500. Some posts aimed to manipulate consumer emotions by justifying their services and existence. **Conclusion:** Unlicensed braces providers use a variety of advertising methods on Instagram. Dental professionals also need to develop counter-marketing campaigns using social media. Effort should be made to increase public awareness, directing them towards reliable information about orthodontic services.

**Keywords:** fake braces, illegal dentistry, Instagram, orthodontics, social media

**Correspondence:** Nor Azlida Mohd Nor, Faculty of Dentistry, Universiti Malaya, 50603 Kuala Lumpur, Malaysia. Email address: azlida@um.edu.my, Phone number: +60379674805

## ORA-55

**ORAL HEALTH CHALLENGES FACED BY PARENTS OF CHILDREN WITH AUTISM SPECTRUM DISORDER (ASD).****Husna Fatimah Mohd Zamri<sup>1</sup>, Anis Amira Azmi<sup>1</sup>, Haslina Rani<sup>2</sup>, Tuti Ningseh Mohd Dom<sup>2</sup>**<sup>1</sup> Faculty of Dentistry, National University of Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia<sup>2</sup> Department of Family Oral Health, Faculty of Dentistry, National University of Malaysia, Kuala Lumpur, Malaysia**ABSTRACT**

**Introduction.** Children with Autism Spectrum Disorder (ASD) exhibit defining characteristics that may pose a challenge to parents when caring for their child's oral health at home and when seeking professional care. This study was conducted to explore the oral health challenges faced by parents who act as the primary caregiver to children with ASD. **Methods.** This was a cross-sectional study among 52 pairs of ASD children and their primary caregivers, with 52 pairs of healthy children and their caregivers as control. An online questionnaire was used to capture participants' sociodemographic, barriers and challenges towards oral health care. Data analysis of quantitative data was conducted via SPSS version 27. Chi-square and Fisher's exact tests were used to explore the difference for categorical variables between groups. Mann-Whitney U test was used to compare continuous data. Level of significance was set at  $p < 0.05$ . Thematic analysis was conducted to discover themes that emerged from the open-ended questions. **Results.** Parents of ASD children reported having barriers and challenges in taking care of their children's oral hygiene, both at home and in the professional setting, compared to the control group of non-ASD children. A higher proportion of the parents of ASD children (76.9%) reported their children's resistance to having their teeth cleaned as compared to the healthy group (48.1%) ( $p < 0.001$ ). Increased sensory sensitivities and lack of clinician's knowledge are the main contributors to the professional care barriers. **Conclusion.** Parents with ASD children faced barriers and challenges in maintaining their children's oral hygiene both during home oral care and professional care.

**Keywords:** Oral health, Caregivers, Children, Challenges, Barriers**Corresponding Authors:**

Husna Fatimah Mohd Zamri

Email: [unazamri@gmail.com](mailto:unazamri@gmail.com) Tel: +6019-2526455

Anis Amira Azmi

Email: [ansamrazm97@gmail.com](mailto:ansamrazm97@gmail.com) Tel: +6012-6222420

Dr. Haslina Rani

Email: [hr@ukm.edu.my](mailto:hr@ukm.edu.my) Tel: +603-92897750

## ORA-56

## DEMINERALIZED DENTINE MATERIAL MEMBRANE: OSTEOCLAST, OSTEOBLAST, AND RUNX2 DIFFERENTIATION AND ITS POTENTIAL FOR GUIDED BONE REGENERATION

Pratiwi Soesilawati<sup>1</sup>, Oki Fadhila<sup>2</sup>, Agnes Paramitha Nastiti<sup>3</sup>, Taufan Bramantoro<sup>4</sup>

<sup>1</sup>Department of Oral Biology, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>2</sup>Postgraduate Student of Dental Health Science, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>3</sup>Undergraduate Student, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>4</sup>Department of Dental Public Health, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

### ABSTRACT

**Background:** Guided bone regeneration is a reconstruction procedure for alveolar defects using a protective membrane with the aim of avoiding the expansion of soft tissue proliferation towards bone defects that should be filled with bone cells. Dentin is an alternative osteoinductive and osteoconductive material because it has a matrix composition similar to bone. **Purpose:** This study purpose was to analyze the difference number of osteoclast, osteoblasts and RUNX-2 expression post implantation of Demineralized Dentine Material Membrane (DDMM) as Guided Bone Regeneration (GBR) in alveolar bone defects of wistar mice. **Methods:** Subjects consisted of male *rattus norvegicus* mice, were divided into 5 groups with mandibular bone defects (negative control, BPCM implantation, DDMM implantation, DDMM + Graf implantation, and BPCM + Graf implantation). Tissue sample were collected at 7, 14, 21, and 28 days after implantation. The number of osteoclast and osteoblasts were observed in Hematoxylin Eosin (HE) staining and the expression of RUNX-2 were observed in Immunohistochemistry (IHC) staining using light microscope. **Results:** There was a significant increase in the number of osteoclast, osteoblasts and the expression of RUNX-2 after DDMM implantation compared to all groups in the 7th days ( $p$  value  $<0.05$ ). There was no significant increase in the number of osteoblasts and the expression of RUNX-2 after DDMM implantation compared to BPCM, either with the addition of graft material or not ( $p$  value  $> 0.05$ ) in the 14th, 21th, and 28th days. **Conclusion:** there was an increase in the number of osteoclast, osteoblasts and RUNX-2 after implantation of Demineralized Dentin Material Membrane (DDMM) in alveolar bone defects of wistar rats

**Keywords:** Bone Remodeling, Guided Bone Regeneration, Osteoclast, Osteoblasts, RUNX-2

**Correspondence:** Pratiwi Soesilawati, Department of Oral Biology, Faculty of Dental Medicine, Universitas Airlangga, Prof Moestopo 47 Surabaya, Indonesia, pratiwi-s@fkg.unair.ac.id, 08123240605

## ORA-57

## THE EFFICACY OF OKRA FRUIT EXTRACT ON THE EXPRESSION OF TRANSFORMING GROWTH FACTOR BETA-1 IN THE TOOTH SOCKET OF DIABETIC WISTAR RATS

Muhammad Luthfi<sup>1\*</sup>, Yuliati<sup>1</sup>, Elvina Hasna Wijayanti<sup>2</sup>, Fathilah Binti Abdul Razak<sup>3</sup>, Wahyuning Ratih Irmalia<sup>4</sup>

<sup>1</sup>Departments of Oral Biology, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia.

<sup>2</sup>Undergraduate Program, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia.

<sup>3</sup>Department of Oral and Craniofacial Sciences. Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

<sup>4</sup>Indonesian Health Collaboration and Innovation Institute, Surabaya, Indonesia.

### ABSTRACT

**Background:** Patients with diabetes mellitus suffer from an additional macrophage dysfunction in the secretion of growth factor, which later decreases transforming growth factor beta 1 (TGF- $\beta$ 1). This condition disrupts proliferation and angiogenesis. Extract of okra fruit (*Abelmoschus esculentus*) contains flavonoid, an active substance which acts as antioxidant, anti-inflammation, and anti-diabetes. The purpose of this study is to analyze the difference in TGF- $\beta$ 1 expression in wound-healing process after tooth extraction of diabetic Wistar rats. **Materials and Methods:** This is a laboratory experimental study using pretest and post-test on 24 Wistar rats which are divided into two groups: control group (treated with streptozotocin induction but without administration of okra fruit extract) and treatment group (treated with streptozotocin induction and oral administration of 250mg/kg okra fruit extract once a day). Extractions of the rats' mandibular left incisors were performed using a pair of modified forceps and an elevator. The tooth sockets were then irrigated using saline solution. Four rats in each group were sacrificed on day 3 (KO1, PO1), 5 (KO2, PO2), and 7 (KO3, PO3). The socket tissues from the rats were then immunohistochemically analyzed. Data were analyzed at level significant of 0.05. **Results:** The average level of TGF  $\beta$ 1 expression in the treatment groups was higher compared to the control group: PO1 ( $11.59 \pm 0.58$ ), PO2 ( $15.15 \pm 1.07$ ), and PO3 ( $18.75 \pm 2.73$ ) as compared to KO1 ( $5.32 \pm 1.69$ ), KO2 ( $8.47 \pm 0.60$ ), and KO3 ( $9.28 \pm 1.16$ ) with  $P = 0.001$ . **Conclusion:** The administration of okra fruit extract can increase the level of TGF  $\beta$ 1 in wounds after tooth extraction of diabetic Wistar rats.

**Keywords:** Diabetes mellitus, okra fruit, transforming growth factor beta 1, wound healing,

**Correspondence:** Muhammad Luthfi, Department of Oral Biology, Faculty of Dental Medicine, Universitas Airlangga, Prof Moestopo 47 Surabaya, Indonesia, Email: m.luthfi7@yahoo.com, m.luthfi@fkg.unair.ac.id; Phone: +62315030132

CR-1

MANAGEMENT OF HERPES ZOSTER IN ELDERLY IN THE COVID-19 PANDEMIC ERA THROUGH TELEMEDICINE

Ida Bagus Pramana Putra Manuaba,<sup>1</sup> Winda Dwi Malinda Masuku,<sup>1</sup> Adiastuti Endah Parmadiati,<sup>2</sup> Kevin Sebastian Ricky Putra<sup>3</sup>

<sup>1</sup>Student of Oral Medicine Specialistic Degree. Faculty of Dental Medicine. Universitas Airlangga. Surabaya 60132-Indonesia

<sup>2</sup>Departement of Oral Medicine. Faculty of Dental Medicine. Universitas Airlangga. Surabaya 60132-Indonesia

<sup>3</sup>Dental Health Unit of Puskesmas Kepi, Mappi District. Papua-Indonesia

**ABSTRACT**

**Background:** Herpes zoster or also known as shingles caused by reactivation of the varicella zoster virus (VZV), which in its primary infection causes chickenpox. It characterized as painful blisters on one side of the body. It can occurs by decreased VZV cell-mediated immunity therefore age or immunocompromised. **Purpose:** This case report to inform the development and management of herpes zoster in a 73 year old women through telemedicine in COVID-19 pandemic era. **Case:** Patient complaint a painful sore in the mouth and a resilient in the face in the left side accompanied by burning sensation. **Case Management:** Patient was prescribed acyclovir for the presumptive diagnosis of herpes zoster, ibuprofen, povidone iodine 1% oral rinse, and multivitamin B complex. Patient also instructed to blood and glucose count, liver function, and kidney function. **Conclusion:** Administration of antiviral therapy in early stage of the disease may reduce the severity of lesions and increase healing time.

**Keywords:** Varicella zoster virus; herpes zoster; elderly

**Correspondence:** Adiastuti Endah Parmadiati, Departement of Oral Medicine Faculty of Dental Medicine Universitas Airlangga, Jln. Prof. Dr. Moestopo No 47 Surabaya 60132-Indonesia, [Adiastutie@gmail.com](mailto:Adiastutie@gmail.com), +628133182659.

CR-2

## MANAGEMENT OF BREASTFEEDING MOTHER WITH PYOGENIC GRANULOMA: A CASE REPORT

Ni Wy Rima Tiara Wahyudiana<sup>1</sup>, Winda Dwi Malinda Masuku<sup>1</sup>, Adiastuti Endah Parmadiati<sup>2</sup>, Lysse Ajeng Asmara<sup>3</sup>

<sup>1</sup>Oral Medicine Specialist Degree. Faculty of Dental Medicine. Airlangga University. Surabaya 60132-Surabaya, Indonesia

<sup>2</sup>Department of Oral Medicine. Faculty of Dental Medicine. Airlangga University. Surabaya 60132-Surabaya, Indonesia

<sup>3</sup>Dentist of Safira Denta Care, Pamulang, Tangerang Selatan, Banten

### ABSTRACT

**Background:** Pyogenic granuloma is a relatively common benign vascular tumor, usually appearing on the gingiva, tongue, lips and buccal mucosa. Pyogenic granuloma can occur in young adults, generally in women and usually occur in pregnant women due to chronic irritation and increased female sex hormones. In our case it occurred in a breastfeeding woman. Clinically, pyogenic granuloma appears round, red, stem-like nodules that bleed easily. **Purpose:** This case report to management a 30-year-old female patient, breastfeeding a 2-month-old baby via telemedicine in the era of the COVID-19 pandemic. **Case:** Patient complains of a lump on the tongue, pain when touched and bleeding easily. **Case Management:** Patient was prescribed aloe vera extract gel and refer to surgical whole tumor tissue fixation with 10% formalin for histopathological examination, also educate patient not to touch the lesions with the teeth, eat soft foods and juices. **Conclusion:** Excision biopsy is performed to confirm the diagnosis of benign tumors and accelerate the healing of lesions

**Keyword:** Pyogenic granuloma, hyperplasia, breastfeeding mother

Correspondence: Adiastuti Endah Parmadiati, Departement of Oral Medicine Faculty of Dental Medicine Universitas Airlangga, Jln. Prof. Dr. Moestopo No 47 Surabaya 60132-Indonesia, [Adiastutie@gmail.com](mailto:Adiastutie@gmail.com) , +628133182659.

## CR-3

## TREATMENT OF NON-SPECIFIC INFLAMMATION MIMICKING ORAL SARCOMA: A RARE CASE REPORT

Stefanus Ferry Setiawan<sup>1</sup>, Andra Rizqiawan<sup>2</sup>, Barmadisatrio<sup>3</sup>, and Indra Mulyawan<sup>2</sup>

<sup>1</sup> Oral and Maxillofacial Surgery Resident, Faculty of Dental Medicine Universitas Airlangga, Surabaya, Indonesia

<sup>2</sup> Department of Oral and Maxillofacial Surgery, Faculty of Dental Medicine Universitas Airlangga / Hospital of Universitas Airlangga, Surabaya, Indonesia

<sup>3</sup> Department of Surgery, Pediatric Surgery Division, Faculty of Medicine Universitas Airlangga / Hospital of Universitas Airlangga, Surabaya, Indonesia

### ABSTRACT

**Background:** Sarcoma occurring in oral and maxillofacial is a rare case. Sarcoma of the oral cavity is rare accounting for around 1% of all malignant oral tumors. These tumors usually grow rapidly and aggressive. **Purpose:** To show the treatment of non-specific inflammation mimicking oral sarcoma. **Case(s):** We herein report a patient with a history of a lump in the maxilla. Initially the size of a pea, painless and gum-colored, and doesn't bleed easily. It grew up rapidly for 4 months. **Case Management:** The patient planned to be performed existential biopsy by the collaborative Pediatric Surgery and Oral and Maxillofacial Surgery for obturator fitting. The pathology anatomy results from the biopsy shows that the lesion was surprisingly a non-specific inflammatory process. After 2 months, there was bleeding at the maxilla after removal of sutures at obturator and there was granulation tissue under the obturator. After that, the patient planned to receive excision of granulation tissue and ostectomy with general anesthesia. Because the defect was so vast, reconstruction with vestibular flap for excellent defect closure needed. **Conclusion:** After 3 weeks the control showed a satisfactory result.

**Keywords:** inflammation, sarcoma, mimicking, pediatric, treatment

### Correspondence:

Indra Mulyawan

Email: indramulyawan@fkg.unair.ac.id Tel: +628175232323

CR-4

**MANAGEMENT OF PATIENTS WITH APHTHOUS LIKE ULCER ET CAUSA APLASTIC ANEMIA IN THE COVID-19 PANDEMIC ERA : A CASE REPORT**

**Lani Berlina Talahatu<sup>1</sup>, Bima Ewando Kaban<sup>1</sup>, Nurina Febriyanti Ayuningtyas<sup>2</sup>, Intan Noha Brilyanti<sup>3</sup>**

<sup>1</sup>Oral Medicine Specialist Degree. Faculty of Dental Medicine. Airlangga University. Surabaya 60132-Surabaya, Indonesia

<sup>2</sup>Department of Oral Medicine. Faculty of Dental Medicine. Airlangga University. Surabaya 60132-Surabaya, Indonesia

<sup>3</sup>Internist of Internal Medicine Clinic. RSD dr. Soebandi Jember. 68111-Jember, Indonesia

**ABSTRACT**

Aplastic anemia is a disease caused by heredity, autoimmune, exposure to chemicals, drugs and radiation, where the body fails to produce enough blood cells. This case report discusses the management of patients with Aphthous Like Ulcer et causa Aplastic Anemia in a woman aged 34 years, based on history and clinical examination through telemedicine, as well as blood tests. The patient was complaining of a wound that bleeds easily on the inner left cheek and corner of the left lip that appeared 1 month ago. The diagnosis was Aphthous Like Ulcer et causa Aplastic anemia. Patients were treated with topical antiseptic and anti-inflammatory mouthwashes. The lesions improved after the patient received a blood transfusion, but the lesions reappeared in other locations in the oral cavity when the platelet level dropped. Management of oral manifestations in patients with aplastic anemia requires a multidisciplinary approach to achieve complete recovery.

**Keyword :** Aphthous like ulcer, aplastic anemia, oral ulcer

**Corresponding Author :**

Nurina Febriyanti Ayuningtyas

Email : [nurina.ayoe@gmail.com](mailto:nurina.ayoe@gmail.com)

Tel : +6285852235466

## CR-5

## MALOCCLUSION ASSOCIATED WITH NON-UNION MANDIBLE RESULTING FROM INADEQUATE FRACTURE TREATMENT: A CASE REPORT

Eka Pramudita Djimantoro<sup>1</sup>, Stefanus Ferry Setiawan<sup>1</sup> and David B.Kamadjaja<sup>2</sup>

<sup>1</sup>Residency Program of Oral and Maxillofacial Surgery Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

<sup>2</sup>Departement of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

### ABSTRACT

**Background:** Understanding proper surgical management of mandibular fractures can prevent complications such as malocclusion, pain, and revision procedures. **Purpose:** This case report aims to present management of inadequate treatment of mandibular fractures resulting in non-union bone and malocclusion. **Case Management:** A case report of an 18-year-old female patient with non-union mandibular fracture post open reduction and internal fixation (ORIF) managed with revision procedures is presented. *Clinical and radiographical examination showed inappropriate application of miniplates with evidence of non-union mandible at the symphysis and left angle of mandible.* The treatment consisted of removal of the old miniplates placement of upper and lower the arch bars followed by gradual reposition using elastic bands. Once proper occlusion was acquired, intermaxillary fixation (IMF) was established and *few miniplates placed on the fracture sites.* Four months post operation, the healing was uneventful, occlusion stable and radiographically no fracture line seen indicating a successful treatment. **Conclusion:** Non-union mandibular fracture may be caused by inadequate reposition, fixation and immobilization of bone fragments as well as traumatic occlusion due to undetected malocclusion. Management of non-union mandible include removal of the old implants, establishment of proper occlusion, debridement and bone freshening, reposition and internal fixation with miniplates and screws.

**Keywords:** non-union fracture, malocclusion, revision management

Corresponding Author:

Prof. Dr. David B. Kamadjaja, drg., MDS., Sp.BM(K)

Email : david-b-k@fkg.unair.ac.id

Departemen Bedah Mulut dan Maksilofasial, Fakultas Kedokteran Gigi Universitas Airlangga Surabaya, Jl Mayjen Prof. Dr. Moestopo 47 (60132)

## CR-6

## A RARE CASE OF JUVENILE OSSIFYING FIBROMA

Sergio Santoso<sup>1</sup>, Ni Putu Mira Sumarta<sup>2</sup> and, Okky Prasetyo<sup>3</sup>

<sup>1</sup>Oral and Maxillofacial Surgery Specialist Program, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia.

<sup>2</sup>Department of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia.

<sup>3</sup>Oral and Maxillofacial Surgery Division, RSUD M. Soewandhie Dental Clinic Surabaya, Indonesia.

**ABSTRACT**

**Background:** Juvenile Ossifying fibroma (JOF) is benign fibro-osseous tumors characterized by a rapid growth and high recurrence rate ranging from 30 to 58%. Diagnosis and management of JOF still remains difficult and controversial. It requires careful and precise examination to establish the diagnosis and appropriate treatment. **Purpose:** To explain the diagnosis and management on a rare case of JOF. **Case:** 11-year-old boy with chief complaint of painless lump on the left maxilla since 3 months and not associated with odontogenic lesion. Extraoral examination revealed facial asymmetry on the left maxilla, intraoral examination revealed a firm mass with normal appearance of oral tissues in the buccal vestibular region. CT scan and incisional biopsy was performed, then the lesion was diagnosed as JOF. **Case Management:** Considering the patient's age and tumor size, a conservative approach with surgical excision through intraoral approach was performed and post-operative histopathological examination confirmed the diagnosis of psammomatoid JOF. The patient was followed up and recurrence was found six months post operation through radiographic evaluation. Hemimaxillectomy with Weber-Ferguson approach was then performed and followed up with no evidence of recurrence. **Conclusion:** Psammomatoid JOF is a rare tumor with high risk of recurrence. It should be operated on early stage because of its rapid growth and conservative approach with surgical excision is recommended for small size tumors. Furthermore, its early diagnosis and adequate treatment followed by long-term follow-up of the patient is indispensable.

**Keywords:** Fibro-osseous lesion, Psammomatoid Juvenile Ossifying fibroma, Surgical Excision, Hemimaxillectomy.

**Corresponding Author:** Ni Putu Mira Sumarta, Department of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia, niputu.mira@fkg.unair.ac.id, +62817307913.

CR-7

**CASE REPORT: XEROSTOMIA PATIENT WITH TYPE 2 DIABETES MELLITUS**

**Maslah Siregar<sup>1</sup>, Bima Ewando Kaban<sup>2</sup> and Nurina Febriyanti Ayuningtyas<sup>3</sup>**

<sup>1,2</sup> Resident of Oral Medicine Department, Dentistry Faculty, Universitas Airlangga, Surabaya – Indonesia

<sup>3</sup> Staff of Oral Medicine Department, Dentistry Faculty, Universitas Airlangga, Surabaya – Indonesia

**ABSTRACT**

**Background:** Xerostomia, a subjective complaint of dry mouth, is a common complaint of almost half of the elderly population. It causes few signs and symptoms, and interferes with oral function and quality of life. Diabetes mellitus is a multisystemic unwellness characterized by symptom because of defects in endocrine secretion, endocrine action or both. Xerostomia or dry mouth is a common complication seen in diabetic patients. **Purpose:** To provide a reference for clinical practice in the case of xerostomia patients with type 2 Diabetes Mellitus. **Case(s):** A 67-year-old woman came to Dental Hospital Universitas Airlangga with complaints of dry mouth, difficulty chewing and swallowing for 2 months. The patient has a history of type 2 diabetes mellitus (T2DM). The results of sialometry 0.2mL/min and random blood glucose and 2 hours postprandial blood glucose test, HbA1c showed high results. **Case Management:** Treated with chlorine dioxide oral rinse and, by an internist, her blood sugar with metformin, glimepiride, and pioglitazone. After more than 2 weeks saliva flow increased. **Conclusion:** T2DM patients with decreased salivary flow can be helped to minimize the effect of xerostomia on oral functions with proper dental management.

**Keywords:** Xerostomia; Diabetes Mellitus Type 2; Saliva; Dry mouth; Blood Glucose

**Correspondence:** Maslah Siregar, Resident of Oral Medicine Department, Dentistry Faculty, Universitas Airlangga, Prof. Dr. Moestopo No. 47 Street, Surabaya – Indonesia, maslah022487@gmail.com, +6285270644174.

## CR-8

## MANAGEMENT IN BURNING MOUTH SYNDROME IN A MODERATE DEPRESSIVE EPISODE PATIENT WITH GASTRO-ESOPHAGEAL REFLUX DISEASE

Kurnia Hayati Rahman<sup>1</sup>, Bima Ewando Kaban<sup>1</sup>, Nurina Febrianti Ayuningtyas<sup>2</sup>, Hafid Algristian<sup>3</sup>

<sup>1</sup> Oral Medicine specialist degree, Faculty of dental medicine Airlangga University, Surabaya-Indonesia,

<sup>2</sup> Department of Oral Medicine, Faculty of Dental Medicine Airlangga University, Surabaya-Indonesia

<sup>3</sup> Department of Psychiatri, Faculty of Medicine University of Nahdlatul, Surabaya-Indonesia

### ABSTRACT

**Background:** Burning mouth syndrome (BMS) is a chronic disease characterized by taste change and burning mouth feeling with oral mucosa, which is clinically normal. In the predisposition factor of this case, psychogenic factors were in the of a moderate depressive episode worsened by Gastro-Esophageal reflux disease (GERD). **Purpose:** The purpose of this case is to discuss how to manage a patient with BMS in a moderate depressive episode with GERD. **Case:** Indonesian female 19 years old, she complained of felt of burning in her entire mouth shortly after ate chili sauce. She felt a burning sensation for 4 months. Burning sensation in the mouth followed by burning sensation in the chest, especially when eating spicy and sour, and she feels anxious and stressed. *After a thorough history, physical and supportive examination, and also filling out DASS 42, refer to internist and psychiatry we made a diagnosis of burning mouth syndrome in Moderate Depressive Episode with GERD. Case management : Oral hygiene instructions, diet advice to avoid spicy and sour diet and prescription of oral mouthwash have been given to reduce the symptoms of BMS. The patient has been referred to the internist given therapy lansoprazole and braxidin. The patient also has been referred to a psychiatrist given sertraline and clobazam. Conclusion: The etiology of BMS is not fully understood, but it is thought to be multifactorial with local, systemic and psychological factors all thought to be important*

**Keywords:** Burning mouth syndrome, GERD, Depressive episode

### Corresponding Author:

Kurnia Hayati Rahman. Faculty of Dental Medicine Universitas Airlangga. Jln. Prof. Dr. Moestopo 47. Surabaya – Indonesia 60132. Email : [kurnia.hayati.rahman-2019@fkg.unair.ac.id](mailto:kurnia.hayati.rahman-2019@fkg.unair.ac.id), 081297432674

CR-09

## LABIAL AND PALATAL APPROACH FOR REMOVAL OF IMPACTED MAXILLARY CANINE ASSOCIATED WITH ODONTOMA: A CASE REPORT

Olivier Maron Sahetapy<sup>1</sup>, Indra Mulyawan<sup>2,3</sup>, Andra Rizqiawan<sup>2,3</sup>

<sup>1</sup>Resident of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Universitas Airlangga, Surabaya – Indonesia

<sup>2</sup>Department of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Universitas Airlangga, Surabaya – Indonesia

<sup>3</sup>Staff of Oral and Maxillofacial Surgery, Universitas Airlangga Hospital, Universitas Airlangga, Surabaya – Indonesia

### ABSTRACT

**Background:** Odontoma are the most common of the odontogenic tumors of the jaws. Most of the tumors are asymptomatic discovered during routine radiographic examination. It can cause disturbances in the eruption of the teeth, most commonly delayed eruption or deflection. There are two type of odontoma, complex and compound odontoma. Compound odontoma are often associated with impacted adjacent permanent teeth. Surgical removal of odontoma are the best therapeutic option. **Purpose:** To aim management of odontoma located at the impacted tooth 23 with difficult position and angulation. **Case(s):** A male 14 years old with chief complain of unerupted teeth and no other symptom diagnosed. From orthopantomography and cephalometry photo revealed that his maxillary canine is impacted with horizontal angulation and located superior of 11 and 12. From the CT Scan Revealed that impacted crowns 23 penetrate the palatal cortical and base of the nasal cavity and there is odontoma located at 23's palatal. **Case Management:** The patient underwent odontectomy of 23 and odontoma enucleation with general anaesthesia. After 14 days, the sutures were removed and the wound were healed. **Conclusion:** This case of odontoma can be use for guideline with odontoma associated with impacted upper jaw canine teeth.

**Keywords:** Odontoma; Impacted Canine; Maxillary Canine; Palatal

**Correspondence:** Indra Mulyawan, drg., Sp.BM., FICS, Department of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Universitas Airlangga, Jalan Mayjen.Prof. Dr. Moestopo no 47, Surabaya, Indonesia 60132, indramlywn@gmail.com, +62 8175232323.

CR-10

**CONSIDERATION OF THE NEED FOR SUPPORTING EXAMINATIONS IN THE DIAGNOSIS OF MUMPS**

**Ari Hapsari Tri Wardani<sup>1</sup>, Bima Ewando Kaban<sup>1</sup>, Diah Savitri Ernawati<sup>2</sup>**

<sup>1</sup> Student of Oral Medicine Specialist Degree, Faculty of Dental Medicine Airlangga University, Moestopo 47 Street, Surabaya, Indonesia

<sup>2</sup> Departement of Oral Medicine, Faculty of Dental Medicine Airlangga University, Moestopo 47 Street, Surabaya, Indonesia

**ABSTRACT**

**Background:** Mumps is an inflammatory condition that occurs in the salivary glands caused by Paramyxovirus. It's a self-limiting disease, therapy is symptomatic and supportive. **Purpose:** The purpose of this case is to discuss the need for supporting examination for mumps. **Case:** A boy came to RSGM Unair with complaints of swelling in the area around the right cheek accompanied by fever and pain since 1 day ago and has been treated with Paracetamol. On extra oral examination, there was a unilateral swelling with the color of the surrounding tissue, diffuse and painful on palpation. In the parotid and periauricular gland (dextra), there's swelling that's palpable solid, accompanied by pain. While the submandibular gland feels soft, can't be moved and is painful to palpation. **Case Management:** Diagnosis based on clinical examination is Mumps and treated with Paracetamol syrup and Multivitamin syrup. For the patient's diet, it is recommended to eat soft foods. Instructions for wearing masks are also given to patients along with recommendations for adequate rest, while maintaining oral hygiene. **Conclusion:** The clinical diagnosis of mumps can be made by standard case definition when there's acute onset unilateral or bilateral salivary gland swelling lasting two or more days without any other apparent case. Supportive examination for mumps cases can be done if parotid gland swelling is absent or not prominent.

**Keyword:** Mumps, Paramyxovirus, Salivary Gland

Correspondence: Diah Savitri Ernawati, Departement of Oral Medicine Faculty of Dental Medicine Universitas Airlangga, Jln. Prof. Dr. Moestopo No 47 Surabaya 60132- Indonesia, [savitri\\_glx@yahoo.com](mailto:savitri_glx@yahoo.com), +62818712069  
Email: [ari.hapsari.tri-2019@fkg.unair.ac.id](mailto:ari.hapsari.tri-2019@fkg.unair.ac.id)

CR-11

## HEMIMANDIBULECTOMY AND RECONSTRUCTION WITH COSTOCHONDRAL GRAFT IN PATIENT WITH CLASS III MALOCCLUSION AND ANTERIOR OPEN BITE : A CASE REPORT

Dewati Ayusri Artha,<sup>1</sup> Peiter Gozali,<sup>2</sup> Indra Mulyawan,<sup>2</sup> Andra Rizqiawan<sup>2</sup>

<sup>1</sup>Residency Program of Oral and Maxillofacial Surgery Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

<sup>2</sup>Departement of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Airlangga University, Surabaya, Indonesia

### ABSTRACT

**Background:** Ameloblastoma is a benign odontogenic tumor that arises from dental epithelium. Unicystic ameloblastoma consider has a greater prognosis. To overcome ameloblastoma in Class III Angle's malocclusion especially with anterior open bite, there are several preoperative, perioperative and postoperative considerations to achieve. **Purpose:** The aim of the present case report is to describe the surgical treatment of a 25 years old female patient with an ameloblastoma associated with Class III Angle's malocclusion and anterior open bite. **Case(s):** 25 years old woman with ameloblastoma mandibula sinistra associated with Class III Angle's malocclusion and anterior open bite. **Case Management:** Preoperative management including prebending plate before surgery. The surgical procedures included hemimandibulectomy and reconstruction with costochondral graft. The use of reconstruction plate allow mandible movement during normal function and free from joint problem. After hemimandibulectomy we have to maintain the occlusion with acrylic splint (waver). Patient able to achieve good position when waver effectively guided and placed. In addition to rehabilitation of mandible contour, the correct position of reconstruction plate are crucial for providing patient with a masticatory function and aesthetically satisfying result. **Conclusion:** The philosophy of successful surgical result in mandible surgery was free from the joints problem postoperatively. It was concluded that these procedures were very effective in producing a pleasing facial esthetic results and also avoid more extensive damage to vital anatomical structures, also improves patient's quality of life.

**Keywords:** ameloblastoma, hemimandibulectomy, costochondral graft, prebending plate

Corresponding Author:

Name: Andra Rizqiawan, drg., Ph.D., Sp.BM

Email: andra-r@fkg.unair.ac.id Tel:

+6285931130100

CR-12

## SPONTANEOUS CORONOID-LIKE GROWTH AFTER HEMIMANDIBULECTOMY OF AMELOBLASTOMA IN YOUNG ADULT PATIENT: A CASE REPORT

Defi Marizal<sup>1</sup>, Isnoe suryadanu<sup>1</sup>, Indra Mulyawan<sup>2</sup>, Andra Rizqiawan<sup>2</sup>

<sup>1</sup>Residency Program of Oral and Maxillofacial Surgery Faculty of Dental Medicine, Universitas Airlangga, Surabaya – Indonesia

<sup>2</sup>Departement of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

### ABSTRACT

**Background:** Ameloblastoma manifests as a benign tumor that occurs as abnormal bony development. This tumor is commonly asymptomatic and locally invasive, high recurrence rate, a condition that invariably induces evident facial deformities. Therefore, ameloblastoma can have a devastating effect on patient both physically and emotionally. Treatment for this sort of tumor usually involves a surgical approach promoting a partial or total resection of the affected anatomical area associated to prosthetic reconstruction of the bone area extracted. **Purpose:** To Describe a unique case of spontaneous coronoid-like growth after surgery **Case:** We present a case in a 16-year-old girl with a large, expansile lesion in the ramus-angle region of the left posterior mandible. Three months after surgery, spontaneous coronoid-like growth is seen. **Case Management:** Hemimandibulectomy mandible sinistra followed by reconstruction using a combination plate reconstruction and non-vascularized costochondral rib graft. **Conclusion:** During the patient's follow-up (3 months, 8 months, 14 months of post-operation), a spontaneous and rudimentary coronoid-like formation was observed and no evidence of recurrence. Because the stomatognathic function and facial harmony were satisfactory, we observed the coronoid-like development for 1.5 years of follow-up. Also, because both the aesthetic aspect and functional evolution of the mandibular bone were considered satisfactory, opening mouth as wide as usual, no complementary reconstruction surgical treatment was required for the ameloblastoma mandibular

**Keywords:** Coronoid-like, ameloblastoma, resection, costochondral, graft

### Corresponding Author:

Name: Andra Rizqiawan, drg., Ph.D., Sp.BM

Email: andra-r@fkg.unair.ac.id Tel:

+6285931130100

CR-14

## INFECTED DENTIGEROUS CYST ON A TOTALLY IMPACTED MESIODENS: A RAREST COMBINATION OF TWO ECTOPIC PATHOLOGICAL ENTITIES

Ferdian Rizky Hutomo<sup>1</sup>, Indra Mulyawan<sup>2</sup>, Andra Rizqiawan<sup>2</sup>

<sup>1</sup>Resident of Oral and Maxillofacial Surgery, Universitas Airlangga, Surabaya – Indonesia

<sup>2</sup>Department of Oral and Maxillofacial Surgery, Universitas Airlangga, Surabaya - Indonesia

### ABSTRACT

**Background:** Dentigerous cyst is a developmental odontogenic cyst which originates through alterations of reduced enamel epithelium in an unerupted tooth or a developing tooth bud. These cysts rarely associate with supernumerary teeth. Supernumerary teeth accounts for 5% of all dentigerous cysts. The most common supernumerary teeth are mesiodens. **Purpose:** To present a rare case of infected dentigerous cyst on a totally impacted mesiodens. **Case:** This case report describes a rare case of infected dentigerous cyst associated with mesiodens in a 33 year old female who presented with a slow growing swelling in the palatal. **Case Management:** Dentigerous cyst was treated with cyst enucleation with extraction of the mesiodens. **Conclusion:** Mesiodens should be diagnosed at the earliest possible time and its management should be conducted to prevent development of dentigerous cyst and damage to adjacent teeth and vital structures.

**Keywords:** dentigerous cyst, mesiodens, enucleation

**Correspondence:** Andra Rizqiawan, DMD, PhD, OMFS. Department of Oral and Maxillofacial Surgery Universitas Airlangga. Prof. Dr. Moestopo no. 47 St., Surabaya, Indonesia. andra.ara@fkg.unair.ac.id. +6281390909100

CR-15

**CLINICAL APPEARANCE OF ACUTE PSEUDOMEMBRANOUS CANDIDIASIS IN CHILDREN AND THE IMPORTANCE OF GOOD COMMUNICATION, INFORMATION AND EDUCATION TO PATIENTS : A CASE REPORT**

**Afryla Femilian<sup>1</sup>, Winda Dwi Malinda Masuku<sup>1</sup>, Nurina Febriyanti Ayuningtyas<sup>2</sup>**

<sup>1</sup>Oral Medicine Specialist Degree. Faculty of Dental Medicine. Airlangga University. Surabaya 60132-Surabaya, Indonesia

<sup>2</sup>Department of Oral Medicine. Faculty of Dental Medicine. Airlangga University. Surabaya 60132-Surabaya, Indonesia

**ABSTRACT**

Oral candidiasis is a common opportunistic infection of the oral cavity caused by an overgrowth of *Candida* species especially *Candida albicans*. The incidence varies depending on age and certain predisposing factors. The purpose of this case is to discuss what is the clinical appearance of Acute Pseudomembranous Candidiasis (APC) in children and what is the importance of good communication, information and education to patients. A 5 years old male patient came with chief complain of white deposits on his upper and lower lips mucosa since 1 week ago as reported by child's mother. The diagnosis was defined by typical lesion on acute pseudomembranous candidiasis although on the KOH test show the negative results. Characteristic lesions found in APC are often seen clearly in some cases so that it can be immediately continued for treatment. Patients get the empirical therapy Nystatin oral suspension 100.000 i.u, the patient is instructed to keep optimal oral hygiene care, maintain nutrient intake and follow up.

**Keyword:** Acute Pseudomembranous Candidiasis, Children, *Candida albicans*

**Corresponding Author:**

Afryla Femilian

Email : [afryla.femilian-2019@fkg.unair.ac.id](mailto:afryla.femilian-2019@fkg.unair.ac.id)

Tel : +6281328480433

CR-16

## A CONSIDERATION OF SURGICAL VESTIBULAR DEEPENING IN BILATERAL CLEFT LIP REPAIR: SERIAL CASE

Prisilla Mutiara Djehan Pattisahusiwa,<sup>1</sup> Yossy Yoanita Ariestiana,<sup>2</sup> Nurwahida<sup>3</sup>

<sup>1</sup> Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Hasanuddin University, Makassar, South Sulawesi, Indonesia.

<sup>2</sup> Hospital of Hasanuddin University - Staff of Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Hasanuddin University, Makassar, South Sulawesi, Indonesia.

<sup>3</sup> Dental Hospital of Hasanuddin University - Staff of Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Hasanuddin University, Makassar, South Sulawesi, Indonesia.

### ABSTRACT

**Background:** Bilateral cleft lip is the most common congenital case that needs reconstructive surgery. A short or shallow vestibule was one of the post cleft repair complications that might need additional surgery to correct the problem. A shallow vestibule can affect lip movement as well as the normal function such as blowing and sucking and will also affect the orthodontic and prosthodontics procedure that might be needed in the future. Deepening the vestibule during primary cleft lip repair is not an obligation but rather an option. This will increase the number of surgeries that will be performed to the patient. **Purpose:** To evaluate the consideration of intentionally deepening the vestibular at the same time as the primary bilateral cleft lip repair to avoid additional surgery of vestibular deepening. **Case Management:** A five patients with bilateral cleft lip who received primary cleft lip repair with Noordhoff techniques and surgical vestibular deepening at the same time. Vestibular depth was measured before and after surgery. **Conclusion:** Surgical vestibular deepening effectively corrected the shallow vestibule in primary bilateral cleft lip repair.

**Keywords:** Bilateral cleft lip; cleft lip repair; vestibular deepening.

**Correspondence:** Prisilla Mutiara Djehan, Oral and Maxillofacial Surgery Department in Faculty of Dentistry, Makassar, Indonesia. Email: [mutiaradjehan@gmail.com](mailto:mutiaradjehan@gmail.com), phone number: +628114707954

CR-17

## IMPACTED MAXILLARY INCISORS: SURGERY OR CONSERVATIVE MANAGEMENT? REPORT OF TWO CASES WITH CURRENT LITERATURE

Nurmaifah<sup>1</sup>, Andi Tajrin<sup>2</sup>

<sup>1</sup>Resident of Oral and Maxillofasial Surgery , Hasanuddin University, Makassar, Indonesia

<sup>2</sup>Departement of Oral and Maxillofasial Surgery , Hasanuddin University, Makassar, Indonesia

### ABSTRACT

**Background:** Maxillary incisors are the teeth that are most often impacted teeth, unerupted maxillary central incisors can interfere with appearance and cause a lack of confidence in patients. The occurrence of unerupted maxillary incisors can be associated with hereditary and environmental factors.. **Purpose:** The purpose of this case report is to determine the management of two cases of patients with impacted maxillary incisors. **Case:** Two young age patients with impacted maxillary central incisors. **Case Management:** Management two cases at the Department of Oral and Maxillofacial Surgery, Dental Hospital Hasanuddin University, impacted maxillary incisor are presented. In both cases it was performed surgical treatment with extraction of the impacted incisor centralis maxillary. **Conclusion:** Surgical approach to impacted incisors may also be an indication when conservative measures are no longer an option.

**Keyword :** Impacted teeth, Incisors, Conservative management, Surgical management

Corresponding Author:

Name Email : qaieenmutaffah@gmail.com

Tel: 085299051850

CR-18

## CLASS II SUBDIVISION MALOCCLUSIONS – DO THEY NEED A MODIFIED TREATMENT APPROACH?

**Veera Bhosale**

Head of the department and Professor in the Department of Orthodontics at the Bharati Vidyapeeth University Dental College and Hospital, Pune.

The fundamental goal of orthodontic treatment is to create a balanced and harmonious facial appearance. One element of this balance is craniofacial symmetry. Angle identified asymmetry as a distinct component of malocclusion and called it Subdivision. As the malocclusion is asymmetric, perhaps the treatment strategies may not be necessarily symmetrical. The treatment plan of these cases will depend on midline considerations, space requirement, growth status of the patients etc. Different treatment strategies are required in growing and non growing patients. In growing patients, use of asymmetric head gear and in non –growing patients unilateral extractions may be warranted. Cases showing the above treatment modalities will be shown and their merits and demerits discussed.

## CR-19

**MULTIFOCAL ORAL EBV-POSITIVE MUCOCUTANEOUS ULCERS: A CASE REPORT**

Sumana Kunmongkolwut,<sup>1</sup> Chatchawan Amornkarnjanawat,<sup>2</sup> Ekarat Phattaratatip<sup>1</sup>

<sup>1</sup>Department of Oral Pathology, Faculty of Dentistry, Chulalongkorn University, Bangkok – Thailand

<sup>2</sup>Department of Dentistry, Surin Hospital, Surin – Thailand

**ABSTRACT**

**Background:** Epstein-Barr virus (EBV)-positive mucocutaneous ulcer (EBVMCU) is a rare lymphoproliferative disorder, arising in immunosuppressed condition. Its diagnosis is challenging due to the overlapping clinical and histopathologic features. **Purpose:** We report an unusual case of multifocal oral EBVMCU in a patient with rheumatoid arthritis, receiving the combination of methotrexate and leflunomide for 5 years. **Case(s):** A 52-year-old female patient presented with persistent multiple large painful ulcers involving palate and gingiva for 6 months. The histopathologic examination revealed extensive ulceration with diffuse polymorphic inflammatory infiltrate admixed with scattered atypical lymphoid cells showing occasional Hodgkin and Reed/Sternberg-like features. These atypical cells showed immunoreactivity for CD20, CD30 and MUM1/IRF4. EBV-encoded small RNA (EBER) in situ hybridization revealed positive staining in the nuclei of lesional cells, validating the presence of EBV-infected cells. **Case Management:** The patient was referred to her rheumatologist for possible immunosuppressive drug discontinuation or dose adjustment. Two months after the cessation of both immunosuppressive medications, oral lesions gradually regressed. At 9-month follow-up, no evidence of relapsing oral EBVMCU has been observed. **Conclusion:** The multifocal presentation of EBVMCU is rare and could be resulted from the overwhelming immune suppression by long-term methotrexate and leflunomide combination therapy. Its diagnosis requires comprehensive correlation of patient history, clinical findings, histopathologic and immunophenotypic features. The ability of EBVMCU to regress following removal of immunosuppressive causes is drastically contrast to a variety of its potential clinical and histopathologic mimics. Therefore, the accurate diagnosis is crucial to avoid unnecessary patient management and achieve optimal patient outcomes.

**Keywords:** Epstein-Barr Virus infections; lymphoproliferative disorders; ulcer; methotrexate; leflunomide

**Correspondence:** Ekarat Phattaratatip, Department of Oral Pathology, Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand, Email: Ekarat.P@chula.ac.th, Tel: (66)2-218-8800.

CR-20

**TEMPOROMANDIBULAR DISORDERS FROM ILL-FITTING DENTURES****Ronlada Porntirit**

Post-graduate student, Occlusion and Orofacial pain Program,  
Faculty of Dentistry, Chulalongkorn University, Bangkok –  
Thailand

**ABSTRACT**

**Background:** Temporomandibular disorders (TMD) is an illness involving temporomandibular joints (TMJ) and associated structures. They are most common cause of non-odontogenic pain in orofacial region. Etiology of TMD is complex, multifactorial and corresponding with the biopsychosocial model, and its association with dental occlusion is controversial. **Purpose:** This case report is presented a role of dental occlusal factor in patient with TMD. **Case:** I present a case of a 51-year-old Thai female. Her chief complaint was pain and numbness at muscle of left jaw. She had referred pain to left upper lip and corner of her mouth, together with trismus for 3 months. Present illness was shown history of ill-fitting dentures. Patient had worse pain when she used these dentures for chewing. After oral examination, patient presented loss of posterior teeth support. There was pain on palpation at right and left masticatory muscles and left TMJ. Orthopantomogram showed no pathology of both mandibular condyles. Provisional diagnosis of patient was myofascial pain and arthralgia. **Case Management:** Patient was received self-care instruction and stabilization splint for primary management. Then, I delivered new dentures. Finally, patient can live with her new dentures without any pain and stop using stabilization splint. **Conclusion:** Dental occlusion plays a vital role in this TMD patient. To have a successful TMD management, dental occlusal factor should be concerned.

**Keywords:** TMD; ill-fitting dentures; myofascial pain

**Correspondence:** Ronlada Porntirit, D.D.S., Post-graduate student, Occlusion and Orofacial pain Program, Faculty of Dentistry, Chulalongkorn University, Phayathai Road, Pathumwan, Bangkok 10330 Thailand, Email: 6270018132@student.chula.ac.th, Tel: +66 2215 3555.

CR-21

## THE EFFICACY OF MYOFUNCTIONAL THERAPY ACCOMPANIED WITH FRENECTOMY AND DEVELOPED TONGUE WORK(OUT) FROM HOME (TWFH)

**Boosana Kaboosay.**

Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Chulalongkorn University

Ankyloglossia is characterized by an abnormally short and thick lingual frenum. The surgical excision of aberrant frenum or frenectomy is used to correct an ankyloglossia. Myofunctional therapy also has been reported to stimulate tongue muscle positively. However, there is no evidence to support the effectiveness of frenectomy performed with tongue myofunctional therapy. Moreover, myofunctional therapy requires consistent practice, the COVID-19 pandemic situation break in staying with this tongue training. This report aims to investigate the benefit of myofunctional therapy in improving the efficacy of surgical interventions in restricted tongue function. Additionally, to produce an electronic tongue exercise program for patients distant continuity learning. Ten ankyloglossia were randomly treated by frenectomy with myofunctional therapy (FM) and frenectomy alone (F). Age, gender, tongue range of motion ratio (TRMR), tongue range of motion deficit (TRMD), maximum tongue elevation pressure (MTEP) were evaluated. Also, an electronic tongue exercise program, Tongue Work(out) From Home (TWFH), was developed. Then an online survey related TWFH was conducted. The FM group showed significant improvement of TRMR, TRMD faster than the F group. Also, FM group reached their MTEP earlier than F group at the 1st-week follow-up ( $p < 0.05$ ). Participants felt the TWFH was easy to understand and convenient as patients can practice as needed from the comfort of their homes. **In conclusion**, myofunctional therapy is safe and potentially practical to be an adjuvant of frenectomy for ankyloglossia. Moreover, the TWFH program may achieve continued excellent clinical outcomes of myofunctional therapy during the COVID-19 pandemic era.

**Keyword:** Tongue, Ankyloglossia, Myofunctional therapy, Electronic learning

**Corresponding Author:**

Boosana Kaboosaya DDS., PhD.

E-mail: [Boosana.k@chula.ac.th](mailto:Boosana.k@chula.ac.th)

Tel: +662-2188581

## BENIGN OSTEOLASTOMA OF THE MANDIBLE WITH CHRONIC INFECTION: A RARE CASE

Nurwahida<sup>1</sup>, Husnul Basyar<sup>2</sup>

<sup>1</sup> Dental Hospital of Hasanuddin University - Staff of Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Hasanuddin University, Makassar, South Sulawesi, Indonesia.

<sup>2</sup> Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Hasanuddin University, Makassar, South Sulawesi, Indonesia.

### ABSTRACT

**Background:** Benign osteoblastoma is a rare osteoblastic tumor, about 1% of all primary bone tumors. Osteoblastoma is characterized by the presence of osteoid and bone deposition cytologically found in large numbers of osteoblasts. **Purpose:** This case report describes benign osteoblastoma accompanied by infection of the mandible in terms of therapy and histopathological features. **Case:** A 50-year-old man came to the Dental Hospital of Hasanuddin University with the chief complaint of a lump in the lower jaw for  $\pm 1$  year with a history of frequent discharge of pus and a history of tooth extraction from a non-dentist. **Case Management:** Physical examination, including extra-oral and intra-oral examinations, found a lump on the mandible in the region of 34 to 47 with hard consistency. Radiographic examination was carried out, it was found that there was a multilocular lesion with the inferior margin of the mandible left. Wide excision surgery was performed with intralesional curettage. Histopathological examination results showed the conclusion Osteoblastoma accompanied by chronic suppurative inflammation (abscess). **Conclusion:** Osteoblastoma is a rare benign tumor that can be found in the mandible and is a non-odontogenic tumor. Accurate clinical, radiographic and microscopic diagnosis is essential. Conservative surgical management may be an option.

**Keywords:** Bone tumors; Benign bone tumor; Mandible; Osteoblastoma

**Correspondence:** Husnul Basyar, Oral and Maxillofacial Surgery Department in Faculty of Dentistry, Makassar, Indonesia

Phone : +6285255926764

email : [husnul2204@gmail.com](mailto:husnul2204@gmail.com)

CR23

## THE MANAGEMENT OF TRIGEMINAL NEURALGIA PROVOKED BY SLEEP BRUXISM

*Phebunya Siripajan<sup>a1</sup>*

<sup>1</sup>Chulalongkorn University Bangkok, Thailand

### ABSTRACT

**Background:** Some patients diagnosed with trigeminal neuralgia might also have sleep bruxism. This habit could possibly correlate with the pain at night which disturbs their sleep quality. **Purpose:** This case report aims to highlight the possible role of sleep bruxism in the trigeminal neuralgia pain and the management. **Case(s):** A 14-year-old male patient with trigeminal neuralgia was referred for further investigation of his lower right teeth and jaw pain. Other than daytime jaw-movement-associated pain, the patient reported significant nighttime and morning pain. He had sleep bruxism as well as morphologic and functional malocclusion. **Case Management:** Considering the patient's sleep bruxism and malocclusion, his symptoms were managed with a stabilization splint worn during sleep. He then stopped waking up in the middle of the night while his trigeminal neuralgia-associated pain in the morning also improved. The patient's medication was then switched to carbamazepine in order to control his daytime symptom. His future malocclusion correction by an orthodontic treatment was also involved in the treatment planning. **Conclusion:** The patients with trigeminal neuralgia who have sleep bruxism might have pain provocation caused by jaw movements and tooth contacts during sleep. Therefore, in clinical practice, parafunctional habit and dental occlusion should be routinely investigated. In this case, the treatment with the flat-plane splint did not only help prevent tooth wear but also reduced the negative consequence of dental interferences on masticatory muscles potentially evoking the pain at night.

**Keywords:** Trigeminal neuralgia, sleep bruxism, dental interference, functional malocclusion

**Correspondence:** Prangtip Potewiratnanond, Chulalongkorn University, Bangkok, Thailand, [Prangtip.P@chula.ac.th](mailto:Prangtip.P@chula.ac.th), +66812429265.

CR-24

**MINIMALLY INVASIVE RESTORATIVE APPROACH: MANAGING COMPROMISED FIRST PERMANENT MOLARS (FPM) IN CHILDREN**

**Tengku Nurfarhana Nadirah Tengku Hamzah<sup>1</sup>, Farah Elani Mohamad Sani<sup>1</sup>**

<sup>1</sup> Department of Paediatric Dentistry and Orthodontic, Faculty of Dentistry, University Malaya, Malaysia

**ABSTRACT**

Management of a crown destruction with or without pulpal involvement caused by caries or post-eruptive breakdown involving Molar Incisor Hypomineralisation (MIH) affected molars is challenging to many clinicians especially in mixed dentition cases. Current treatment protocol suggested for extraction of compromised tooth at an ideal time to minimize the risk of restoration failures and future need for complex dental visits. The purpose of this case series is to discuss on minimally invasive restorative approach that can be consider by a clinician until long term tooth prognosis and treament plan can be established in children. Cases involved first permanent molars with irreversible pulpitis, deep caries and dentinal hypersensitivity. Treatments involved coronal pulpotomy and application of silver diamine fluoride. The approach for compromised FPM in mixed dentition should focus on minimally invasive treatment and the remineralization process to eliminate the patient's discomfort and restored tooth functions.

**Keyword:** Molar Incisor Hypomineralization, First Permanent molar, Silver Diamine Fluoride, Coronal Pulpotomy.

**Corresponding Author:**

Name: Dr Tengku Nurfarhana Nadirah Tengku Hamzah

Email: [tengkunurfarhana@um.edu.my](mailto:tengkunurfarhana@um.edu.my)

Tel: +603-79674802

CR-25

## MANAGEMENT OF A MULTIPLE MANDIBULAR FRACTURE IN EMERGENCY: CASE REPORT

**Fiqar Achmadi<sup>1</sup> Hadira<sup>2</sup>**

<sup>1</sup>Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Makassar, Indonesia

<sup>2</sup>Dental Hospital of Hasanuddin University - Staff of Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Hasanuddin University, Makassar, South Sulawesi, Indonesia.

### Abstract

**Background :** Mandibular fracture are parts of the most facial fracture in this case. The management mandibular fracture can be open reduction or closed reduction, but in this case we do combined closed and open reduction

**Purpose :** The purpose of this case was to describe the management of a multiple mandibular fracture combined with closed and open reduction treatment

**Method :** A Female 25 years old came with chief complain mouth bleeding and pain on lower jaw joint. Clinical examination showed laceration on right chin, enlargement at left preauricular area and limited mouth opening. Radiographic examination OPG X- Ray used to diagnose and controlled treatment. Management of patient to stitch laceration wound on chin region, ORIF to treat the right parasymphysis fracture and IMF to treat right corpus mandibular fracture and left neck condyle fracture.

**Conclusion :** In this case report, combined treatment approach with conservative treatment and invasive surgery to the multiple mandibular fracture showed satisfactory functional outcomes at 3 month follow up.

**Keywords :** Mandibular fractures; open and closed fixation; minimal invasive treatment; combined treatment; multiple fracture

Correspondence : Fiqr Achmadi, Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Makassar, Indonesia

Phone : +6287817745256

Email : oms5fiqarachmadi@gmail.com

## RA-1

## THE IMPORTANCE OF SALIVA TOTAL PROTEIN AND $\alpha$ -AMILASE ON CEREBRAL PALSY CHILDREN

Mega Moeharyono Puteri<sup>1</sup>, Sindy Cornelia Nelwan<sup>1</sup>, Brian Maulani<sup>2</sup>, Barnabas Bonardo<sup>2</sup>, Nita Naomi<sup>2</sup>, Alit Rahma Estu<sup>2</sup>, Nunthawan Nowwarote<sup>1,3</sup>

<sup>1</sup> Departement of Pediatric Dentistry, Faculty of Dental Medicine, Airlangga University-Surabaya-Indonesia

<sup>2</sup> Resident Departement of Pediatric Dentistry, Faculty of Dental Medicine, Airlangga University-Surabaya-Indonesia

<sup>3</sup> Centre de Recherche des Cordeliers, INSERM UMRS 1138, Molecular Oral Pathophysiology, Université de Paris, Sorbonne Université, Paris, 75006, France

### ABSTRACT

**Background,** Cerebral Palsy (CP) Children have a prevalence of caries 59%, 54% Tooth erosion, bad Oral Hygiene (OH) and 52%-59% Malocclusion higher than general population (3,3% CP children in Indonesia). Because their limitations in motoric and intellectual, to maintain their oral health care require modify and different approaches. Saliva plays an important role of demineralization-remineralization, if there are any disorder will be potential for caries. Saliva is used as a tool to diagnose health and disease status. Changes in saliva flowrate interfere to protection function and total saliva protein and  $\alpha$ -amilase. Recent studies indicate that total salivary protein and  $\alpha$ -amilase is used as a biomarker for preventive measures and helps diagnose oral cavity disease (Caries Risk Assessment). **Purpose,** the authors would like to analyze the relationship between total salivary protein,  $\alpha$ -amilase and oral cavity conditions of CP children. **Review,** Permanent damage to the Central Neuro System causes neuromuscular disorders. The disruption of the osmoreceptor function will reduce the sensitivity of Angiovasopressin, so that CP children experience hypohydration which results in decreased salivary flowrate. **Conclusion,** changes in total protein and  $\alpha$ -amilase resulted in decreased salivary protective function and decreased oral conditions in CP children.

**Keywords,** Cerebralpalsy; Totalsalivaryprotein;  $\alpha$ -amilase; salivaryflowrate; Caries; erosion; OralHygiene; Goodhealthandwellbeing.

Mega Moeharyono Puteri, DDS., Sp.KGA(K), Ph.D

Department of Pediatric Dentistry

Faculty of Dental Medicine

Universitas Airlangga - Campus A

Jl. Mayjen Prof Dr Moestopo no 47

Surabaya, Indonesia

Email : [mega-m-p@fkg.unair.ac.id](mailto:mega-m-p@fkg.unair.ac.id)

RA-02

## THE EFFECTIVENESS OF USING TITANIUM MESH WITH COLLAGEN MEMBRANES, PRF, AND PTFE TO ADDITION OF VERTICAL BONE ALVEOLAR IMPLANT DENTAL THERAPY (LITERATURE REVIEW)

Disti Ayulita,<sup>1</sup> Imam Safari Azhar(s)<sup>2</sup> and Harry Laksono<sup>2</sup>

<sup>1</sup>Faculty of Dentistry, Airlangga University, Surabaya – Indonesia

<sup>2</sup>Department of Prosthodontics, Airlangga University, Surabaya, Indonesia

### ABSTRACT

**Background:** A Good bone volume is required at the place where dental implant will be placed in prosthodontics treatment. If the bone volume isn't adequate, an augmentation procedure can be performed to increase the bone volume. Technique that can be used for horizontal or vertical alveolar ridge augmentation are Guided Bone Regeneration (GBR) technique. The GBR technique requires material in the form of a membrane to block non-osteogenic cells from entering the wound so the new bone formation is not disturbed. The addition of bone vertical dimension volume in GBR technique usually use non-resorbable membranes such as titanium mesh. In several studies, it has been explained that titanium mesh can also be combined with several membranes such as collagen membranes, PTFE, and PRF to provide better healing and bone regeneration effects. **Purpose:** To determine the process of adding vertical bone after GBR to the use of titanium mesh with the addition of collagen membrane, PRF, and PTFE for dental implant treatment. **Review(s):** The author uses journals from the Pubmed medical database and Google Scholar published between 2015 and 2020. The search for journals and articles is limited to animals and humans. Thirteen journals were identified and selected which have discussion regarding the use of titanium mesh as a barrier membrane for GBR in combination with collagen membranes, PRF, PTFE. **Conclusion:** There was an addition of post-GBR vertical bone to the use of titanium mesh with the addition of collagen membrane, PRF, and PTFE.

**Keywords:** dental implant; vertical augmentation; titanium mesh

Correspondence: Imam Safari Azhar, Department of Prosthodontics, Faculty of Dental Medicine, Airlangga University, Jl. Mayjend Prof. Dr. Moestopo 47 Surabaya 60123, Indonesia, E-mail: imam-safari-azhar@fkg.unair.ac.id, Tel: +6281803244379.

RA-03

**HYDROGEL SCAFFOLD IN PULP DENTIN COMPLEX REGENERATION****Elline<sup>1</sup>, Kun Ismiyatin<sup>2</sup> Theresia Indah Budhy<sup>3</sup>**<sup>1</sup> Student of Doctoral Program, Faculty of Dental Medicine, Airlangga University, 60132, Surabaya, Indonesia<sup>2</sup> Conservative Dentistry Department, Faculty of Dental Medicine, Airlangga University, 60132, Surabaya, Indonesia<sup>3</sup> Department of Immunology, Faculty of Dental Medicine, Airlangga University, 60132, Surabaya, Indonesia**ABSTRACT**

**Background :** Pulp dentin complex regeneration can be initiated by hydrogel scaffold application in the pulp using tissue engineering concept and it gives many advantages. **Purpose :** The purpose of this review is to provide general understanding of current study about hydrogel scaffold as induction of pulp dentin complex regeneration material. **Reviews :** Excavation in deep dental caries, dental trauma, and iatrogenic reasons are several causes of dental pulp exposure that can affect the pulp vitality. It is crucial to maintain the pulp vitality because it can support the tooth survival by avoiding endodontic treatment which affect the resistance of tooth structure. Pulp vitality can be preserved by inducing pulp regeneration using appropriate material. New approach in endodontic regeneration is using tissue engineering concept with hydrogel scaffold, stem cells and growth factors mechanism. Hydrogel scaffold as three dimensional media can provide cell homing process in pulp dentin complex and may support adhesion of stem cells to differentiate and initiate growth factors release. **Conclusions:** Based on several studies, hydrogel scaffold can be formulated to support dental pulp regeneration using tissue engineering concept. Many favourable condition can be achieved such as acts as delivery drug factor with easy injectable application in tooth and it has a lot of potential in dental pulp tissue regeneration treatment.

**Keywords:** Hydrogel scaffold, pulp dentin complex regeneration

Correspondence : Kun Ismiyatin, Conservative Dentistry Department, Faculty of Dental Medicine, Airlangga University, 60132, Surabaya Indonesia, [ie\\_elline23@yahoo.co.id](mailto:ie_elline23@yahoo.co.id), [ismiyatinkun@yahoo.com](mailto:ismiyatinkun@yahoo.com), 087875885511, 085733205778

RA-04

## CLINICAL DENTAL RISK MANAGEMENT: THE NEEDS AND CHALLENGES

**Didin Mirandani<sup>1</sup>, Taufan Bramantoro<sup>2,3</sup> Dini Setyowati<sup>2,3</sup>**

<sup>1</sup> Doctoral Student, Doctoral Study Program in Dental Science, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

<sup>2</sup> Doctoral Study Program in Dental Science, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

<sup>3</sup> Department of Dental Public Health, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

### ABSTRACT

Clinical risk management has always been a concern in dental practice. It focuses on improving the quality and safety of dental care services to achieve the desired outcomes. The purpose of this narrative review is to capture the needs and challenges of clinical dental risk management to minimize the risk of adverse incidents in dental practices. The literature searches were conducted through Pubmed, Science Direct, and Google Scholar. The review demonstrates the deficiency in knowledge and awareness of situations that put the patient at risk among dental practitioners. There is a need for a system for identifying, mitigating, and preventing circumstances that increase the likelihood and consequence of risks and harm to patients in dental practices. Deployment of clinical dental risk management is of great importance to both dental practitioners and patients. It puts a great emphasis on best practices while promoting patient safety to avoid legal liability.

**Keywords:** Clinical risk, Risk management, Dentistry, Dental care, Good health and wellbeing

Corresponding Author :

Name : Taufan Bramantoro

Email : taufan-b@fkg.unair.ac.id

Tel : (+62)82230991458

RA-05

## CORRELATION BETWEEN ORAL HEALTH CONDITION IN DOWN SYNDROME CHILDREN WITH PHYSICAL FITNESS: A LITERATURE REVIEW

Mega Moeharyono Puteri, Tania Saskianti, Alit Rahma Estu, Barnabas Bornado, Brian Maulani, Nita Naomi

Department of Pediatric Dentistry, Faculty of Dental Medicine, Airlangga University, Surabaya, East Java, Indonesia

### ABSTRACT

**Background:** One of the most common health concerns in down syndrome children is oral health, where in several studies the prevalence of caries 89% and periodontitis 59%. Oral health can have an impact on general health, including muscular problem one of which is muscle fatigue. Muscle fatigue will result in decreased physical fitness. **Purpose:** To analyse the correlation between oral health condition in down syndrome children with physical fitness. **Review(s):** This review discusses the correlation between oral health and physical fitness, where oral health conditions that greatly affect physical fitness are periodontitis and caries. Down syndrome children generally have a high prevalence of periodontitis and caries. This local inflammation caused by caries and periodontal disease can cause a systemic inflammatory response and affect physical fitness. Systemic changes influenced by caries and periodontitis, for example, changes in serum levels of inflammatory biomarkers, such as TNF- $\alpha$  and interleukins (IL), also appear in muscle injury and, thus, may affect physical fitness, especially muscle mass, strength, and function. Both periodontitis and caries also have anatomical proximity to the vascularization, therefore these oral health problems can negatively affect physical fitness through the metastatic pathway. **Conclusion:** There is a correlation between poor oral health with decreased physical fitness in down syndrome children

**Keywords:** down syndrome, human and health, physical fitness, oral health

Correspondence: Mega Moeharyono Puteri, Department of Pediatric Dentistry; Faculty of Dental Medicine, Universitas Airlangga, Prof. Dr. Moestopo No. 47 Surabaya 60132, Indonesia, Email : [mega-m-p@fkg.unair.ac.id](mailto:mega-m-p@fkg.unair.ac.id), (031) 5030255

RA-06

## ROLE OF SALIVARY NITRIC OXIDE ON CARIES STATUS OF CHILDREN WITH DOWN SYNDROME

Nita Naomi, Tania Saskianti, Ardianti Maartrina Dewi, Barnabas Bonardo, Alit Rahma Estu, Brian Maulani

Department of Pediatric Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

### ABSTRACT

**Background:** Down Syndrome (DS) is a genetic congenital disorder caused by additional third chromosome 21 (Trisomy 21). Dental manifestation includes malocclusion, delayed eruption, and open mouth posture. Combined with muscular hypotony and decrease of visual and audio vestibular capability, these factors make DS children struggle to maintain oral hygiene. Systemic factor such as hematological abnormalities, heart and immune defect also makes dental treatment plan more complex. Research of caries prevalence in DS compared to healthy children have varied result.

**Purpose:** The purpose of this literature review is to describe the role of salivary Nitric Oxide (NO) and its effect on the caries status of children with Down syndrome (DS). **Review(s):** Several studies have linked caries prevalence in DS children with saliva composition. Dental and systemic manifestation of DS cause changes in the oral ecosystem of DS, result in physiological changes in salivary flow rate and composition such as Nitric Oxide (NO). NO can be obtained from breathing, diet, and body metabolism. DS children prefer to consume foods rich in carbohydrates and refuse to consume vegetables and fruit. Since salivary NO can inhibit the growth of cariogenic bacteria such as *Streptococcus mutans* by forming reactive radical hydroxyl, inhibit respiration and DNA synthesis to damage the bacterial cell, this lack of fiber intake habit causes nutritional deficiencies from which NO obtained and may increase caries risk. **Conclusion:** This literature review concludes factors influencing the level of salivary Nitric Oxide and their effects on caries status of children with Down syndrome.

**Keywords:** Caries; Down Syndrome; Diet; Salivary Nitric Oxide.

Correspondence: Tania Saskianti, Department of Pediatric Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Jalan Prof Dr. Moestopo no 47, Surabaya, Indonesia, tania-s@fkg.unair.ac.id, +6281232014445.

RA-07

## PARENTS' SOCIOECONOMIC FACTORS AFFECTING WILLINGNESS TO TAKE CARE OF EARLY CHILDHOOD ORAL HEALTH

Dyah Nawang Palupi Pratamawari<sup>1</sup>, Dewi Atikasari<sup>2</sup>, Taufan Bramantoro<sup>3</sup>

<sup>1</sup>Doctoral Student, Doctor Study Program in Dental Science, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

<sup>2</sup>Dental Student, Faculty of Dentistry, Universitas Brawijaya, Malang-Indonesia

<sup>3</sup>Department of Dental Public Health, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

### ABSTRACT

**Background:** In Indonesia, 81,5% of early childhood suffer from dental caries. Early Childhood Caries (ECC) is influenced by both internal such as, host, substrate and environment, and external factors i.e socioeconomic of parents. **Purpose:** This study aimed to analyze socioeconomic factors: education level, income level and parental occupation affecting the parents' willingness to take care of their early childhood oral health. **Review(s):** This study used a literature review method, obtained from the Google Scholar and PUBMED database in the period 2011 – 2021. There were 7.621 journals retrieved. Of it, found 11 journals matched the inclusion criteria. In this study, it was found that the socioeconomic status of parents plays an important role in children's oral health. The educational factor of parents was associated with the use of dental services for their children, which shows that parents' lower knowledge of oral health showed unhealthy behavior and were less interested in maintaining their child's dental health. **Conclusion:** The socio-economic factors of parents that most related to the willingness to take care of their early childhood oral health is education level, followed by income level and occupation.

**Keywords :** Socioeconomic factor, early childhood caries, dental care

Correspondence: Dyah Nawang Palupi Pratamawari, Faculty of Dental Medicine, Universitas Airlangga, Jl. Dharmahasada 47, Surabaya, Indonesia, [dyahnawang.fk@ub.ac.id](mailto:dyahnawang.fk@ub.ac.id), +628123302096 .

RA-08

## TEACHER'S ROLE ON REGULAR AND SPECIAL NEED STUDENT'S ORAL HEALTH: A NARRATIVE REVIEW

**Tania Saskianti, Mega Moeharyono Puteri, Barnabas Bonardo, Brian Maulani, Nita Naomi, Alit Rahma Estu**

Pediatric Dentistry Department, Faculty of Dental Medicine, Universitas Airlangga  
Surabaya, Jawa Timur, Indonesia

### ABSTRACT

**Background:** Globally, around 530 million children suffer from caries. Several attempts have been made to improve oral health, including oral health (OH) promotion in schools. Teachers as student's role models are expected to play an active role in promoting OH, especially for special need students who need basic life skills for a better quality of life. **Purpose:** To analyze teacher's role on regular and special need student's oral health. **Review(s):** Literature shows at school age, children spend their time with teachers, which leads to changes in the role of the mother figure being replaced somewhat by the teacher. Teachers with good knowledge and attitudes about OH could persuasively influence students, potentially play an important role in success of OH promotion. Teachers of regular and special need students both prepare students for future, but special tutor teachers mainly equip their students with basic life skills. For regular students, literature findings indicate that teachers can demonstrate how to correctly brush teeth better than dentists; education by teachers decreases children's plaque index, gingival index and caries risk, increases brushing frequency and OH knowledge. For special needs students, the literature shows several different possible outcomes related to special needs of each student. **Conclusion:** Regular repetition and strengthening by teachers can support the success of OH promotion programs in schools for regular students as well as special need students. Lack of robust evidence points to the need for further research on the role of teachers in the OH of regular students, especially special need students.

**Keywords:** Human & health, oral health, regular students, special need students, teachers

Correspondence: Tania Saskianti, Email: [tania-s@fkg.unair.ac.id](mailto:tania-s@fkg.unair.ac.id), Tel +6281232014445

RA-09

## COMPUTER AIDED DRUG DISCOVERY UTILIZATION IN CONSERVATIVE DENTISTRY

Anastasia Elsa Prahasti,<sup>1</sup> Tamara Yuanita,<sup>2</sup> Retno Pudji Rahayu<sup>3</sup>

<sup>1</sup>Student of Doctoral Program, Faculty of Dental Medicine, Airlangga University, Surabaya – Indonesia

<sup>2</sup>Department of Conservative Dentistry, Airlangga University, Surabaya – Indonesia

<sup>3</sup>Department of Oral and Maxillofacial Pathology, Airlangga University, Surabaya – Indonesia

### ABSTRACT

**Background:** Computer aided drugs discovery or in silico design is bioinformatics' contribution that supports pharmacy, medical and dentistry fields. It creates innovation in the search, design and optimization of new drug candidates. The method minimizes the use of animal models and in vitro assay laboratory work, which are very time and resources consuming processes. Eventhough it has big advantages, it has not been utilized frequently in conservative dentistry fields. **Purpose:** To summarize CADD approaches in conservative dentistry researches in this past ten years. **Review(s):** Researches using CADD approaches in conservative dentistry shown in the reviews, used Structure based design and Ligand based design, both are two methods to predict compound-protein interaction. Utilized as genome identification of Streptococcus mutans, CADD can differ the genome from other bacterias and gives confirmation to polymerase chain reaction examination. CADD also beneficial to predict pharmacokinetics of drug candidates. This method exhibits great prediction in screening active compounds that have inhibition action in bacterias growth and adhesion on dental plaque. **Conclusion:** CADD approach has been used in conservative dentistry and showed great predictions to minimize numbers of trials in laboratory works. Expansion of application might boosts drugs design projects in conservative dentistry.

**Keywords:** computer aided drugs discovery; in silico; conservative dentistry

Correspondence: Anastasia Elsa Prahasti, Student of Doctoral Program, Faculty of Dental Medicine, Airlangga University, 60132 Surabaya, Indonesia, [prahasti@ymail.com](mailto:prahasti@ymail.com), +6231 5030255.

RA-10

## PERIODONTITIS AFFECTS SKELETAL MUSCLE METABOLISM THROUGH AN INCREASE IN PROINFLAMMATORY CYTOKINES

Risma Aprinda Kristanti<sup>1</sup>, Taufan Bramantoro<sup>2</sup>, Pratiwi Soesilawati<sup>3</sup>, Erni Maduratna Setiawati<sup>4</sup>, Bambang Purwanto<sup>5</sup>

<sup>1</sup>Student of Doctoral Program, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>2</sup>Departement of Dental Public Health, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>3</sup>Departement of Oral Biology, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>4</sup>Departement of Periodontology, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

<sup>5</sup>Department of Physiology, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia

### ABSTRACT

**Background:** Periodontitis is an inflammatory disease of the oral cavity which attacks the gingival and periodontal tissue. Periodontitis can be caused by several bacteria such as *Porphyromonas gingivalis*, *Aggregatibacter actinomycetemcomitans*, *Prevotella intermedia*, and *Bacteroides forsythus*. Other than in periodontal tissue, bacteria that cause periodontitis can go into the body's circulation and activate host immune response. One of the results of immune response activity in periodontitis is an increase in proinflammatory cytokines both locally and sistemically. An increase in proinflammatory cytokines will affect tissue metabolism, including skeletal muscle tissue.

**Purpose:** The mechanism of periodontitis in affecting skeletal muscle is still being discussed and studied, this review will discuss the mechanism of periodontitis in affecting skeletal muscle metabolism. **Review(s):** The interaction between bacteria and the immune system in periodontal tissues will activate the immune system and can cause an increase in proinflammatory cytokines such as IL-6, IL-1 $\beta$ , and TNF- $\alpha$  both locally and systemically. The presence of bacteria in the body's circulation and an enhacement of proinflammatory cytokines systemically can affect other tissues in the body, one of which is skeletal muscle. Several research has proven that periodontitis affects the regeneration process, glucose uptake, and recovery in skeletal muscle. **Conclusion:** An increase in IL-6, IL-1 $\beta$ , and TNF- $\alpha$  caused by periodontitis can reduce the process of muscle regeneration, reduce glucose uptake in skeletal muscle, and decreases the level of muscle responsiveness to training loads.

**Keywords:** periodontitis, skeletal muscle, cytokine

Correspondence: Pratiwi Soesilawati, PhD, Departement of Oral Biology, Faculty of Dental Medicine, Universitas Airlangga, JL. Mayjend. Prof. Dr. Moestopo No.47, Surabaya, Indonesia. Email : [pratiwi-s@fkg.unair.ac.id](mailto:pratiwi-s@fkg.unair.ac.id). Phone Number : 031-5030255

RA-11

## INTAKE OF CITRUS SPP. AND ITS RELATION IN DECREASED HEAD AND NECK CANCER RISK: A SYSTEMATIC REVIEW

Pamela Handy Cecilia<sup>1</sup>, Diah Savitri Ernawati<sup>2</sup>, Meircurius Dwi Condro Surboyo<sup>2</sup>

<sup>1</sup>Bachelor of Dental Surgery Program, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47, Surabaya, Indonesia

<sup>2</sup>Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47, Surabaya, Indonesia

### ABSTRACT

**Background:** Citrus spp. is a widely popular traded fruit which in oral medicine field is commonly used to cure stomatitis by the society worldwide and it has been proven to have various beneficial potential as an antioxidant, anti-inflammatory, antimicrobial, antiviral, and anticancer. Citrus spp. anticancer potential in human is already reported in case-control and cohort study and it shown a promising result in decreasing head and neck cancer (HNC) risk. **Purpose:** This study aims to provide a systematic review regarding to the correlation between Citrus spp. intakes and reduced risk of HNC. **Reviews:** It discusses 17 case-control and cohort study reported the relation between citrus fruit intake and HNC risk published between 1973–2020 using a PubMed and ScienceDirect databases according to the PRISMA guidelines in the period of March–June 2021. It was found that the Citrus spp. intakes, such as Citrus sinensis, Citrus reticulata, Citrus paradisi, and Citrus limon as a fruit or juice, could significantly reduce the HNC risk ( $p < 0.01$ ), especially in oral and pharyngeal cancers and its protective effects are more prominent in smokers and heavy alcohol users. Citrus spp. intakes more than once a week can reduce the HNC risk up to 30–66%. **Conclusion:** In conclusion, regular intakes of Citrus spp. shown a beneficial effect in providing protection and reducing HNC risk

**Keywords:** citrus fruits, daily consumption, head and neck cancer, human and health.

Correspondence: Pamela Handy Cecilia. Bachelor of Dental Surgery Program, Faculty of Dental Medicine, Universitas Airlangga. Jln. Prof. Dr. Moestopo 47 Surabaya – Indonesia 60132. Email: [pamela.handy.cecilia-2018@fkg.unair.ac.id](mailto:pamela.handy.cecilia-2018@fkg.unair.ac.id). Phone: +62 81390293664.

RA-12

## COMPREHENSIVE CLINICAL DENTAL RISK MANAGEMENT THROUGH DENTAL CARE SERVICE QUALITY

**Didin Mirandani<sup>1</sup>, Darmawan Setijanto<sup>2,3</sup>**

<sup>1</sup> Doctoral Student, Doctoral Study Program in Dental Science, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

<sup>2</sup> Doctoral Study Program in Dental Science, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

<sup>3</sup> Department of Dental Public Health, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

### ABSTRACT

**Background:** Dental care service quality based on The Servqual model used to evaluate services delivery. It is an important aspect for improving patient dental care outcomes. Risk management is a program designed to identify, evaluate, contain, reduce, or eliminate potential harm to patients.

**Purpose:** The purpose of this narrative review to address the relationship between service quality and clinical dental risk management. **Review(s):** The review contributes to the knowledge that service quality can affect increasing high quality of service and to avoid a harmful effects to patients in dental practices. Dental care implemented more risk management practices and this positively impacted on their service quality from patients' perspectives. **Conclusion:** The risk management program including dental practices is to consistently improve the quality of patient care and reduce the frequency and severity of incidents that can evolve into medical malpractice or professional liability claims.

**Keywords:** Health service, Risk Management for Healthcare, Dental care, Quality of healthcare, Health

**Correspondence:** Darmawan Setijanto, Dental Public Health Department, Faculty of Dental Medicine, Airlangga University, Surabaya - Indonesia, Email: [r-darmawan-s@fkg.unair.ac.id](mailto:r-darmawan-s@fkg.unair.ac.id) , 08123073991

RA-13

## LIFESTYLE AS A RISK FACTOR OF HIGH PERIODONTIS PREVALENCE WITH AND WITHOUT TYPE 2 DM IN SURABAYA

**Titiek Berniyanti<sup>1</sup>, Retno Palupi<sup>1</sup>, Dini Setyowati<sup>1</sup>, Aulia Ramadhani<sup>1,2</sup>, Dhinda Novia<sup>3</sup>**

<sup>1</sup>Department of Dental Public Health, Faculty of Dental Medicine, Universitas Airlangga

<sup>2</sup>Graduate Student of Health Policy and Administration Program, Faculty of Public Health, Universitas Airlangga

<sup>3</sup>Undergraduate Student of Dental Medicine, Faculty of Dental Medicine, Universitas Airlangga

### ABSTRACT

**Background:** Periodontitis is a chronic inflammation of the supporting teeth, irreversible with destructive categories, due to failure to eradicate pathogens that attack the subgingival epithelium in the biofilm. This disease has the potential to worsen the quality of life, which will be related to life expectancy. Data confirm that diabetes is a major risk factor for periodontitis. There is evidence to support a bidirectional relationship between Diabetes Melitus Type 2 and periodontitis, DM type 2 increases the risk of periodontitis, and periodontal inflammation has a negative impact on blood sugar control and tooth loss. **Objective :** The aim of this study was to identify lifestyle (OH, Diet, and exercise) as risk factors for high prevalence of periodontitis and type 2 diabetes mellitus in Surabaya. **Methods:** The type of research is analytic observational with cross sectional approach in Surabaya. Measurement of periodontal status using the WHO Oral Health Basic Methods Survey Standard 2015 by measuring bleeding on probing and pocket depth, measuring lifestyle using a questionnaire. Analysis of the data used is the Chi-Square Difference Test. **Results:** The results showed that there were significant differences between lifestyles in the four health status groups except for oral hygiene in the periodontitis group with periodontitis-type 2 diabetes, diet in the normal group with periodontitis, and exercise in the normal group with periodontitis did not differ significantly. **Conclusion:** Poor oral hygiene, poor diet and lack of activity in lifestyle are risk factors for DM type 2, periodontitis-DM type 2, and without DM type 2

**Keywords:** Blood sugar; periodontal status; lifestyle; Oral Hygiene; Dm type 2.

### Corresponding Author:

Titiek Berniyanti

[Titiek-b@fkg.unair.ac.id](mailto:Titiek-b@fkg.unair.ac.id)

0813-3078-8776

RA-14

## CAPSAICIN AS AN ALTERNATIVE HERBAL AGENT TO ACCELERATE THE HEALING PROCESS OF FRACTURED BONE (REVIEW ARTICLE)

Fery Setiawan<sup>1</sup>, Ahmad Yudianto<sup>2</sup>, Dian Agustin Wahjuningrum<sup>3</sup>, Heribertus Agustinus B Tena<sup>4</sup>, Arif Rahman Nurdianto<sup>5</sup>

<sup>1</sup> Doctoral Student, Faculty of Medicine, Universitas Airlangga Surabaya-Indonesia

<sup>2</sup> Forensic and Medicolegal Department, Faculty of Medicine, Universitas Airlangga Surabaya-Indonesia

<sup>3</sup> Conservative Dentistry Department, Faculty of Dental Medicine, Universitas Airlangga Surabaya-Indonesia

<sup>4</sup> Department of Medicine and Health, Regional Police of Nusa Tenggara Timur, Indonesia

<sup>5</sup> The Head of Puskesmas Trosobo, Sidoarjo-Indonesia

### ABSTRACT

**Background:** Trauma causes discontinuity of bone tissue and triggers some problems, such as: bleeding and infection. Bone fracture healing is important to prevent infection and to reach homeostasis. It can be either direct or indirect healing which are consisted of inflammation, fibrovascular, and remodeling process. Now, the drugs used to treat bone fracture is still restricted to the local using (parathyroid hormone/PTH) and there is no systemic drug related to Wnt signaling and  $\beta$ -catenin. Purpose: To minimize the using of synthetic agent in treating fractured bone healing. Review(s): Capsaicin is one of active herbal compounds that can be used to heal bone fracture. Its agonist receptor is Transient Receptor Potential Vanilloid-1 (TRPV-1) that can bind to nociceptor (Calcitonin Gene Related Peptide/CGRP) and endothelial NO synthase (eNOS). The former can bind to CALCRL/RAMP1 located in Hematopoietic Stem Cells (HSCs) so it induces HSCs mobilization. The latter can vasodilate smooth muscle on blood vessel, so it raises nutrition and oxygen to accelerate both healing and remodeling process. This is related to the relationship between immunology and osteology that usually called osteoimmunology. Conclusion: Capsaicin can be used to treat the fracture bone because it can induce nociceptor release (Calcitonin Gene Related Peptide/CGRP) and regulate endothelial NO synthase (eNOS) activity. eNOS will vasodilate the smooth muscles in blood vessels so that it increases the oxygen and nutrition supply. CGRP binds to the two receptors namely CALCRL/RAMP1 located in the Hematopoietic Stem Cells (HSCs) surface so it increases the HSCs mobilization into the blood vessels.

**Keywords:**  $\beta$ -catenin-Wnt signaling; Bone Fracture Healing; Capsaicin; eNOS; Immunology.

**Correspondence:** Ahmad Yudianto, Forensic and Medicolegal Department, Faculty of Medicine, Universitas Airlangga Surabaya-Indonesia, yudi4n6sby@yahoo.co.id, +6281330198281.

RA-15

## ACCURACY OF VELSCOPE AS AN EARLY DIAGNOSIS INSTRUMENT IN ORAL POTENTIALLY MALIGNANT DISORDERS

Kelvin Alfian Nola Anggrarista<sup>1</sup>, Nurina Febriyanti Ayuningtyas<sup>2</sup> and Meircurius Dwi Condro Surboyo<sup>2</sup>

1. Bachelor of Dental Surgery, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47, Surabaya 60132- Indonesia
2. Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47, Surabaya 60132- Indonesia

### ABSTRACT

Oral potentially malignant disorders (OPMD) lesions early diagnosis is an important factor that determines patient prognosis and survival rate up to 80%. The gold standard for diagnosing OPMD is tissue biopsy but has limited sampling bias that potentially causes underdiagnosis or misdiagnosis. Therefore, the fluorescence method is proposed as an innovative technique for examining tissue mucosal disorders which are implemented through Visually Enhanced Lesion scope (VELscope) instrument with high level of sensitivity and specificity. Comprehensive search of PubMed, ScienceDirect, and Embase databases according to the PRISMA guideline discusses 15 case control and cohort study reported the relation between VELscope and oral potentially malignant disorders between 2011–2020. Articles were selected for screening and the final fifteen articles were included in this review. On VELscope examination, normal tissue shows green aspects while abnormal tissue shows darker aspects than surrounding areas. Differences in these aspects occur due to auto-fluorescence alterations caused by structural changes, such as increased cellular and nuclear pleomorphism, metabolic changes, such as flavin adenine dinucleotide (FAD), and nicotinamide adenine dinucleotide (NAD) concentration reduction on epithelial layer. VELscope has sensitivity and specificity range of 74-95% and 76-100% in differentiating normal in-situ mucosa from OPMD, higher than clinical examination and biopsy combination of only 31%. Therefore, malignant changes can be diagnosed even before clinical manifestations appear. VELscope has good accuracy with high sensitivity and specificity for early diagnosis instruments in OPMD.

**Keywords:** Accuracy, early diagnosis, oral potentially malignant disorders, VELscope.

### Corresponding Author:

Name: Kelvin Alfian Nola Anggrarista

Email: kelvin.alfan.nola-2018@fkg.unair.ac.id

Tel: +62-85755154033

RA-16

## ETIOLOGY AND RISK FACTORS OF ORAL POTENTIALLY MALIGNANT DISORDERS (OPMD)

Rafdan Affan Ahmada<sup>1</sup>, Nurina Febriyanti Ayuningtyas<sup>2</sup> and Fatma Yasmin Mahdani<sup>2</sup>

<sup>1</sup>Undergraduate student, Faculty of Dental Medicine,  
Universitas Airlangga, Surabaya – Indonesia

<sup>2</sup>Department of Oral Medicine, Faculty of Dental Medicine,  
Universitas Airlangga, Surabaya – Indonesia

### ABSTRACT

**Background:** Oral Potentially Malignant Disorders (OPMD) is a type of epithelial lesion or disorder that appears before invasive oral cancer and has a higher risk of turning into a malignancy. Initial tissue changes that occur because of various habits such as smoking, chewing tobacco, or stress are also known as OPMD. The worldwide prevalence of OPMD is estimated to be around 4.47-4.5%, with wide variations depending on the geographic region. Diseases that can be classified under OPMD include oral leukoplakia, erythroplakia, erythroleukoplakia, oral submucosal fibrosis, palatal lesions in reverse smoker, oral lichen planus, oral lichenoid reactions, and some hereditary diseases such as dyskeratosis congenita and epidermolysis bullosa. **Purpose:** These reviews are used to help clinician to do the right diagnosis and treatment with a knowledge of etiology and risk factors regarding OPMDs lesion. **Review(s):** The etiology of OPMD is a purely genetic aberration that affects tissue regeneration until it is caused by exogenous factors such as tobacco and immune-mediated disorders, as well as those associated with rare inherited diseases. **Conclusion:** Tobacco (both smoked and smokeless), excessive alcohol consumption, and chewing betel nut containing areca nut are common major risk factors for OPMD. In addition to habit (oral), sun exposure, micronutrient deficiencies, and socioeconomic status are independent risk factors for the development of OPMD.

**Keywords:** etiology, risk factors, oral potentially malignant disorders, opmd, oral cancer.

Correspondence: Rafdan Affan Ahmada, Bachelor of Dental Surgery, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia, [rafdan.affan@gmail.com](mailto:rafdan.affan@gmail.com), +62-85882262407.

RA-17

## MANAGEMENT OF ORAL CANDIDIASIS IN PEOPLE WITH HIV

Yassir Ahmad Azzaim,<sup>1</sup> Desiana Radithia<sup>2</sup>, and Nurina Febriyanti Ayuningtyas<sup>2</sup>

<sup>1</sup>. Undergraduate Student, Faculty of Dental Medicine, Universitas Airlangga, Surabaya–Indonesia

<sup>2</sup>. Staff of Oral Medicine Department, Faculty of Dental Medicine, Universitas Airlangga, Surabaya–Indonesia

### ABSTRACT

**Background:** The incidence of HIV/AIDS has increased significantly over the last decade, both globally and in Indonesia. In this situation, the patient has severe impairment in their cellular immunity, making them susceptible to various kinds of opportunistic infections. The most common oral lesion associated with HIV/AIDS is oral candidiasis. Oral candidiasis in people with HIV/AIDS needs to be treated because it can develop into a systemic infection through the lymphatic system that attacks vital organs. **Purpose:** To know the management of oral candidiasis in people with HIV/AIDS. **Review(s):** Management of patients with oral candidiasis in people living with HIV is by eliminating predisposing factors, improving oral hygiene, and administering antifungal drugs such as topical agents and/or systemic triazoles. In cases of oral candidiasis associated with immunodeficient individuals, topical agents may not be effective in such cases, hence systemic triazole administration is necessary. Oral candidiasis in people living with HIV has been shown to be less responsive to polyene antifungal drugs (nystatin and amphotericin B). **Conclusion:** Indications used for the administration of antifungal drugs in people living with HIV who have oral candidiasis are azole systemic drugs.

**Keywords:** Antifungal drugs, Oral candidiasis, HIV/AIDS

Correspondence: Yassir Ahmad Azzaim, Undergraduate Student, Gundih V street number. 21 Surabaya–Indonesia, yassir.ahmad.az-2018@fkg.unair.ac.id, +62-81336611337.

RA-18

## XEROSTOMIA IN ELDERLY

Galuh Damar Jati<sup>1</sup>, Adiastuti Endah Parmadianti<sup>2</sup> and Desiana Radithia<sup>2</sup>

<sup>1</sup> Bachelor of Dental Surgery, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47, Surabaya, Indonesia

<sup>2</sup> Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47, Surabaya, Indonesia

### ABSTRACT

**Background:** Elderly is someone aged 60 years and above. The percentage of elderly in Indonesia has reached 9.92% or 26.82 million in 2020, which makes Indonesia be in aging phase of the population. One of the common oral problem found in elderly is xerostomia. The prevalence of xerostomia varies depending on geographic area and age group, but the highest is 30% in elderly. Study stated the prevalence of xerostomia was 24.3% at the age of 60-75 years and 16.8% at the age of 75-90%. Elderly tends to experience xerostomia due to salivary glands atrophy which will cause salivary secretion decrease. In addition, elderly is associated with chronic comorbid disease conditions thereby increasing the use of medication that can reduce salivary flow, where the percentage of elderly with medication experiencing xerostomia is 17.92%. **Aims:** To know xerostomia in elderly. **Result:** Xerostomia is a subjective sensation of oral dryness that can cause various problems in elderly. Xerostomia is caused by varies of factors including aging, endocrine diseases, autoimmune diseases, infections, medications, head and neck therapy, and lifestyle. The diagnosis of xerostomia can be established through various examinations and its management including education, preventive therapy, symptomatic therapy, administration of systemic and topical salivary stimulants, as well as gland regeneration and gene therapy. **Conclusion:** Xerostomia causes various problems in elderly so it must be handled with adequate management.

**Keywords:** xerostomia, elderly

### Corresponding Author:

Name: Galuh Damar Jati

Email: damarjati.galuh@gmail.com

Tel : +62-81216409756

RA-19

## MANAGEMENT OF ANGULAR CHEILITIS IN ELDERLY PATIENTS

Erine Tita Febrine<sup>1</sup>, Adiastuti Endah Parmadiati<sup>2</sup> and Fatma Yasmin Mahdani<sup>3</sup>

<sup>1</sup> Undergraduate Student, Faculty of Dental Medicine, Universitas Airlangga, Surabaya- Indonesia

<sup>2</sup> Oral Medicine Department, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-Indonesia

### ABSTRACT

**Background:** Angular cheilitis is a common variant of candidal infection affecting the elderly population. Angular cheilitis is an inflammatory lesion characterized by erythema, ulceration, and crusting at the corners of the mouth that begins at the junctional mucocutaneous and extends to the skin surface. Angular cheilitis occurs not only due to candidiasis but also due to reduced occlusal vertical dimensions or due to nutritional deficiencies, such as vitamin B or iron deficiency. The causes of Angular cheilitis are multifactorial of local and systemic etiology. **Purpose:** To know the management of Angular cheilitis in elderly patient. **Conclusion:** Angular cheilitis in elderly patient with decrease of vertical dimension can be treated by local therapy. But elderly patient with multiple underlying systemic and local factors need interdisciplinary management because the symptoms will only reoccur if local factors or systemic factors are not managed.

**Keywords:** Angular cheilitis, elderly patient, management

Correspondence: Erine Tita Febrine, Undergraduate Student, Faculty of Dental Medicine, Universitas Airlangga, Prof. Dr. Moestopo street No. 47, Surabaya-Indonesia, [erinetitafebrine200299@gmail.com](mailto:erinetitafebrine200299@gmail.com), +62-82142994416.

**RA-20**

## **INTRICACIES OF ORAL CANCER**

**Revati Deshmukh**

Professor Department of Oral and Maxillofacial Pathology, Bharati Vidyapeeth Deemed to be University Dental College and Hospital, Pune

### **ABSTRACT**

Oral cancer is the 6<sup>th</sup> most common human cancer worldwide. More than 90% of oral malignancies are oral squamous cell carcinoma. The habits, risk factors and genetic factors contribute to its aetiology. This paper is a review of studies conducted at this institution. Single Nucleotide Polymorphisms (SNP) show genetic variations in the human genome and are roughly 10 million in number. SNP's in genes regulate DNA mismatch repair, cell cycle regulation and metabolism associated with genetic susceptibility to cancer. Hence the study was considered. Another study is Oral Microbiome in Oral Cancer. The diversity of the microbiome is thought to play a role hence profiling of the same in patients with oral pre-cancer and cancer by sequencing them, which later can be utilised for personalised medicine is also being carried out. Oral cancer being common in India and its treatment still being a puzzle, an alternative supplementary treatment was conducted as an experiment using squamous cell carcinoma cell lines. Curcumin and Honey were used individually as well as synergistically to assess the proliferation of these cells. Curcumin showed a significant role due to its antioxidant and anti-inflammatory properties when used for a longer duration whereas honey had a short term effect on the squamous cell carcinoma cell lines. In conclusion efforts to effectively diagnose and provide personalised treatment is the ultimate goal.

Corresponding Author

Dr Revati Shailesh Deshmukh  
deshmukhrevati40@gmail.com  
+919822014613

RA-21

## ORAL MANIFESTATIONS AND PATHOGENESIS OF COVID-19

**Prashant Rao**

Associate Professor, Bharati Vidyapeeth Deemed to be University Dental College and Hospital,  
Pune

### **Abstract:**

The coronavirus disease 2019 (COVID-19) is a global pandemic burden caused by the severe acute respiratory syndrome. Coronavirus 2 (SARS-CoV-2) infection with variable clinical outcome. Oral mucosal lesions presented multiple clinical aspects, including white and erythematous plaques, irregular ulcers, small blisters, petechiae, and desquamative gingivitis. Tongue, palate, lips, gingiva, and buccal mucosa were affected. In mild cases, oral mucosal lesions developed before or at the same time as the initial respiratory symptoms; however, in those who required medication and hospitalization, the lesions developed approximately 7 to 24 d after onset symptoms. Therefore, taste disorders may be common symptoms in patients with COVID-19 and should be considered in the scope of the disease's onset and progression. Oral mucosal lesions are more likely to present as coinfections and secondary manifestations with multiple clinical aspects

**Keywords:** gustatory dysfunction, coronavirus infections, erythematous plaques, petechiae, desquamative gingivitis, co infections

Corresponding author:

Name: Dr Prashant Rao

Email: prashantcrao@gmail.com

Tel: +91 9422016602

RA-22

## THE ROLE OF STATIC MAGNETIC HEALING ABUTMENT IN OSTEOBLASTIC DIFFERENTIATION TO REDUCE MARGINAL CRESTAL BONE LOSS

Leonard Christiaan Nelwan,<sup>1</sup> Sindy Cornelia Nelwan,<sup>2</sup> Asti Meizarini,<sup>3</sup> Nunthawan Nowwarote<sup>2,4</sup>

<sup>1</sup>Doctoral Program in Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Surabaya – Indonesia

<sup>2</sup>Department of Pediatric Dentistry, Universitas Airlangga, Surabaya – Indonesia

<sup>3</sup>Department of Dental Material, Faculty of Dental Medicine, Universitas Airlangga, Surabaya – Indonesia

<sup>4</sup>Centre de Recherche des Cordeliers, INSERM URMS 1138, Molecular Oral Pathophysiology, Université de Paris, Sorbonne Université, Paris – France

### ABSTRACT

**Background:** The success of dental implants is highly dependent on the integration between implant, the bone and the soft tissue. Marginal crestal bone loss, once occurs, will directly affect the longevity of dental implants; thus, causes implant failure. Static magnetic field (SMF) has always been a great interest within dentistry, as it has been used for various purposes in prosthodontics including prosthesis and overdentures. The use of SMF as healing abutment is captivated to be investigated. **Purpose:** To investigate how SMF is able to reduce marginal crestal bone loss after dental implant placement.

**Review(s):** Static magnetic field (SMF) significantly upregulated canonical Wnt ligands, and stimulated phosphorylation of GSK-3 $\beta$  and total  $\beta$ -catenin expression in osteoblasts. These results suggest that SMF stimulates osteoblastic differentiation by activating the Wnt/ $\beta$ -catenin signaling pathway. SMF-activated Wnt-Fzd-LRP5/6 binding events lead to the intracellular accumulation of  $\beta$ -catenin and phosphorylation of GSK3, which activates MAPK and NF- $\kappa$ B for osteoblastogenic gene and Runx2 transcription. Therefore, SMFs have beneficial effects on bone healing and periodontal regeneration.

**Conclusion:** Static magnetic healing abutment plays a role in increasing osteoblastic differentiation, hence it reduces marginal crestal bone loss.

**Keywords:** static magnetic field; marginal crestal bone loss; magnetic healing abutment; Wnt signaling; osteoblastic differentiation

Correspondence:

Sindy Cornelia Nelwan

Department of Pediatric Dentistry

Universitas Airlangga, Surabaya, Indonesia

[sindy-c-n@fkg.unair.ac.id](mailto:sindy-c-n@fkg.unair.ac.id)

(+62) 811-346-979

RA-23

## XEROSTOMIA RISK FACTORS IN THE ELDERLY

Natasya Fauzia Sukmawati<sup>1</sup>, Fatma Yasmin Mahdani<sup>2</sup> and Nurina Febriyanti Ayuningtyas<sup>2</sup>

<sup>1</sup>Bachelor of Dental Surgery, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47, Surabaya, Indonesia

<sup>2</sup> Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47

### ABSTRACT

**Background:** Xerostomia is a perception of dry mouth sensation which is often associated with low salivary flow. Elderly people (elderly) are one of the groups at risk for xerostomia. Decreased function of organs and tissues in the elderly, one of which is a decrease in salivary gland function can cause xerostomia. There are several factors that can influence the occurrence of xerostomia in the elderly group, among others, systemic diseases, drug consumption, psychological factors, menopause, and cigarette consumption. Xerostomia often causes complaints to sufferers both psychologically and physically. Thus, xerostomia is a disorder of the oral cavity that can affect the quality of life of the sufferer. **Aims:** To determine the relationship of risk factors with the occurrence of xerostomia in the elderly. **Result:** Xerostomia that occurs in the elderly can be influenced by several risk factors, including systemic diseases, drug consumption, psychological factors, menopause and cigarette consumption. **Conclusion:** The elderly group can be one of the groups at risk for xerostomia. The occurrence of xerostomia in the elderly can be influenced by several factors, including systemic diseases, consumption of drugs, psychological factors, menopause, and cigarette consumption.

**Keywords:** Xerostomia, Elderly

### Corresponding Author:

Name : Natasya Fauzia Sukmawati

Email: natasya.fauzia.sukmawati-2018@fkg.unair.ac.id

Tel: +62-82143285649

RA-24

## POTENCY OF ARTIFICIAL SALIVA FOR REDUCING XEROSTOMIA SYMPTOMS IN ELDERLY: SYSTEMATIC REVIEW

**Shalma Maulidya Hendrayanto<sup>1</sup>, Fatma Yasmin Mahdani<sup>2</sup>, Meircurius Dwi Condro Surboyo<sup>2</sup>**

<sup>1</sup> Undergraduate student, Faculty of Dental Medicine. Universitas Airlangga. Surabaya – Indonesia 60132.

<sup>2</sup> Department of Oral Medicine. Faculty of Dental Medicine. Universitas Airlangga. Surabaya – Indonesia 60132.

### ABSTRACT

Elderly is people aged 60-74 years accompanied by decrease of physical function, include oral cavity. Major and minor salivary glands function in elderly have decreased due to increase of adipose tissue. It makes salivary rate decreased until occurs dry mouth sensation called xerostomia. Ferdinand et al. prove that 49% of elderly experience xerostomia. Xerostomia causes symptoms such as dysphagia, difficulty speaking and chewing. Pilocarpine is commonly used for therapy because it can reduce xerostomia symptoms up to 95%. However, long-term use of pilocarpine has side effects. About 80% of pilocarpine users experience hyperhidrosis that very disturbing. Artificial saliva is product saliva-like that can substitute pilocarpine in reducing xerostomia symptoms. Using artificial saliva in a month can reduce xerostomia symptoms up to 88%. Although artificial saliva does not have components as complex as natural saliva and has short duration of action, long-term use of artificial saliva has no side effects that can be safe for elderly. There are 5 articles from database such as PubMed and Science Direct which discuss the effectiveness of artificial saliva in reducing xerostomia symptoms in elderly. This systematic review was written by following PRISMA guidelines and risk of bias evaluation using JBI critical appraisal. It was found artificial saliva that effective in reducing xerostomia was in the form of spray, gel, and liquid and had components such as linseed, chamomile, jelly, and mucin. In conclusion, all artificial saliva can moisturize oral cavity and effective in reducing xerostomia symptoms such as dysphagia in elderly.

**Keywords:** artificial saliva, elderly, xerostomia symptoms

### Corresponding Author:

Shalma Maulidya Hendrayanto

Email: [shalma.hendrayanto@gmail.com](mailto:shalma.hendrayanto@gmail.com)

Tel: +6282141110399

RA-25

## ASSOCIATION BETWEEN GLYCATED HEMOGLOBIN LEVELS IN DIABETES AND CARIES RISK

Nuzulul Hikmah<sup>1,2,\*</sup>, Djoko Wahono Soeatmadji<sup>3</sup>, Aulanni'am Aulanni'am<sup>4</sup>, Mohammad Saifur Rohman<sup>5</sup>, Nur Permatasari<sup>6</sup>

1. Doctoral Program in Medical Science, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia

2. Department of Biomedic, Dentistry Faculty of Jember University, Jember, Indonesia

3. Division of Endocrinology Metabolic Disease and Diabetes, Department of Internal Medicine, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia

4. Department of Biochemistry, Faculty of Mathematics and Natural Sciences, Universitas Brawijaya, Malang, Indonesia

5. Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia

6. Department of Pharmacology, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia

### ABSTRACT

**Background:** Diabetes is a serious health problem, and its prevalence is increasing worldwide. The diagnosis of diabetes is determined by the level examination of fasting blood glucose, two hours postprandial blood glucose, and glycated hemoglobin (HbA1c). HbA1c indicates the mean of blood glucose levels over 2 to 3 months as a part of the long-term evaluation of diabetes control. Poorly controlled diabetes is related to the increase of oral complications such as dental caries. **Objective:** To determine the association between glycated hemoglobin (HbA1c) levels in diabetes and caries risk. **Methods:** Literature searches were performed using Pubmed with the keyword "HbA1c and caries", "glycemic control and caries", "metabolic control and caries" and published between 2011 to June 2021. The data from the articles were selected and summarized in tables and a narrative review. **Result:** A total of 24 papers have been selected based on the relevant topics. Diabetic patients with high HbA1c levels were associated with an increase of caries risk determined by different parameters. The parameters were Decayed Teeth (DT), Decayed Missing Filled Teeth (DMFT) index, Decayed Missing Filled Surfaces (DMFS) index, Caries Management by Risk Assessment (CAMBRA) guidelines, caries activity, International Caries Detection and Assessment System Committee (ICDAS) codes, and root surface caries. **Conclusion:** The elevated HbA1c levels in diabetic patients are associated with the increase of caries risk. This result indicates that poorly controlled diabetes can lead to increased susceptibility to dental caries.

**Keywords:** glycated hemoglobin, diabetes, caries risk.

Correspondence: Nuzulul Hikmah, Doctoral Program in Medical Science, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia, Email: [nuzulul.drg@gmail.com](mailto:nuzulul.drg@gmail.com), Phone number: +6282141274796.

RA-26

## MANAGEMENT OF ORAL HAIRY LEUKOPLAKIA IN PATIENTS WITH HIV INFECTION

Amalia Rizka<sup>1</sup>, Desiana Radithia<sup>2</sup> and Fatma Yasmin Mahdani<sup>2</sup>

<sup>1</sup> Bachelor of Dental Surgery, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47, Surabaya, Indonesia

<sup>2</sup> Department of Oral Medicine, Faculty of Dental Medicine, Universitas Airlangga, Jl. Prof. Dr. Moestopo No. 47, Surabaya, Indonesia

### ABSTRACT

**Background:** Oral hairy leukoplakia is an oral lesion strongly associated with HIV infection. Most epidemiological studies places OHL as the second most prevalent HIV-associated oral lesion, but the incidence varies in different countries. OHL present in 20-25% adults with HIV infection. In AIDS patients who do not receive treatment, the prevalence of OHL is up to 80%. OHL may be complicated by candidal superinfection. In OHL patients who are superinfected with candida, symptoms such as pain, glossopyrosis (burning tongue), and taste alteration worsen the patient's condition. In addition, the presence of OHL also causes aesthetic problems which can lead to psychological distress on the patient. OHL is often misdiagnosed as oral candidiasis that is resistant to antifungal, so that proper treatment is delayed. **Aims:** To know the adequate management of oral hairy leukoplakia in patients with HIV infection. **Result:** Treatment with antiretroviral (ARV) therapy resulted in a significant reduction. Treatment with highly active antiretroviral therapy (HAART) reduces the incidence of OHL to a low percentage. OHL usually resolves on ARV use, but in some cases requires therapy with systemic antiviral and topical therapy. Treatment options includes systemic antiviral drugs such as acyclovir, valacyclovir, desciclovir, ganciclovir, and famciclovir. Topical treatment with topical retinoids and podophyllin resin. Treatment is also carried out with gentian violet, surgical excision, and cryotherapy. **Conclusion:** Treatment options for OHL include ARV therapy, systemic antivirals, topical podophyllin, topical retinoids, gentian violet, surgical excision, and cryotherapy. However, regardless of the type of treatment, OHL often recurs after termination.

**Keywords:** oral hairy leukoplakia, treatment, HIV, AIDS

### Corresponding Author:

Name: Amalia Rizka

Email: [amaliarizkaa48@gmail.com](mailto:amaliarizkaa48@gmail.com)

Tel : +62-82113471478

