PDAA 2024 Bangkok

The 13th Biennial Congress
of the Pediatric Dentistry Association of Asia

in conjunction with

Annual Conference of the Thai Association
of Pediatric Dentistry

Program Book

Reunite for Children's Healthy Smiles

October 30 - November 1, 2024

Eastin Grand Hotel Phayathai Bangkok

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Man Qin

Welcome Message

PDAA president 2022-2024

Dear colleagues and friends,

As the president of Pediatric Dentistry Association of Asia, I would like to extend a warm welcome to all of you who will be attending the upcoming 13th congress of PDAA 2024 in Thailand. Since the establishment of PDAA in 1997, the PDAA congress has become an important event for pediatric dentists in Asia. This event is a gathering of distinguished scholars, researchers, and professionals from various fields in pediatric dentistry, coming together to explore the latest academic advancements and innovative achievements.

The congress serves as a platform for exchange, learning, and collaboration. We believe it will provide you with a valuable opportunity to share your research findings, perspectives, and experiences with fellow peers. At this intersection of knowledge, you will engage in in-depth discussions and interactions with experts from around the world, collectively driving progress in the academic realm.

Lastly, I would like to express my gratitude to all the members of THAPD & PDAA 2024 LOC who are endeavoring to make this grand event possible. Thank you for all your efforts and contributions.

We hope that you will have a fulfilling and enjoyable experience during the congress. Looking forward to seeing you there.

Thank you all!

Sincerely,
Man Qin
President of Pediatric Dentistry Association of Asia

Welcome Message

President of Local Organizing Committee
PDAA 2024

Pattarawadee Leelataweewud

Dear Colleagues and Friends,

On behalf of the Local Organizing Committee, it is my distinct pleasure and honor to extend a warm welcome to all of you to the 13th Biennial Congress of the Pediatric Dental Association of Asia, PDAA 2024. We are thrilled to host this esteemed gathering of professionals, scholars, and practitioners in the vibrant and culturally rich city of Bangkok.

Our theme "Reunite for Children's Healthy Smiles" holds special significance as it marks our first reunion after the COVID-19 pandemic and reflects the dynamic nature of our field and the vital importance of working together to advance the oral health and well-being of children across Asia and beyond. This conference promises to be an extraordinary platform for sharing knowledge, fostering collaborations, and inspiring new ideas.

We have meticulously curated a diverse program featuring renowned speakers, cutting-edge research presentations, and hands-on workshops designed to enhance your skills and broaden your horizons. Our goal is to create an environment where innovation thrives and where the exchange of ideas leads to meaningful progress in pediatric dentistry.

In addition to the scientific program, we have planned several social events that will allow you to experience the local culture, cuisine, and hospitality. The past few years have presented unprecedented challenges, but they have also underscored the resilience and dedication of our community. It is a joy to once again gather in person, to reconnect with old friends, and to forge new relationships that will drive our profession forward. We encourage you to take this opportunity to network with your peers, build lasting connections, and enjoy the beauty of Bangkok and Thailand.

I would like to extend my deepest gratitude to the PDAA, our sponsors, and volunteers in LOC for their unwavering support and dedication. Their contributions have been invaluable in making this conference possible.

Once again, welcome to the Pediatric Dentistry Conference of Asia 2024. We are excited to embark on this journey of learning and discovery with you and look forward to a conference that will be both enriching and unforgettable.

Warm regards,
Pattarawadee Leelataweewud, DDS, MS
Chair, Local Organizing Committee
Pediatric Dentistry Association of Asia 2024

Prim Auychai

Welcome Message

President of the Thai Association of Pediatric Dentistry

Dear friends and colleagues,

On behalf of the Thai Association of Pediatric Dentistry, it is with great pleasure that we extend a heartfelt welcome to all esteemed guests attending the 13th Biennial Conference of the Pediatric Dentistry Association of Asia (PDAA), scheduled to take place from October 30th to November 1st, 2024 in the vibrant city of Bangkok, Thailand.

Under the theme of "Reunite for Children's Healthy Smile", the Conference has captured international attention. We are delighted to announce that we have received a remarkable 230 presentation submissions from dedicated participants representing 16 different countries. Our sincere wish is that every individual will depart from this event enriched with valuable knowledge and profound insights. With deep appreciation, we express our gratitude to all of you for your valuable contributions towards making this impactful gathering a success.

Prim Auychai, DDS, MS
President of the Thai Association of Pediatric Dentistry 2023-2024

PDAA Historical Memoir

Founded Member of PDAA

Amput Intaraprasong

The Pediatric Dental Association of Asia (PDAA) was established in 1996 with a singular mission: to unify pediatric dental professionals across the continent in their shared commitment to improving the oral health of children. The vision for the PDAA emerged from discussions among a group of passionate pediatric dentists and educators who recognized the urgent need for a unified platform in Asia that specifically addressed the challenges and advancements in pediatric dentistry. Among the early pioneers were distinguished individuals, including Prof. Taku Jujiwara and Prof. Seikou Shintani, who convened at the Japanese Society of Pediatric Dentistry (JSPD) in 1996. It was here that they laid the groundwork for what would become the first continental association dedicated to pediatric dentistry in Asia.

The founding members of the association comprised ten pediatric dental societies from various countries, including China, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand. United by a commitment to excellence, they aimed to enhance pediatric dental care, education, and research across the region. They believed that through collaboration, they could effectively advocate for children's needs and establish higher standards for dental practices throughout Asia. Following its establishment, the bond among the society members grew. The association began arranging biennial congresses, alternating with the International Association of Pediatric Dentistry (IAPD), providing a platform for leading experts from Asia and beyond to converge.

The first PDAA congress, hosted by JSPD, took place in 1997 in Chiba, Japan, was a success. Since then, eleven congresses have upheld the mission of sharing the latest research, discussing emerging trends, and fostering cross-cultural collaborations. These events became vital cornerstones of the PDAA's activities, allowing for meaningful exchanges of knowledge and innovation.

In parallel with these congresses, generous support from society members enabled the establishment of the peer-reviewed journal, the Pediatric Dental Journal. This journal, which has become the official publication of the PDAA, is a respected source for cutting-edge research and clinical insights in pediatric dentistry.

By fostering partnerships with other dental organizations, the PDAA ensures that pediatric dentists across Asia have access to the best practices and latest innovations in the field.

It is a great pride and honor for me to be given this remark for the 13th PDAA congress in Thailand, the second time PDAA congress to be held in Bangkok.

I am reminded of the significance of our collective efforts. Each contribution to this congress is a step toward a brighter, healthier future for children across Asia. It is my hope that the friendships, knowledge, and experiences shared among us during this event will continue to inspire innovation and collaboration long after the congress concludes.

I extend my deepest gratitude to all the PDAA members, the local organizing committee, and participants who have made this congress possible. Your generosity and commitment to our shared mission reflect the enduring spirit of the PDAA. Together, we are making a tangible difference in the lives of children across our continent.

Amput Intaraprasong
Founded Member of PDAA

PDAA Board of Directors 2022-2024

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	Dr. Yun (Kevin) Lee	Taiwan Academy of Pediatric Dentistry
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	Prof. Varinder Goyal	Indian Society of Pedodontics & Preventive Dentistry
	Prof. Halaswamy Kambalimath	Indian Society of Pedodontics & Preventive Dentistry

Local Organizing Committee

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Dr. Sukritta Vichayanrat

Our Speakers

Pre-Congress Speakers

30 October 2024

Dr. Mukul Jain (India)

New Materials and Techniques in Pediatric Dentistry- Bioflx Crown, Pre-Formed Space Maintainers and Putty MTA

Date : 30 October 2024
Time : 09.00 - 12.00
Room : Thong Lo & Phrom Pong, 4th Fl

Dr. Kanokwan Urthamapimuk (Thailand)

Oral Health Promotion as the Service Differentiation in Private Dental Practice: The Case Study and Practical Guidelines

Date : 30 October 2024
Time : 09.00 - 12.00
Room : Nana, 4th Fl

Assoc. Prof. Dr. Rohaida Abdul Halim (Malaysia)

Hypnosis and Nitrous Oxide as Behavioural Management Techniques

Date : 30 October 2024
Time : 13.00 - 16.00
Room : Phrom Pong, 4th Fl

Prof. Satoshi Fukumoto (Japan)

Application of Bioactive Preventive Materials in the Management of Modulation of Enamel Properties in Pediatric Patients (Lecture)

Date : 30 October 2024
Time : 13.00 - 16.00
Room : Phayathai Grand Ballroom 1

Assoc. Prof. Aya Yamada (Japan)

Application of Bioactive Preventive Materials in the Management of Modulation of Enamel Properties in Pediatric Patients (Workshop)

Date : 30 October 2024
Time : 13.00 - 16.00
Room : Phayathai Grand Ballroom 1

Keynote Speakers

31 October 2024

Prof. Dr. Ari Kupietzky (Israel)

Adapting to a Dynamic Modern World: a Multifaceted Approach to Behavior Management in Pediatric Dentistry

Date : 31 October 2024
Time : 09.00 - 10.30
Room : Phayathai 1-2, Phayathai 4 (Livestream)

Prof. Dr. Katrin Bekes (Austria)

Molar Incisor Hypomineralization from Diagnosis to Therapy

Date : 31 October 2024
Time : 13.15 - 14.45
Room : Phayathai 1-2, Phayathai 4 (Livestream)

Keynote Speakers

1 November 2024

Prof. Dr. Avijit Banerjee (UK)

Minimum Intervention Oral Care (MIOC): Implement Modern Caries Management in Clinical Practice

Date : 1 November 2024
Time : 09.00 - 10.30
Room : Phayathai 1-2, Phayathai 4 (Livestream)

Dr. Martin Avey (USA)

Growth Guidance: Fundamentals of Pediatric Invisalign Treatment

Date : 1 November 2024
Time : 13.15 - 14.45
Room : Phayathai 1-2, Phayathai 4 (Livestream)

Invited Speakers

31 October 2024

Assoc. Prof. Nuntigar Sonsuwan (Thailand)

Pediatric Airway: What Pediatric Dentist Should Know

Date : 31 October 2024
Time : 10.45 - 11.30
Room : Phayathai 1-2

Assoc. Prof. Dr. Teekayu Plangkoon Jorns (Thailand)

TMD and Orofacial Pain in Children and Adolescent

Date : 31 October 2024
Time : 11.30 - 12.15
Room : Phayathai 1-2

Prof. Satoshi Imazato (Japan)

Benefits of Bio-Active "S-PRG Filler" for Disease Control/
Management in Pediatric Dentistry

Date : 31 October 2024
Time : 14.45 - 15.30
Room : Phayathai 1-2

Prof. Dr. Gustavo Fabián Molina (Argentina)

Restorative Dentistry in Special Needs Patients

Date : 31 October 2024
Time : 15.45 - 16.30
Room : Phayathai 1-2

Prof. Dr. Hong-Keun Hyun (South Korea)

Molar-root Incisor Malformation:
What is it and What is its Management Challenge

Date : 31 October 2024
Time : 10.45 - 11.30
Room : Phayathai 3

Invited Speakers

31 October 2024

Prof. Dr. Nai Chia Teng (Taiwan)

Bioceramic Materials are Cool -
Which One are You Looking For?

Date : 31 October 2024
Time : 11.30 - 12.15
Room : Phayathai 3

Prof. Dr. Min Suk Heo (South Korea)

Artificial Intelligence in Dentistry:
the Onset of Digital Revolution

Date : 31 October 2024
Time : 10.45 - 11.30
Room : Phayathai 4

Assoc. Prof. Catherine Hong Hsu Ling (Singapore)

Pediatric Oral Lesions:
A Guide to Diagnosis and Management Strategies

Date : 31 October 2024
Time : 11.30 - 12.15
Room : Phayathai 4

Prof. Piranit Kantaputra (Thailand)

Supernumerary Teeth and Their Clinical Implication

Date : 31 October 2024
Time : 14.45 - 15.30
Room : Phayathai 4

Dr. Kalaiarasu Peariasamy (Malaysia)

Cleft and Craniofacial Anomalies

Date : 31 October 2024
Time : 15.45 - 16.30
Room : Phayathai 4

Invited Speakers

1 November 2024

Assoc. Prof. Dr. Jeeraphat Jantarat (Thailand)

Regenerative Endodontics:
an Update on the Mahidol Study

Date : 1 November 2024
Time : 10.45-11.30
Room : Phayathai 1-2

Assoc. Prof. Dr. Wong Mun Loke (Singapore)

Promoting Oral Health in Children and Adolescents:
Principles, Considerations and Opportunities

Date : 1 November 2024
Time : 11.30-12.15
Room : Phayathai 1-2

Prof. Dr. Michiyo Matsumoto-Nakano (Japan)

S. mutans: Causative of Dental Caries and Beyond

Date : 1 November 2024
Time : 14.45-15.30
Room : Phayathai 1-2

Prof. Dr. Marcio da Fonseca (USA)

Dental and Oral Care in Childhood Cancer -
a Prime for the Pediatric Dentist

Date : 1 November 2024
Time : 15.45-16.30
Room : Phayathai 1-2

Dr. Jing Tian (China)

Restoration Strategies for Significant
Tooth Defects of Anterior Teeth in Adolescents

Date : 1 November 2024
Time : 10.45-11.30
Room : Phayathai 3

Invited Speakers

1 November 2024

Prof. Dr. Arlette Setiawan (Indonesia)

Does Growth Stunting Correlate with Oral Health in Children?

Date : 1 November 2024
Time : 11.30-12.15
Room : Phayathai 3

Dr. Desigar Moodley (South Africa)

Full Coverage Crowns: Restorations for Deciduous and Permanent Teeth in the Developing Dentition

Date : 1 November 2024
Time : 10.45-11.30
Room : Phayathai 4

Prof. Dr. Rawee Teanpaisan (Thailand)

Probiotics and Clinical Application

Date : 1 November 2024
Time : 11.30-12.15
Room : Phayathai 4

Prof. Dr. Nitesh Tewari (India)

The Delayed Complications of the Injuries to the Permanent Teeth

Date : 1 November 2024
Time : 14.45-15.30
Room : Phayathai 4

Assoc. Prof. Dr. Waleerat Sukarawan (Thailand)

From Teeth to Tomorrow: Exploring SHEDs' Potential in Regenerative Medicine

Date : 1 November 2024
Time : 15.45-16.30
Room : Phayathai 4

Special Speaker

31 October 2024

Assoc. Prof. Dr. Pipop Saikaew (Thailand)

Mimic Nature of Anterior Teeth with Composite Restoration: From A to Z

(Lecture in Thai); By Invitation Only

Date : 31 October 2024
Time : 18.00 - 21.00
Room : Thong Lo, 4th Fl

Program

Floor Plan

30 October 2024

Pre-Congress

	Thong Lo & Phrom Pong, 4th Fl	Nana, 4th Fl
09.00-12.00	**New Materials and Techniques in Pediatric Dentistry: Bioflx Crown, Pre-Formed Space Maintainers and Putty MTA** *Dr. Mukul Jain (India)*	**Oral Health Promotion as The Service Differentiation in Private Dental Practice: The Case Study and Practical Guidelines** *Dr. Kanokwan Urthamapimuk (Thailand)*
	Phrom Pong, 4th Fl	Phayathai Grand Ballroom 1
13.00-16.00	**Hypnosis and Nitrous Oxide as Behavioural Management Techniques** *Assoc. Prof. Dr. Rohaida Abdul Halim (Malaysia)*	**Application of Bioactive Preventive Materials in the Management of Modulation of Enamel Properties in Pediatric Patients** *Prof. Satoshi Fukumoto (Lecture)* *Assoc. Prof. Aya Yamada (Workshop)* *(Japan)*
	Asoke, 4th Fl	
17.00-18.00	**Board Meeting**	

** Registration for either or both sessions is flexible.*
*** Registration for the main congress is a requirement for those wishing to participate in the pre-congress course.*

31 October 2024

Day 1

	Phayathai 1-2	Phayathai 3	Phayathai 4	Ari	Sena	Mo Chit	Prefunction A,B
07.00-08.45	Registration						Exhibition
08.45-09.00	**Opening Ceremony**		**Opening Ceremony** *Livestream*				
09.00-10.30	**Adapting to a Dynamic Modern World: a Multifaceted Approach to Behavior Management in Pediatric Dentistry** *Prof. Dr. Ari Kupietzky (Israel)*		**Adapting to a Dynamic Modern World: a Multifaceted Approach to Behavior Management in Pediatric Dentistry** *Prof. Dr. Ari Kupietzky (Israel)* *Livestream*				
10.30-10.45	Refreshment						
10.45-11.30	**Pediatric Airway: What Pediatric Dentist Should Know** *Assoc. Prof. Nuntigar Sonsuwan (Thailand)*	**Molar-root Incisor Malformation: What is it and What is its Management Challenge** *Prof. Dr. Hong-Keun Hyun (South Korea)*	**Artificial Intelligence in Dentistry: The Onset of Digital Revolution** *Prof. Dr. Min Suk Heo (South Korea)*	Oral session I	Oral session III	Poster session 001-030	
11.30-12.15	**TMD and Orofacial Pain in Children and Adolescents** *Assoc. Prof. Dr. Teekayu Plangkoon Jorns (Thailand)*	**Bioceramic Materials are Cool - Which One are You Looking for?** *Prof. Dr. Nai Chia Teng (Taiwan)*	**Pediatric Oral Lesions: A Guide to Diagnosis and Management Strategies** *Assoc. Prof. Catherine Hong Hsu Ling (Singapore)*				
12.15-13.15	Lunch						
13.15-14.45	**Molar Incisor Hypomineralization from Diagnosis to Therapy** *Prof. Dr. Katrin Bekes (Austria)*		**Molar Incisor Hypomineralization from Diagnosis to Therapy** *Prof. Dr. Katrin Bekes (Austria)* *Livestream*				
14.45-15.30	**Benefits of Bio-Active "S-PRG Filler" for Disease Control/Management in Pediatric Dentistry** *Prof. Satoshi Imazato (Japan)*		**Supernumerary Teeth and Their Clinical Implication** *Prof. Piranit Kantaputra (Thailand)*	Oral session II	Oral session IV	Poster session 031-045	
15.30-15.45	Refreshment						
15.45-16.30	**Restorative Dentistry in Special Needs Patients** *Prof. Dr. Gustavo Fabián Molina (Argentina)*		**Cleft and Craniofacial Anomalies** *Dr. Kalaiarasu Peariasamy (Malaysia)*	Oral session II Cont.	Oral session IV Cont.	Poster session 046-060, 063	
18.00-21.00	Bangkok-Night-A Gala-Reception						

	Thong Lo, 4th Fl
18.00-21.00	**Mimic Nature of Anterior Teeth with Composite Restoration: From A to Z** (Lecture in Thai) By Invitation Only *Assoc. Prof. Dr. Pipop Saikaew (Thailand)*

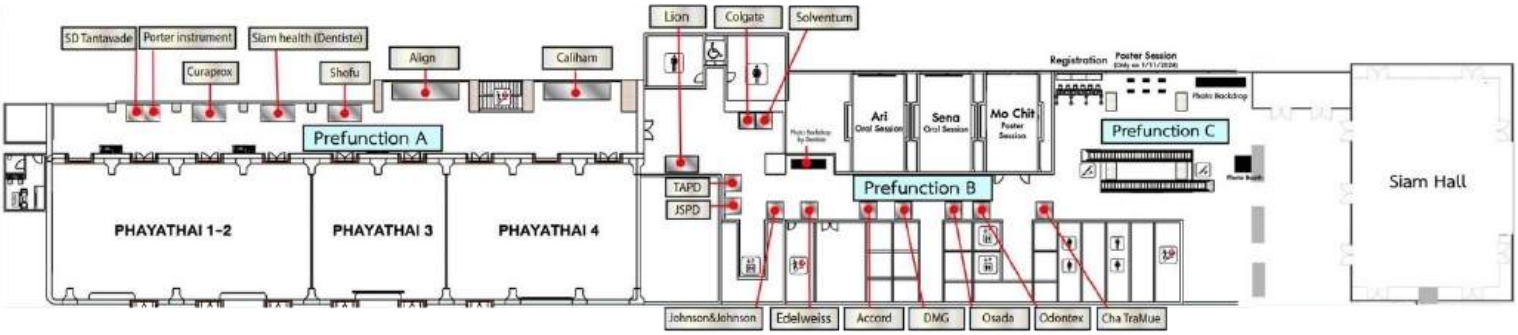
1 November 2024

Day 2

	Phayathai 1-2	Phayathai 3	Phayathai 4	Ari	Sena	Mo Chit & Prefunction C	Prefunction A,B
09.00-10.30	**Minimum Intervention Oral Care (MIOC): Implement Modern Caries Management in Clinical Practice** *Prof. Dr. Avijit Banerjee (UK)*		**Minimum Intervention Oral Care (MIOC): Implement Modern Caries Management in Clinical Practice** *Prof. Dr. Avijit Banerjee (UK)* Livestream				Exhibition
10.30-10.45	Refreshment						
10.45-11.30	**Regenerative Endodontics: An Update on the Mahidol Study** *Assoc. Prof. Dr. Jeeraphat Jantarat (Thailand)*	**Restoration Strategies for Significant Tooth Defects of Anterior Teeth in Adolescents** *Dr. Jing Tian (China)*	**Full Coverage Crowns: Restorations for Deciduous and Permanent Teeth in the Developing Dentition** *Dr. Desigar Moodley (South Africa)*	Oral session V	Oral session VII	Poster session 061-102, 124	
11.30-12.15	**Promoting Oral Health in Children and Adolescents: Principles, Considerations and Opportunities** *Assoc. Prof. Dr. Wong Mun Loke (Singapore)*	**Does Growth Stunting Correlate with Oral Health in Children?** *Prof. Dr. Arlette Setiawan (Indonesia)*	**Probiotics and Clinical Application** *Prof. Dr. Rawee Teanpaisan (Thailand)*				
12.15-13.15	Lunch *Annual General Meeting of the Thai Association of Pediatric Dentistry 2024 (Phayathai 3, 12.15 - 12.45)* *PDAA Board Meeting (Asok Function Room, 4 Fl)*						
13.15-14.45	**Growth Guidance: Fundamentals of Pediatric Invisalign Treatment** *Dr. Martin Avey (USA)*		**Growth Guidance: Fundamentals of Pediatric Invisalign Treatment** *Dr. Martin Avey (USA)* Livestream				
14.45-15.30	***S. mutans*: Causative of Dental Caries and Beyond** *Prof. Dr. Michiyo Matsumoto-Nakano (Japan)*		**The Delayed Complications of the Injuries to the Permanent Teeth** *Prof. Dr. Nitesh Tewari (India)*	Oral session VI	Oral session VIII	Poster session 103-123	
15.30-15.45	Refreshment						
15.45-16.30	**Dental and Oral Care in Childhood Cancer - a Prime for the Pediatric Dentist** *Prof. Dr. Marcio da Fonseca (USA)*		**From Teeth to Tomorrow: Exploring SHEDs' Potential in Regenerative Medicine** *Assoc. Prof. Dr. Waleerat Sukarawan (Thailand)*				
16.30-17.00	**Award Announcement and Closing Ceremony**		**Award Announcement and Closing Ceremony** Livestream				

Floor Plan

6th-Floor



4th-Floor

Pre-Congress Abstract

Pre-Congress Abstract

30 October 2024

Dr. Mukul Jain
(India)

New Materials and Techniques in Pediatric Dentistry- Bioflx Crown, Pre-Formed Space Maintainers and Putty MTA

Brief CV

Dr. Jain has been practicing pediatric dentistry since 2005 and is passionate about improving the oral health and lives of children. He is also the founder of Kids-e-Dental and inventor of the BioFlx polymer resin crown, Kids-e Zirconia crown, and chairside space maintainer. Dr. Jain's products are used in over 50 countries and have a proven track record of safety, performance, and value.

Abstract

In the past, there were few options for restoring the aesthetics and function of deciduous teeth. Also, maintaining proper spacing for permanent teeth was an afterthought. New materials and techniques have been introduced that not only provide children with confidence in their smile but also promote the alignment of newly-erupted permanent teeth.

Pre-Congress Abstract

30 October 2024

Dr. Kanokwan Urthamapimuk
(Thailand)

Oral Health Promotion as the Service Differentiation in Private Dental Practice: The Case Study and Practical Guidelines

Brief CV

- *25 years of dentist work.*
- *Owner of dental clinics for over 20 years.*
- *Founder of the community of dental clinics that make the different with Oral health promotion.*
- *Special lecturer at Faculty of dentistry at Mahidol University and Chulalongkorn University, on the topic of*
  - *Oral Health Promotion*
  - *Dental Clinic Management*
  - *Patient-Centric approach dental services*
  - *Personalized-Behaviour change for Oral Health Promotion.*
  - *Individually-Trained Oral Prophylaxis to promote patient's sense of ownership in Oral health.*
- *Guest speaker at Thai National Health Foundation.*
- *Current sub-committee of Thai dental council in the area of Oral health promotion.*

Academic background :

- *Bachelor degree in Doctor of Dental Surgery, Faculty of dentistry, Chulalongkorn University.*
- *Master of Business Administration, Chulalongkorn Business School.*
- *Certified Individually -trained Oral Prophylaxis, Lecturer.*

Abstract

Dentist's work has been postulated as the work on the issues for which the patients can't solve by themselves. This approach makes the dental services limit patient's involvement in itself.

Yet it is known that patients play critical role in the prognosis of treatment as well as the causal of the problem in Oral health in itself. Dr.Catt has instigated the idea of patient-centric dental services at her private clinics. The idea was formed around Oral Health Promotion and knowledge in the field of education and psychology to promote patient engagement. Over the last 7 years, Dr.Catt's idea and guideline has gained interest in both of practical impact and the outcome of her patient's Oral health . Her work is recognized by her peers that 'You can tell if this patient has been with Dr.Catt.' and the Thai dental association to promote the story of her practice among Thai dentists.

Pre-Congress Abstract

30 October 2024

Assoc. Prof. Dr. Rohaida Abdul Halim
(Malaysia)

Hypnosis and Nitrous Oxide as Behavioural Management Techniques

Brief CV

Dr. Rohaida Abdul Halim, an Associate Professor and Consultant in Paediatric Dentistry, epitomises excellence and innovation in her field. With a Bachelor of Dental Surgery from the University of Malaya and a Doctor of Clinical Dentistry in Paediatric Dentistry from the University of Otago, her dedication to professional development is unparalleled. Notably, she holds certifications in Clinical Hypnosis from the London College of Clinical Hypnotherapy. Elected as a Fellow of the International Association of Paediatric Dentistry (FIAPD) in 2023, Dr. Rohaida is revered for her commitment to excellence. She is a registered specialist with the Malaysian Dental Council and a distinguished Academy of Medicine (Malaysia) member. Affiliated with esteemed organizations like the Malaysian Association of Paediatric Dentistry and the International Association for Dental Research, her influence extends globally. Specialising in compassionate care for paediatric patients, including those with special needs and anxiety disorders, Dr. Rohaida employs advanced techniques such as hypnosis and nitrous oxide sedation. Her expertise transcends age barriers, extending to treating anxious adults with equal proficiency. Dr. Rohaida's multifaceted skills, relentless pursuit of knowledge, and compassionate ethos make her a transformative figure in Paediatric Dentistry and clinical hypnosis.

Abstract

This workshop is designed specifically for paediatric dentists seeking to enhance their practice by integrating nitrous oxide inhalation and hypnosis techniques. In this transformative experience, we aim to revolutionise how paediatric dental care is approached, making it effective and deeply comforting for young patients.

Through a combination of hands-on demonstrations, expert-led discussions, and immersive exercises, participants will learn how to administer nitrous oxide in paediatric dentistry settings skilfully, ensuring optimal patient comfort and anxiety reduction. Additionally, they will explore the therapeutic benefits of hypnosis in calming nervous young minds and facilitating a positive dental experience.

Led by Assoc. Prof. Dr Rohaida, an experienced paediatric dentist and certified hypnotherapist, "Dreamy Smiles" provides a comprehensive understanding of the physiological and psychological aspects of paediatric dental care. Participants will gain practical strategies for incorporating these techniques into their practice, effectively managing behaviour, reducing treatment time, and promoting long-term oral health. Join us for "Dreamy Smiles" and embark on a journey to redefine paediatric dental care, where every appointment becomes an opportunity to create positive, lasting impressions and instil a lifelong love for healthy smiles in our youngest patients.

Pre-Congress Abstract

30 October 2024

Prof. Satoshi Fukumoto (Lecture)
(Japan)

Assoc. Prof. Aya Yamada
(Workshop)
(Japan)

Application of Bioactive Preventive Materials in the Management of Modulation of Enamel Properties in Pediatric Patients

Brief CV

Professor Satoshi Fukumoto *currently holds the position of Professor at Section of Pediatric Dentistry of Kyushu University and Division of Pediatric Dentistry of Tohoku University Graduate School of Dentistry.*

Prof. Fukumoto graduated from Kurashiki-Amaki High School in Okayama in 1988, earned a D.D.S. from Nagasaki University School of Dentistry in 1994, and achieved a Ph.D. in Dental Science from the same esteemed institution in 2000.

He started his academic career as an Instructor at Nagasaki University School of Dentistry in the Department of Pediatric Dentistry and has been committed to academic and research excellence since the very start. Notably, from 2000 to 2002, Prof. Fukumuto served as a Visiting Fellow at the National Institute of Dental and Craniofacial Research (NIDCR), NIH, working under the guidance of Chief Yoshihiko Yamada.

Over the years, Prof. Fukumoto has assumed various roles, progressing from Assistant Professor at Nagasaki University to Associate Professor at Kyushu University's Faculty of Dental Science, specializing in Pediatric Dentistry. As Professor at Tohoku University Graduate School of Dentistry since November 1, 2007 and also at Kyushu University Faculty of Dental Science from 2019 onwards, he has made significant contributions to the field of Dentistry. Additionally, Prof. Fukumoto also served as the Vice Director of Tohoku University from April 1, 2016, to March 31, 2019.

Associate Professor Aya Yamada *holds the position of Associate Professor of the Division of Pediatric Dentistry, Department of Community Social Dentistry, Tohoku University Graduate School of Dentistry.*

Assoc. Prof. Yamada graduated from Nagasaki University, School of Dentistry, in 1995 and achieved a Ph.D. from the same esteemed institution in 2004. She is a board-certified trainer for the Japanese Society of Pediatric Dentistry and has worked as Chair of Department of Pediatric Dentistry of Tohoku University Hospital (Specially Appointed Professor) since 2020 until present.

AWARDS:

2010 Excellent Presentation Award of the Japanese Society of Pediatric Dentistry
2012 Excellent Paper Award of the Japanese Pediatric Dental Journal
2015 SHOFU Award of the Japanese Society of Pediatric Dentistry
2017 Academic Award (LION Award) of the Japanese Society of Pediatric Dentistry
2023 Best Paper Award of the Journal of Oral Biosciences

Pre-Congress Abstract

30 October 2024

Prof. Satoshi Fukumoto (Lecture)
(Japan)

Assoc. Prof. Aya Yamada
(Workshop)
(Japan)

Application of Bioactive Preventive Materials in the Management of Modulation of Enamel Properties in Pediatric Patients

Abstract

We have recently seen a significant increase in dental problems in pediatric dentistry related to tooth hypoplasia, excessive sugar intake, and oral dysfunction etc. Polarization of dental problems in children has been rising, with cases divided largely into carious and non-carious defects. Patients with higher caries incidence are found not only to have problems in the home environment, but also present with dental hypoplasia. In particular, the management of dental dysplasia (MIH/HSPM), requires not only a dental approach, but a more holistic approach involving various measures that include the improvement of the home environment as well as the patient's lifestyle.

Development of bioactive materials containing S-PRG fillers are particularly beneficial in pediatric dentistry, as we have investigated ways in incorporating them into preventive and restorative materials to not only treat but also prevent rapidly increasing dental caries amongst the pediatric patient population. S-PRG is an innovative filler that is known to release various ions, effective in strengthening the tooth structure while improving the oral environment.

This pre-congress session comprises of 2 sections. In the first half, Prof. Fukumoto will introduce not only caries treatment using bioactive materials containing S-PRG filler for pediatric dentistry, but also more advanced caries prevention options.

In the second half, Dr. Aya Yamada will conduct a hands-on workshop involving the application of bioactive materials, step-by-step use with tips and tricks for effective clinical use.

Special Speaker's Abstract

31 October 2024

Assoc. Prof. Dr. Pipop Saikaew
(Thailand)

Mimic Nature of Anterior Teeth with Composite Restoration: From A to Z

(Lecture in Thai); By Invitation Only

Brief CV

Academic position	*Associate Professor at Faculty of Dentistry, Mahidol University, Bangkok, Thailand*
Education history	
2002-2008	*Doctor of Dental Surgery, Mahidol University, Bangkok, Thailand*
2010-2011	*Higher Grad in Operative Dentistry, Mahidol University, Bangkok, Thailand*
2011-2013	*Master degree in Dental Science (Operative Dentistry), Mahidol University, Bangkok, Thailand*
2013-2018	*Ph.D. in Dental science (Operative Dentistry), Hokkaido University, Hokkaido, Japan*

Abstract

This presentation aims to delve into the composition, properties, and clinical techniques associated with resin composite in anterior teeth, exploring its role in achieving not only functional success but also seamless integration with natural dentition. Additionally, we will explore the clinical procedures involved in anterior restoration, from shade selection to tooth preparation and the application of adhesive systems. Moreover, this presentation will touch upon the challenges faced in anterior restorations and the innovative solutions that have emerged. We will also explore the latest trends and technologies, such as universal shade resin composite.

Lecture Abstract

Lecture Abstract

31 October 2024

Phayathai 1-2, 4 (Livestream)			
Time	Lecture Number	Presenter	Title
09.00-10.30	L-01	Prof. Dr. Ari Kupietzky (Keynote speaker)	Adapting to a Dynamic Modern World: A Multifaceted Approach to Behavior Management in Pediatric Dentistry
13.15-14.45	L-02	Prof. Dr. Katrin Bekes (Keynote speaker)	Molar Incisor Hypomineralization from Diagnosis to Therapy
Phayathai 1-2			
Time	Lecture Number	Presenter	Title
10.45-11.30	L-03	Assoc. Prof. Nuntigar Sonsuwan	Pediatric Airway: What Pediatric Dentist Should Know
11.30-12.15	L-04	Assoc. Prof. Dr. Teekayu Plangkoon Jorns	TMD and Orofacial Pain in Children and Adolescent
14.45-15.30	L-05	Prof. Satoshi Imazato	Benefits of Bio-Active "S-PRG Filler" for Disease Control/Management in Pediatric Dentistry
15.45-16.30	L-06	Prof. Dr. Gustavo Fabián Molina	Restorative Dentistry in Special Needs Patients
Phayathai 3			
Time	Lecture Number	Presenter	Title
10.45-11.30	L-07	Prof. Dr. Hong-Keun Hyun	Molar-root Incisor Malformation: What is it and What is its Management Challenge
11.30-12.15	L-08	Prof. Dr. Nai Chia Teng	Bioceramic Materials are Cool - Which One are You Looking for?
Phayathai 4			
Time	Lecture Number	Presenter	Title
10.45-11.30	L-09	Prof. Dr. Min Suk Heo	Artificial Intelligence in Dentistry: the Onset of Digital Revolution
11.30-12.15	L-10	Assoc. Prof. Catherine Hong Hsu Ling	Pediatric Oral Lesions: A Guide to Diagnosis and Management Strategies
14.45-15.30	L-11	Prof. Piranit Kantaputra	Supernumerary Teeth and Their Clinical Implication
15.45-16.30	L-12	Dr. Kalaiarasu Peariasamy	Cleft and Craniofacial Anomalies

Lecture Abstract

1 November 2024

Phayathai 1-2, 4 (Livestream)			
Time	Lecture Number	Presenter	Title
09.00-10.30	L-13	Prof. Dr. Avijit Banerjee (Keynote speaker)	Minimum Intervention Oral Care (MIOC): Implement Modern Caries Management in Clinical Practice
13.15-14.45	L-14	Dr. Martin Avey (Keynote speaker)	Growth Guidance: Fundamentals of Pediatric Invisalign Treatment
Phayathai 1-2			
Time	Lecture Number	Presenter	Title
10.45-11.30	L-15	Assoc. Prof. Dr. Jeeraphat Jantarat	Regenerative Endodontics: An Update on the Mahidol Study
11.30-12.15	L-16	Assoc. Prof. Dr. Wong Mun Loke	Promoting Oral Health in Children and Adolescents: Principles, Considerations and Opportunities
14.45-15.30	L-17	Prof. Dr. Michiyo Matsumoto-Nakano	*S. mutans*: Causative of Dental Caries and Beyond
15.45-16.30	L-18	Prof. Dr. Marcio da Fonseca	Dental and Oral Care in Childhood Cancer - a Prime for the Pediatric Dentist
Phayathai 3			
Time	Lecture Number	Presenter	Title
10.45-11.30	L-19	Dr. Jing Tian	Restoration Strategies for Significant Tooth Defects of Anterior Teeth in Adolescents
11.30-12.15	L-20	Prof. Dr. Arlette Setiawan	Does Growth Stunting Correlate with Oral Health in Children?
Phayathai 4			
Time	Lecture Number	Presenter	Title
10.45-11.30	L-21	Dr. Desigar Moodley	Full Coverage Crowns: Restorations for Deciduous and Permanent Teeth in the Developing Dentition
11.30-12.15	L-22	Prof. Dr. Rawee Teanpaisan	Probiotics and Clinical Application
14.45-15.30	L-24	Prof. Dr. Nitesh Tewari	The Delayed Complications of the Injuries to the Permanent Teeth
15.45-16.30	L-25	Assoc. Prof. Dr. Waleerat Sukarawan	From Teeth to Tomorrow: Exploring SHEDs' Potential in Regenerative Medicine

Keynote Abstract | L-01

31 October 2024

Prof. Dr. Ari Kupietzky
(Israel)

Adapting to a Dynamic Modern World: A Multifaceted Approach to Behavior Management in Pediatric Dentistry

Department of Pediatric Dentistry of the Hebrew University-Hadassah School of Dental Medicine, Jerusalem, Israel (Part time)
Private practice in central Jerusalem, Israel

Abstract

Dr. Ari Kupietzky will present an engaging and insightful keynote lecture at the Pediatric Dentistry Association of Asia 2024 in Bangkok, focusing on strategies for guiding pediatric dental patients and their parents in today's rapidly evolving world. With a keen emphasis on adapting to the dynamic societal landscape, Dr. Kupietzky will delve into the intricacies of effectively treating children from diverse modern parenting backgrounds. Drawing from his extensive expertise as a globally recognized authority in behavior management, Dr. Kupietzky will leverage insights from his pivotal role in editing his textbook, Wright's Behavior Management for Children in Dentistry, the definitive source in the field. Participants can expect a comprehensive exploration of contemporary parenting practices and their impact on behavior guidance in pediatric dentistry. By considering the evolving societal and environmental factors influencing children's attitudes and behavior, attendees will gain valuable insights to enhance their clinical practice and improve patient outcomes.

Keynote Abstract | L-02

31 October 2024

Prof. Dr. Katrin Bekes
(Austria)

Molar Incisor Hypomineralization from Diagnosis to Therapy

Department of Pediatric Dentistry at the University Clinic of Dentistry, Medical University of Vienna, Vienna, Austria

Abstract

Molar incisor hypomineralization (MIH) is a frequently encountered dental condition worldwide. It is defined as hypomineralization of systemic origin of one to four permanent first molars frequently associated with affected incisors. Depending on the severity, the condition can be associated with dental complications including rapid wear, enamel loss, increased susceptibility to caries, loss of fillings, and most of all, severe hypersensitivity often resulting in severe discomfort. In addition, affected anterior teeth show opacities of different colors and expansion, which can disturb the esthetic appearance. Affected children should be diagnosed as early as possible and should be offered a treatment that is appropriate to the severity of the condition. This lecture aims to highlight different aspects related to MIH, from its etiology, diagnosis and classification to current treatment options with a special focus on hypomineralized incisors.

Lecture Abstract | L-03

31 October 2024

Assoc. Prof. Nuntigar Sonsuwan
(Thailand)

Pediatric Airway:
What Pediatric Dentist Should Know

Department of Otolaryngology, Faculty of Medicine,
Chiang Mai University, Chiang Mai, Thailand

Abstract

Pediatric dentists provide comprehensive oral health care for a child's teeth, gums, and mouth throughout the various stages of childhood which related to the development of craniofacial and upper airway especially in the ear, nose and throat (ENT). An Understanding of pediatric ENT disease is crucial for early detection, diagnosis and treatment of abnormality and disease. Upper airway assessment through ENT examination and diagnosis of conditions associated with diseases and common problem including allergic rhinitis, rhinosinusitis, otitis media, mucocele, ankyloglossia, adenotonsillar hypertrophy, Pediatric obstructive sleep apnea and congenital anomalies will be reviewed. Pediatric dentists will realize how to detect, screen, manage and refer for the best possible outcome.

Lecture Abstract | L-04

31 October 2024

Assoc. Prof. Dr. Teekayu Plangkoon Jorns
(Thailand)

TMD and Orofacial Pain in Children and Adolescent

Division of Oral Biology, Faculty of Dentistry, Khon Kaen University, Khon Kaen, Thailand

Abstract

Pediatric orofacial pain, especially in its chronic form, is one of the conditions that have an immense effect on the quality of life and psychological status of suffering patients, with substantial familial burden across multiple domains of daily living. Common chronic pediatric orofacial pain diagnoses include temporomandibular disorders, neuropathic pain, and headaches. The management of chronic orofacial pain in children is challenging and always multidisciplinary, beginning with a conservative holistic approach. The challenge of managing this group of patients lies in the diagnostic workup, particularly if patients only develop pain intraorally and are too young to communicate effectively. Certain orofacial pain conditions can mimic the symptoms of pulpal/dental origin pain, resulting in unnecessary dental or medical treatments, such as extraction, pulpal therapy, or drugs. Pediatric dentists, therefore, should understand and be able to differentiate the variety of symptoms of orofacial pain conditions in children and adolescents. This lecture will focus on the updated management of chronic pediatric orofacial pain and will be discussed using an evidence-based approach.

Lecture Abstract | L-05

31 October 2024

Prof. Satoshi Imazato
(Japan)

Benefits of Bio-Active "S-PRG Filler" for Disease Control/Management in Pediatric Dentistry

Department of Dental Biomaterials, Osaka University, Graduate School of Dentistry, Osaka, Japan

Abstract

Recently, much attention has been paid to bio-active restorative materials and liners, focusing on their mineralizing ability or stimulation of apatite formation. However, bio-active functions useful for dental treatment/care are diverse. In addition to promotion of remineralization and hard tissue formation, control of bacterial infection, prevention of inflammation, and promotion of healing and tissue regeneration can be included as functions beneficial to obtain better treatment results and enable effective disease control/prevention. S-PRG filler, a glass powder having a pre-reacted glass-ionomer phase on the surface of fluoroboroaluminosilicate core glass, is one of the highly advanced dental technologies. It releases six different ions F^- , BO_3^{3-} , Sr^{2+}, Na^+ , Al^{3+}, and SiO_3^{2-} at high concentrations. Due to such ion release characteristics, S-PRG filler exhibits multiple bio-active functions such as tooth strengthening, promotion of mineralization, acid neutralization, inhibition of bacteria and fungi, and enhancement of cell activity. Accordingly, S-PRG filler can be utilized for various dental treatment and prevention/care in different material forms. Notably, in the field of pediatric dentistry, composites/adhesives, coating resin, fissure sealant, polishing gel, and toothpaste containing S-PRG filler are of great interest for achieving restoration with preventive effects and effective caries prevention/management regimen. The present lecture describes the concept of bio-active dental materials and the functions of S-PRG filler. Clinical benefits and usefulness of various commercially available and experimental materials containing bio-active S-PRG filler for pediatric dentistry will be highlighted.

Lecture Abstract | L-06

31 October 2024

Prof. Dr. Gustavo Fabián Molina
(Argentina)

Restorative Dentistry in Special Needs Patients

Faculty of Dentistry, University of Hong Kong, Hong Kong
President of the International Association for Disability and Oral Health (iADH)

Abstract

Technical advances have led to improved quality of dental treatment and improved ability to maintain oral function and aesthetics over the life span. However, there are still gross inequalities in term of the quantity and the quality of dental treatment provided to people with disabilities. Special Care Dentistry is often perceived as the discipline of compromise – where 'better than nothing' is the bottom line. Management of caries lesions in patients with disabilities swings from preventive to therapeutic strategies: Fluorides in tablets, gels or varnishes forms and the use of xylitol as a sugar substitute were reported as effective approach to prevent the onset of caries in high-risk groups. Minimally intervention treatment options such as the Hall technique, the ART approach and the use of SDF for arresting caries, were deemed suitable and effective strategies for treating existing lesions in-office. The use of resin-bonded bridges has also been reported with high success rates, creating an alternative to implant-supported restorations. In conclusion, an increased number of articles reported strategies to prevent and manage caries among people requiring special care. Although an array of strategies for dental caries exists, more and better-quality clinical evidence is needed to offer guidance to inform policy and practice for special care dentistry.

Lecture Abstract | L-07

31 October 2024

Prof. Dr. Hong-Keun Hyun
(South Korea)

Molar-root Incisor Malformation: What is it and What is its Management Challenge

Department of Pediatric Dentistry, Seoul National University School of Dentistry, Seoul, Korea

Abstract

The molar root-incisor malformation (MRIM) or molar-incisor malformation (MIM) is a novel dental issue characterized by abnormally shaped crowns of maxillary central incisors and the roots of permanent first molars, and sometimes second primary molars. MRIM patients with involvement of permanent first molars and second primary molars typically exhibit normal crowns with short, thin, and narrow roots. Conversely, MRIM patients may present with crowns of their permanent maxillary central incisors that are narrower in the cervical area. Patients affected by MRIM experience tooth eruption and incisor crown deformation issues, necessitating a clinical strategy for management. I would like to share with the audience some of the clinical treatment strategies I have developed over years of treating MRIM patients.

Lecture Abstract | L-08

31 October 2024

Prof. Dr. Nai Chia Teng
(Taiwan)

Bioceramic Materials are Cool - Which One are You Looking For?

Pediatric Dentistry, College of Oral Medicine, Taipei Medical University, Taipei city, Taiwan

Abstract

Dentistry-applied bioceramic materials are ceramic materials that are categorized as bioinert, bioactive and biodegradable. They share a common characteristic of being specifically designed to fulfil their function; they are able to act as root canal sealers, cements, root repair or filling materials. Bioactivity is only attributed to those materials which are capable of inducing a desired tissue response from the host. The introduction of the so-called bioceramic materials meant a great advance for this new paradigm in endodontic therapy, given their biocompatible nature and excellent physicochemical properties. Applied to vital pulp therapy, bioceramic materials can be used in cases of pulp exposition from trauma, caries or other mechanical causes, as direct pulp cappers. In the last 10 years, the application of bioceramic materials in endodontics has been extensively studied. Some studies focused on the evaluation of the performance and clinical effects of existing bioceramics, while some studies focused on the update of existing bioceramics products, such as EndoSequence fast-set putty and BC Sealer HiFlow.

Considering the products' characters are different from their contents, we need to know the science and the proper application of those bioceramic materials.

Lecture Abstract | L-09

31 October 2024

Prof. Dr. Min Suk Heo
(South Korea)

Artificial Intelligence in Dentistry: The Onset of Digital Revolution

Department of Oral and Maxillofacial Radiology, School of Dentistry, Seoul National University, Seoul, Korea

Abstract

Artificial intelligence (AI) has made impressive advancements in many areas, including dentistry. Researchers are studying how AI can be helpful in dentistry. Right now, most AI work in dentistry focuses on looking at images to help with diagnoses. But there's excitement about using AI in more parts of dental care. This presentation will talk about the AI research already done in dental diagnoses and how it could be used in different areas of dentistry. The presentation also show new trends in AI-based dental care and talk about important issues and what might happen next in AI research for dentistry. This presentation hopes to show how AI could change dentistry in the future.

Lecture Abstract | L-10

31 October 2024

Assoc. Prof. Catherine Hong Hsu Ling
(Singapore)

Pediatric Oral Lesions: A Guide to Diagnosis and Management Strategies

Discipline of Orthodontics and Paediatric Dentistry, Faculty of Dentistry, National University of Singapore, Singapore

Abstract

Oral Medicine is the domain of dentistry that focusses on the identification and non-surgical treatment of diseases within the oral and maxillofacial region. These conditions can stem from primary oral ailments, systemic health conditions, or are induced by certain medical treatments. While these disorders are commonly managed by Oral Medicine specialists, it is beneficial for pediatric dentists to possess some level of adeptness in evaluating such lesions and to be able to generate a list of the most likely diagnoses. These skills aid clinicians in determining the appropriate investigations and management strategies.

This lecture aims to provide clinicians with i) a systematic framework, utilizing patient history and clinical findings to formulate a comprehensive differential diagnosis list; and ii) guidance on managing soft tissue lesions common in children.

Lecture Abstract | L-11

31 October 2024

Prof. Piranit Kantaputra
(Thailand)

Supernumerary Teeth and Their Clinical Implication

Division of Pediatric Dentistry, Faculty of Dentistry, Chiang Mai University, Chiang Mai, Thailand

Abstract

Vertebrate teeth exhibit a wide range of regenerative systems. Most mammals, reptiles, and amphibians, form replacement teeth, while other species do not employ such a system. This lecture will cover variety of rare dental anomalies with the emphasis on pathogenesis of supernumerary teeth and odontomas and how they tell us about the systemic conditions of the patients. The presence of supernumerary teeth or odntomas may suggest that patients may have Cleidocranial Dysplasia, Tricho-Rhino-Phalangeal syndrome, or Familial adenomatous polyposis syndrome. Mesiodens is the supernumerary tooth in the premaxilla. It is quite prevalent in Asian populations. For the past 2 years, our group has identified and published 8 genes responsible for the formation of mesiodens and oral exostoses. Knowledge of the pathogenesis of supernumerary teeth will help us to understand how to regenerate teeth for tooth regeneration in the future.

Lecture Abstract | L-12

31 October 2024

Dr. Kalaiarasu Peariasamy
(Malaysia)

Cleft and Craniofacial Anomalies

Taylor's School of Medicine Malaysia, Subang Jaya, Malaysia

Abstract

Children born with clefts and craniofacial anomalies may present with complex oral problems from birth through the development of their dentitions. These issues can include feeding difficulties, dental malformations, disturbances in tooth eruption and abnormalities in the soft tissues of the mouth. In addition, some of these children may have syndromes that can impact their treatment. This presentation will discuss clinical cases of cleft lip and palate, as well as craniofacial anomalies in children, managed by a multidisciplinary team.

Keynote Abstract | L-13

1 November 2024

Prof. Dr. Avijit Banerjee
(UK)

Minimum Intervention Oral Care (MIOC): Implement Modern Caries Management in Clinical Practice

Professor of Cariology & Operative Dentistry / Hon. Consultant & Clinical Lead, Restorative Dentistry, Faculty of Dentistry, Oral & Craniofacial Sciences, King's College London / Guy's & St. Thomas' Hospitals Foundation Trust, London, UK.

Abstract

In his thought-provoking lecture, Prof Banerjee, a global expert in cariology & operative dentistry and minimum intervention oral care from King's College London, will outline the best clinical practice of sustainable oral and dental care throughout the life-course, that is the minimum intervention oral care (MIOC) delivery framework.

He will outline the four interlinked clinical domains of MIOC and will discuss, with clinical and scientific evidence, the person-focused, susceptibility-related, team-delivered, prevention-based philosophy of modern prevention and operative management strategies to managing dental caries and the compromised dentition in adolescents.

He will outline various minimally invasive treatment protocols that may be used along with dental biomaterials and highlight postgraduate opportunities to study Advanced Minimum Intervention Restorative Dentistry (AMIRD) at King's College London.

Keynote Abstract | L-14

1 November 2024

Dr. Martin Avey
(USA)

Growth Guidance: Fundamentals of Pediatric Invisalign Treatment

Private practice

Abstract

Early interceptive orthodontics can be a transformational experience for young patients; correcting developing malocclusions, improving oral-facial harmony, and establishing the proper environment for future growth. Learning how to achieve these changes with modern, non-invasive treatment modalities, such as Invisalign First, is critical for both pediatric dentists and orthodontists. In this presentation, Dr. Avey will discuss the indications for aligner orthodontics in growing patients, digital diagnosis and case presentation with the iTero scanner, and how to treat a variety of case types using the Align Digital Platform.

Lecture Abstract | L-15

1 November 2024

Assoc. Prof. Dr. Jeeraphat Jantarat
(Thailand)

Regenerative Endodontics: An Update on the Mahidol Study

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

Abstract

In the last 2 decades, Regenerative endodontic procedures (REPs), have been considered as treatment of choice for nonvital immature teeth. The REPs involved non-instrumentation, irrigations and triple antibiotics or calcium hydroxide have been used as intra-canal medication. Patient natural scaffold was created, the Bioceramics was used as capping material and the tooth will be restored. The treatments are aiming for continued root formation and healing of apical lesion. The goals of REPs include primary goal to resolve symptoms and apical healing, secondary goal to promote further root development, and tertiary goal to gain a positive response to vitality testing.

To achieve clinical success of REPs, many guidelines and clinical recommendation have been developed. This presentation will focus on which factors will make the treatment works or lead to failure base on results of Mahidol Study phase I, II, and III. From Mahidol studies, the success outcome of Regenerative Endodontic Procedures was extremely high 97% survival rate. For the result of root development, Percentage changes of apical diameter, root length, root width, and radiographic root area were 56.8%, 8.27%, 23.2%, and 21.7%, respectively. The lecture will cover the details of Mahidol University Regenerative Endodontic Guideline based on series of research.

Lecture Abstract | L-16

1 November 2024

Assoc. Prof. Dr. Wong Mun Loke
(Singapore)

Promoting Oral Health in Children and Adolescents: Principles, Considerations and Opportunities

Vice Dean (Education), Faculty of Dentistry, National University of Singapore, Singapore

Abstract

Globally, dental caries and periodontal disease remain the two most common oral diseases which affect the population across the lifespan. Prevention is a mainstay in the management and control of these oral diseases. While prevention is well accepted as being better than cure, it can potentially be challenging to accomplish. An understanding of the key principles of prevention and oral health promotion is an important cornerstone in the design of possible strategies to help the young achieve good oral health. Along with these principles, an appreciation of appropriate behavioural science concepts will be useful to empower the young to assume a proactive role in maintaining good oral health. This lecture will provide a timely review of the rationale, principles and considerations of the art and science of prevention. At the same time, the challenges and opportunities around oral health promotion will also be discussed as we continue to promote oral health in children and adolescents.

Lecture Abstract | L-17

1 November 2024

Prof. Dr. Michiyo Matsumoto-Nakano
(Japan)

S. mutans: Causative of Dental Caries and Beyond

Department of Pediatric Dentistry, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama, Japan

Abstract

Dental caries is an infectious disease caused by colonization of pathogenic oral bacteria on tooth surfaces and known to be dependent on the presence of biofilm. As the disease progresses, a visible cavity develops on the surface, typically accompanied by pain. In children, dental caries can cause difficulties with eating and drinking, thus leading to retardation of overall growth and development. *Streptococcus mutans* is a major pathogen of dental caries, a biofilm-dependent infectious disease, and the bacterial organisms are known to be prevalent in the complex micro-community composing oral biofilm in the presence of sucrose under extremely low pH levels and responsible for tooth demineralization. It has been reported that dental caries occurrence is more frequently seen in children who possess a high number of these organisms. Therefore, bacterial transmission is considered to be the initial step in the pathogenesis of dental caries induced by *S. mutans*, with mother-to-child transmission a major topic in the field of pediatric dentistry. Furthermore, since *S. mutans* can also promote infective endocarditis and other types of systemic infections after gaining access to the bloodstream, many studies with a focus on enhancing oral health have provided important information regarding caries prevention.

Lecture Abstract | L-18

1 November 2024

Prof. Dr. Marcio da Fonseca
(USA)

Dental and Oral Care in Childhood Cancer - a Prime for the Pediatric Dentist

Department of Pediatric Dentistry at the University of Illinois Chicago, Chicago, USA

Abstract

The pediatric dentist will certainly encounter many children diagnosed with cancer as well as many survivors throughout his/her career. He may even be the first professional to suspect a malignancy due to its presentation in the oral cavity. Thus, it is important that the oral health care professional understand all aspects of childhood cancer. In this presentation, Dr. da Fonseca will discuss the probable etiologies of the disease, its incidence and prevalence, survival rates, signs and symptoms, main treatment modalities and strategies for the safe delivery of oral and dental care for children diagnosed with cancer.

Lecture Abstract | L-19

1 November 2024

Dr. Jing Tian
(China)

Restoration Strategies for Significant Tooth Defects of Anterior Teeth in Adolescents

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

Abstract

Restoration of significant tooth defects in anterior teeth of adolescents has long been a clinical challenge. The significant tooth defects usually caused by dental trauma, caries or development anomalies, and the pulp of the teeth were often involved due to large area of defects. Depending on whether the root is completely formed or not, and the viability of the pulp, pulpectomy or pulpotomy is performed. Restoration strategies including composite-resin restoration, crown fragment re-attachment, overdenture and glass fiber post-and-core and full crown restoration, etc. were used to solve this clinical dilemma. The goal of this report is to offer the audiences an overview of the achievable and available restoration strategies for the adolescents with a prosthodontic need.

Lecture Abstract | L-20

1 November 2024

Prof. Dr. Arlette Setiawan
(Indonesia)

Does Growth Stunting Correlate with Oral Health in Children?

Pediatric Dentistry, Faculty of Dentistry, Universitas Padjadjaran, Jawa Barat, Indonesia

Abstract

Growth stunting is a significant public health issue affecting children worldwide, particularly in developing countries. It is often linked to various health complications, including impaired cognitive development and increased susceptibility to chronic diseases. One area that requires further exploration is the potential correlation between growth stunting and oral health in children.

Poor oral health, such as dental caries and periodontal diseases, can significantly impact a child's quality of life, nutritional intake, and overall development. Conversely, nutritional deficiencies commonly seen in stunted children may contribute to poor oral health outcomes. This intricate interplay suggests that addressing one aspect of health could potentially influence the other.

This presentation will explore the existing literature and clinical observations regarding the relationship between growth stunting and oral health in children. By understanding these connections, we can better inform public health strategies and create comprehensive health programs that address both growth and oral health issues simultaneously. Such integrated approaches are essential for improving the overall health and well-being of children, particularly in vulnerable populations.

Lecture Abstract | L-21

1 November 2024

Dr. Desigar Moodley
(South Africa)

Full Coverage Crowns: Restorations for Deciduous and Permanent Teeth in the Developing Dentition

Head of EDGE dental academy-Educational Training Institute, Lier, Belgium

Abstract

Over the years, many types of paediatric crowns have been developed and advanced to aid the clinician in rehabilitating deciduous teeth. This lecture will discuss the various options that are available for full coverage restorations for the primary dentition. The advantages and disadvantages of each approach will be discussed.

This lecture goes through the procedures from stainless steel pediatric crowns to zirconia crowns to the latest hybrid-glass laser sintered crowns when restoring the deciduous tooth.

A step-by-step procedure that provides a simplistic approach when restoring the deciduous tooth will be taught through the use of minimally invasive clinical procedures. Clinical cases illustrating procedures on how to restore highly carious deciduous teeth, genetic disorders and trauma cases restored with pediatric crowns will be shown.

Learning outcomes:

- Following the lecture, delegates will understand the various treatment options available for restoring deciduous teeth. They will be able to transfer this knowledge to the clinical situation and be able to place pediatric crowns on the child patient.
- Reach a high level of competence in the placement of pediatric crowns, from the planning to the realization of the treatment.

Lecture Abstract | L-22

1 November 2024

Prof. Dr. Rawee Teanpaisan
(Thailand)

Probiotics and Clinical Application

Medical Science Research and Innovation Institute, Prince of Songkla University, Songkhla, Thailand

Abstract

The current knowledge in biomedical science indicate that human microbiota plays an important role in health and well-being, and that lead to the concept of bacteriotherapy by use of health-beneficial microorganisms known as probiotics to heal diseases and support immune functions. Probiotics have recently proposed in dentistry and medicine after years of successful use in mainly gastro-intestinal disorders. The mechanism of action of probiotics is related to their ability to compete with pathogens and to modulate the host's immune response. Lactic acid bacteria can produce different antimicrobial components such as organic acids, hydrogen peroxide, carbon peroxide, diacetyl, low molecular weight antimicrobial substances, bacteriocins, adhesion inhibitors and anti-inflammation. Collectively results of the studies to date suggest that probiotics could be potentially useful in preventing and treating oral infection including dental caries, periodontal diseases and halitosis. Certain oral pathogens have been found to associate with gastrointestinal cancer. Scientific evidence so far indicates that probiotic therapy may be a reality in both dentistry and medicine. This presentation will provide information of probiotics for health and prevention of oral diseases and relating cancer.

Lecture Abstract | L-24

1 November 2024

Prof. Dr. Nitesh Tewari
(India)

The Delayed Complications of the Injuries to the Permanent Teeth

All India Institute of Medical Sciences, New Delhi, Delhi, India

Abstract

The delayed complications of trauma to permanent teeth result in conditions such as external inflammatory root resorption, internal resorption, apical periodontitis, and periapical pathosis. They are directly or indirectly related to the effect of trauma to the dental pulp and its degeneration. A lot of clarity regarding immediate management of the dental injuries exist in form of the guidelines of the International Association of Dental Traumatology and certain evidence based resources such as Dental Trauma Guide. They provide a roadmap to adequate management and ways to safeguard against the delayed complications. However, there is still a great deal of paucity in recognizing the delayed complications and their predictable management among pediatric dentists. This lecture aims to provide a practical insight into the evidence-based diagnosis and management of these delayed complications along.

Lecture Abstract | L-25

1 November 2024

Assoc. Prof. Dr. Waleerat Sukarawan
(Thailand)

From Teeth to Tomorrow: Exploring SHEDs' Potential in Regenerative Medicine

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

Abstract

Ever since Miura et al. discovered Stem Cells from Human Exfoliated Deciduous Teeth (SHEDs) in 2003, they have been considered to be unique and promising prospects for regenerative medicine and cell-based therapy. In contrast to alternative sources of mesenchymal stem cells (MSCs), such as adipose tissue or bone marrow, harvesting of stem cells from deciduous teeth is a harmless and ethically acceptable process. This presentation looks into the unique characteristics of SHEDs and their remarkable ability for tissue regeneration and repair. SHEDs exhibit multipotency, capable of differentiating into diverse cell lineages including osteoblasts, chondrocytes, adipocytes, and neural cells. Their immunomodulatory properties further enhance their therapeutic utility, holding promise as a versatile tool for the treatment of a wide array of medical conditions, including bone defects, cartilage regeneration, nerve regeneration, and autoimmune disorders. Recent progress in understanding the mechanisms underlying SHEDs-mediated regeneration pave the way for the development of novel regenerative therapeutics, bringing us closer to achieving the full potential of deciduous tooth stem cells to revolutionize modern medicine.

Oral Presentation Abstract

Oral Presentation Abstract

31 October 2024

Oral Presentation I			Ari Room
Time	Order Number	Presenter	Title
10.50-11.00	O-01	Yue Han	Effect of GREM1 on Osteogenic/odontogenic Differentiation of hDPSCs under Inflammatory Conditions
11.00-11.10	O-02	Fei-Liu	Osteogenic Mechanism Exploration of Deciduous-teeth Periodontal Ligament Stem Cell in Inflammatory Environment
11.10-11.20	O-03	Yuta Chiba	The Crucial Role of Keratin 15 in Tooth Morphogenesis Revealed by Single-cell RNA Sequencing of Tooth Germ
11.20-11.30	O-04	Wen Xiao	Quantitative Evaluation of CBCT Artificial Intelligence Automatic Segmentation Accuracy in Mixed Dentition
11.35-11.45	O-05	Guangyun Lai	Evaluation of Primary Molars Treated by Pulpotomy with iRoot BP Plus: a Retrospective study
11.45-11.55	O-06	Qiong Zhang	Vital Inflamed Pulp Therapy for Immature First Mandibular Molar with Apical Periodontitis
11.55-12.05	O-07	Shanshan Dai	Survival Analysis and Risk Factors of Indirect Pulp Capping in Primary Teeth: a Retrospective Study
12.05-12.15	O-08	Teresa Wing Yan Leung	Root Canal Treatment in a Child with Autism Spectrum Disorder under Monitored Anesthesia Care
Oral Presentation II			Ari Room
Time	Order Number	Presenter	Title
14.50-15.00	O-09	Shijia Hu	Silver Diamine Fluoride is Cost-effective in Children with High Caries Activity
15.00-15.10	O-10	Manira Sharmin Asha	Clinical Evaluation and Parental Satisfaction between Strip and Zirconia Crown in Primary Maxillary Anterior Teeth
15.10-15.20	O-11	Shahad Al Thamin	Rice Husk Silica in Fissure Sealant: Degree of Conversion & Mechanical Properties
15.20-15.30	O-12	Menaga Balakrishnan	Rare Occurrence of Oro-cutaneous Fistula on the Chin - a Case Report
15.45-15.55	O-13	*- Withdrawn -*	
15.55-16.05	O-14	Yuanyuan Li	Efficacy of Orthodontic Treatment versus Adenotonsillectomy in Mild OSA Children with Mandibular Retrognathia
16.05-16.15	O-15	Phanuwit Poonyarit	Factors Affecting the Effectiveness of Nitrous Oxide and Oxygen Inhalation Sedation for Pediatric Dental Patients

Oral Presentation Abstract

31 October 2024

Oral Presentation III			Sena Room
Time	Order Number	Presenter	Title
10.50-11.00	O-16	Ni Zhou	Positive-reinforced Oral Health Education among Preschool Children: a Randomized Controlled Trial
11.00-11.10	O-17	Sarah Ying, Sim	Bridging Gaps in Oral Care for Children with Cancer: Insights from the Parental Perspective
11.10-11.20	O-18	Thatsana Ritthikul	The Social Story Entitled "I go to the dentist" for Oral Examination in Autistic Children
11.20-11.30	O-19	Hey Ching Wong	Prevalence of Dental Fear and Anxiety and Associated Factors in Young Hong Kong Children
11.35-11.45	O-20	Im Puthisa	Effect of SDF on Atypical and Typical Cavities in Cambodian Children: Secondary data analysis
11.45-11.55	O-21	Mulia Hanifa	Probiotic Utilization to Prevent Recurrent Dental Black Stain: a Systematic Review
11.55-12.05	O-22	Anthony Tzong-Ping Tsai	Explain Prevention and Treatment of Dental Caries with One Graph
12.05-12.15	O-23	Wirada Kormkrasunk	Sealant Retention between Using EasyPrep® versus Cotton Roll Isolation Techniques: a Split-mouth Randomized Controlled Trial
Oral Presentation IV			**Sena Room**
Time	Order Number	Presenter	Title
14.50-15.00	O-24	Hyo-Seol Lee	Molar-Incisor Malformation; Long-term Follow Up Results
15.00-15.10	O-25	Guohua Yuan	Improvement of the Dentin Bonding Performance of Primary Molars with Dentinogenesis Imperfecta Using Ca/P-PILP
15.10-15.20	O-26	Wai Phyo AUNG	Patterns of Tooth Agenesis and Tooth Width in Thai Cleft Patients: Cone-Beam Computed Tomography Analysis
15.20-15.30	O-27	Nurfarhana Ilyas	Assessment Factors for Management of Poor Prognosis First Permanent Molars in Children: a Scoping Review
15.45-15.55	O-28	Kugendran V Rajendran	Simplicity in Treatment, Excellence in Healing: Paediatric Cases of Inflammatory Dentigerous Cysts
15.55-16.05	O-29	Zaridah Zainal Abidin	An Analysis of Referral Letters of Orofacial Vascular Anomalies Received at a Tertiary Centre
16.05-16.15	O-30	Puteri Nur AmeeraFarahin Binti Md Amin	Vascular Anomalies: What, Why, When and How

Oral Presentation Abstract

1 November 2024

Oral Presentation V			Ari Room
Time	Order Number	Presenter	Title
10.50-11.00	O-31	Tuenjai Pornmahala	Simple Interceptive Orthodontic Treatment of Pseudo Class III Malocclusion: a Case Report
11.00-11.10	O-32	Ling Xiao	Treatment of A Mild Skeletal Class III Malocclusion with Vertical Growth in Early Mixed Dentition
11.10-11.20	O-33	Mingmei Meng	Evaluation of Hyoid Bone Position and the Upper Airway in Children with Anterior Open Bite
11.20-11.30	O-34	Su Yang	Early Correction of Class II Division 1 Malocclusion with Removable High-pull Headgear Splint Appliance
11.35-11.45	O-35	Yujiao Guo	An Infant with Congenital Micrognathia Was Diagnosed as Hutchinson-Gilford Progeria Syndrome Caused by a Novel LMNA Mutation
11.45-11.55	O-36	Guoxia YU	Distraction of the Impacted Canine of a Case Diagnosed as Basal Cell Nevus Syndrome
11.55-12.05	O-37	Meiyue Ren	A Case of Serious Gingival Recession Caused by Self-injurious Gingivitis of Deciduous Teeth
Oral Presentation VI			**Ari Room**
Time	Order Number	Presenter	Title
14.50-15.00	O-38	Ii Xin HOW	Regenerative Endodontic Treatment for Dens Invaginatus in Child with Autism Spectrum Disorder: a Case Report
15.00-15.10	O-39	Chunmei Li	Study of Vital Pulp Therapy in Primary Teeth with Chronic Hyperplastic Pulpitis
15.10-15.20	O-40	Gang Xiao	The Treatment Effect of Regenerative Endodontic Protocol Using Blood Clot versus Concentrated Growth Factors
15.20-15.30	O-41	Aliya Syaikah	Broken File Treatment Considerations in Endodontic: a Case Series

Oral Presentation Abstract

1 November 2024

Oral Presentation VII			Sena Room
Time	Order Number	Presenter	Title
10.50-11.00	O-42	Wan Aeisyah Wan Ahmed	Sedation Level of Oral Midazolam in Paediatric Dental Patients with Different Fasting Protocols
11.00-11.10	O-43	Hilmanda Budiman	Behavioral Approach Using Conscious Intravenous Sedation in Dental Care Management for Children with Cerebral Palsy
11.10-11.20	O-44	Ha-Thu Nguyen	General Anesthesia: One Choice for Children's Better Life
11.20-11.30	O-45	Jiangfeng Ding	Surgical and Orthodontic Management of Maxillary Incisors Following Trauma to Their Primary Predecessors
11.35-11.45	O-46	Selvaraj Nishanthi	Seal with Care: Introducing Eco-friendly and Affordable Flowable Composite
11.45-11.55	O-47	Sarjana Yeasmin	Comparative Evaluation of HALL Technique and Conventional Restorative Technique for Managing Carious Primary Molars
11.55-12.05	O-48	Fen Liu	Caesarean-section Delivery and Caries Risk of 3-year-old Chinese Children: a Retrospective Cohort Study
Oral Presentation VIII			Sena Room
Time	Order Number	Presenter	Title
14.50-15.00	O-49	Jingou Liang	Intelligent pH-responsive Self-assembled Antibacterial Nanoparticles for the Inhibition of Dental Caries
15.00-15.10	O-50	Rob Son Choong	Dental Age Estimation Methods Using Cone-beam Computed Tomography in Children and Adolescents: a Systematic Review
15.10-15.20	O-51	Samuel Pramadisa	Association between Early Childhood Caries and Malnutrition on Urban and Rural Setting in Indonesia
15.20-15.30	O-52	Marta Ulina Naibaho	Genetic Factor in Children with Early Childhood Caries: a Systematic Review

O-01

Effect of GREM1 on Osteogenic/odontogenic Differentiation of hDPSCs under Inflammatory Conditions

Yue Han[1], Xiaoyue Guan[1], Fei Liu[1], Tiezhou Hou[1]

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Objective:

Unresolved inflammation and tissue destruction are supposed to underlie the failure of dental pulp repair. Dental pulp stem cells (DPSCs) have been proven that they can differentiate into osteogenic/odontogenic cells and participate in the formation of reparative dentin during the pulp injuries, and bone morphogenetic protein (BMP) plays a role in this process. Gremlin 1 (GREM1) is a secretory protein and an endogenous antagonist of BMP, which has been reported to regulate inflammation and osteogenesis via activating NF-κB-IL-1β signaling pathway, but whether GREM1 can influence osteogenic/odontogenic differentiation of DPSCs under inflammatory condition is still elusive.

Methods:

1. Healthy/inflammatory dental pulp were used to determine the expression of GREM1 and IL-1βin by HE, IHC and Western-Blot. 2. Immunofluorescence double staining of GREM1 and Vimentin were used to observe the expression position of GREM1 in hDPSCs. To explore the effect of GREM1 in vitro inflammatory state, hDPSCs were infected with GREM1 overexpressed/knock-down virus respectively and exposed to LPS. The early and late osteogenic differentiation of hDPSCs was assessed by ALP, ARS staining, the signature protein—RUNX2, ALP, DSPP, DMP1 were assessed by Western-Blot.

Results:

1. Within the human inflammatory pulp tissues, the expression of GREM1, IL-1β were significantly increased compared to the healthy tissues. 2. Under inflammatory conditions, knock-down the expression of GREM1 can promote osteogenic/odontogenic differentiation of hDPSCs in vitro, while over-expression of GREM1 can restrain it.

Conclusion:

GREM1 plays a role in the osteogenic/odontogenic differentiation of hDPSCs under inflammatory conditions.

Keywords:

GREM1, DPSCs, Pulpitis

O-02

Osteogenic Mechanism Exploration of Deciduous-teeth Periodontal Ligament Stem Cell in Inflammatory Environment

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[1]Department of Pediatric Dentistry, College of Stomatology, Xi'an Jiaotong University, Xi'an, China

Objective:

This study aimed to illustrate the biological behavior and changes in cell function during the progression of apical periodontitis in deciduous teeth and to explore the underlying molecular mechanism.

Methods:

Deciduous-teeth periodontal ligament stem cells (DePDLSCs) are derived and identified of its character. The viability, inflammation, and osteogenic ability of cells were tested by exposing them to lipopolysaccharide (LPS, 0–100 μg/mL), using the cell counting kit-8 (CCK-8) assay, reverse transcription polymerase chain reaction (Real-time PCR), alkaline phosphatase (ALP) staining, and ALP activity assay. In addition, osteogenic-induced cells with 10 μg/mL LPS or not, were harvested for high-throughput sequencing. Based on the sequencing data, proinflammatory factors (IL-1β, IL-6, TNF-α) and ALP expression were measured after incubation with the PI3K-AKT signaling pathway activator, 740Y-P.

Results:

Considering proliferation and osteogenesis of the cells, low concentrations of LPS (<1 μg/mL) exhibited stimulatory effects, whereas inhibitory effects were observed at high concentrations. Sequencing analysis discovered that the PI3K-AKT signaling pathway was significantly down-regulated when DePDLSCs were incubated with 10 μg/mL LPS . When cells were incubated in LPS, 30 μg/mL 740Y-P significantly reduced the secretion of proinflammatory factors (IL-1β, IL-6, TNF-α) and upregulated the expression of ALP.

Conclusion:

LPS regulated the proliferation and osteogenesis of DePDLSCs in a biphasic manner. Moderate activation of PI3K-AKT signal pathway was beneficial for anti-inflammatory effect and osteogenic differentiation in early stage for DePDLSCs. This research may provide etiological probes for apical periodontitis and therapeutics.

Keywords:

Apical periodontitis, Deciduous teeth, Inflammation, Osteogenesis

O-03

The Crucial Role of Keratin 15 in Tooth Morphogenesis Revealed by Single-cell RNA Sequencing of Tooth Germ

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[2]Kyushu University, Fukuoka, Japan

Objective:

Congenital dental anomalies impact on the oral health of children. However, most of causes of dental anomalies remains unclear. This study aims to clarify the molecular mechanism of dental anomalies using single-cell RNA-seq (scRNA-seq).

Methods:

scRNA-seq was performed using the molars of 16-day embryonic and 1-day post-natal mice, and the incisors of 7-day post-natal mice. Gene expression analyses were performed using qRT-PCR and immunofluorescence of developing tooth germs. Morphological analyses were performed using ex vivo organ culture experiments of tooth germs. Molecular mechanism was examined in vitro using mouse dental epithelial cell line CLDE.

Results:

We analyzed the origin and cell fate of dental epithelial cell types using scRNA-seq and found that inner enamel epithelium gives rise to outer enamel epithelium (OEE). In addition, cell proliferation activity was decreased during differentiation process into OEE, while the expression of Keratin15 (Krt15) was increased. Immunofluorescence results revealed that KRT15 was specifically expressed in OEE. By ex vivo organ culture of tooth germ, we found that depletion of *Krt15* induces ectopic proliferation of OEE and resulted in abnormal tooth morphogenesis. Microarray analyses of *Krt15*-depleted CLDE cells indicated that cell proliferation activity was increased via upregulation of cell proliferation marker genes. Furthermore, signaling pathway analyses clarified that *Krt15* inhibits phosphorylation of p38MAPK and regulates tooth germ morphogenesis via suppression of cell proliferation in OEE.

Conclusion:

Our results suggest OEE plays important role in regulation of tooth germ morphology via *Krt15* expression. These findings may contribute to identify the pathogenesis of dental anomalies in morphology.

Keywords:

Tooth development, Cytokeratin, Cell biology, Single-cell RNA-sequence

O-04

Quantitative Evaluation of CBCT Artificial Intelligence Automatic Segmentation Accuracy in Mixed Dentition

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[2]Department of Automation, Shanghai Jiao Tong University, Shanghai, China

Objective:

Nowadays, manual labeling by dentists is the gold standard for automatic segmentation of CBCT images using AI. However, this gold standard depends on the experience of the dentists, and this accuracy significantly impacts clinical application, especially in mixed dentition.

Methods:

The extracted teeth scan models served as the gold standard. Pediatric patients' mixed dentition CBCT scans (with impacted supernumerary teeth) and their corresponding extracted supernumerary teeth were collected with informed consent. The extracted teeth were scanned using a 3Shape optical scanner, and automatic segmentation by AI was performed using an nnUNet-based framework. Mean Surface Distance (MSD), Hausdorff distance (HD), and Dice similarity coefficient (DSC) were used to quantitatively evaluate the accuracy of CBCT AI automatic segmentation. One-way analysis of variance (ANOVA) and Tukey's post-hoc analysis were used to compare the differences between different locations of the teeth in the extracted teeth scan models vs. CBCT AI automatic segmentation.

Results:

Eight samples were collected. The mean values (±SD) of the MSD (mm), HD(mm) and DSC (%) between AI segmentation and the extracted teeth were as follows: entire teeth (0.174±0.036, 1.546±0.585, 91.0±1.9%), crown (0.150±0.032, 0.792±0.262, 92.7±1.6%), cervical region of tooth (0.149±0.032, 0.592±0.183, 94.8±1.4%) and root (0.268±0.113, 1.514±0.621, 79.1±8.6%)($F=16.34$, $P<0.001$). The differences in locations (95% CI) for DSC (entire teeth vs root) were 0.119 (0.053, 0.186), $P<0.001$. While there was no statistical difference in DSC between entire teeth vs crown and cervical region of the tooth.

Conclusion:

Automatic segmentation of teeth from CBCT images in mixed dentition using AI demonstrates high accuracy compared to gold standard.

Keywords:

Artificial intelligence (AI), Mixed dentition, Cone-beam computed tomography (CBCT), Impacted supernumerary teeth, Extracted teeth

O-05

Evaluation of Primary Molars Treated by Pulpotomy with iRoot BP Plus: a Retrospective Study

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Objective:

Pulpotomy is a crucial method to preserve primary teeth until natural exfoliation. This study aimed to evaluate the outcomes of primary molars treated by pulpotomy with iRoot BP Plus.

Methods:

Primary molars that underwent iRoot BP Plus pulpotomy between November 2020 and September 2022 and were followed for at least 12 months were selected for this study. Clinical and radiographic data were collected, and the success rate was analyzed in relation to factors such as children's age, tooth type, arch type, and hemostasis time.

Results:

A total of 183 teeth in 106 patients were included in the analysis. The follow-up period fell into a range of 1-3 years, with a mean of 1.6 years. The clinical and radiographic success rates were 96.7% and 92.9%, respectively. The earliest time to observe the radiographic failures was half a year after the treatment, and the latest time was two years after the treatment. Neither arch nor tooth type showed a relationship with the pulpotomy success rate. Among all the teeth, 130 were recorded with hemostasis time before the application of iRoot BP Plus. Compared to teeth with a hemostasis time of 5 minutes or less, teeth with a hemostasis time exceeding 5 minutes showed no significant differences in clinical and radiographic success (P=1.000 and 0.879)

Conclusion:

iRoot BP Plus can be a suitable medicament for primary molars pulpotomy. Hemostasis time may not significantly impact the success of pulpotomy in primary teeth.

Keywords:

Pulpotomy, Primary molar, Hemostasis, iRoot BP Plus

O-06

Vital Inflamed Pulp Therapy for Immature First Mandibular Molar with Apical Periodontitis

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Introduction:

Vital inflamed pulp therapy has been increasingly applied to reversible pulpitis or apical periodontitis.

Case Operation:

An eight-year old girl was referred with spontaneous pain and swollen buccal vestibule groove and face in the left mandibular region resulting from apical periodontitis of the first permanent molar. Only chalky white appeared in the deep occlusal distal and buccal grooves of tooth 36 without obvious cavities, but with uneven crown radiographically. The mesial root developed at Nolla stage VIII with continuous periodontal ligament space. The distal root length is 1/2 of the mesial one, with a large radiolucent area around the apex. Vitapex pulpotomy was performed for the mesial root to preserve the vital inflamed pulp. Apexification was applied to induce root end closure for distal roots due to the necrotic pulp. The mesial root apex was closed, and the distal apical barrier formed at the 2-year-follow-up. Root canal treatment was done at the 5-year-follow-up. iRoot BP Plus was used to cover the complete calcified bridge in mesiobuccal and distobuccal root and the incomplete calcified bridge in distolingual apex. The mesiolingual and upper segment of the other three root canals were filled with warm gutta-percha followed by a stainless steel crown restoration. Clinical/radiographic symptoms were absent at 7-year-follow-up.

Summary:

The status of the pulp could be different in multi-rooted immature molars with apical periodontitis. Vital and non-vital pulp therapy can be applied in different root canals to preserve the vital pulp at the greatest extent to promote the maturation.

Keywords:

Vital inflamed pulp therapy, Immature permanent molar, Apical periodontitis

O-07

Survival Analysis and Risk Factors of Indirect Pulp Capping in Primary Teeth: a Retrospective Study

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[2]Stomatology Hospital of Xi'an Jiaotong University, Xi'an, China

Objective:

To evaluate the survival rate of Indirect pulp capping (IDPC) in primary teeth with a deep carious lesion approximating the pulp but without irreversible pulpitis or periapical disease.

Methods:

The medical records of the children who were diagnosed with severe early childhood caries (S-ECC) and received IDPC under dental general anesthesia were screened and collected. Clinical assessment was based on the medical record. If the treated tooth exhibited any failure symptoms at a follow-up examination, the time from treatment to this visit was considered the survival time. If no failure symptoms occurred, the time between the treatment and the last follow-up was recorded as the survival time. The statistical analysis was used by the Kaplan-Meier (K-M) method to calculate the survival rates and draw the curve at different times after treatment. The shared frailty model was used to explore potential factors affecting the success rate of IDPC in primary teeth.

Results:

There were 352 children with S-ECC and 1197 teeth were included in the study. A total of 47 children who failed in the follow-up period with 51 teeth. The survival rates of the teeth treated with IDPC at 48 months was 82.3%. The risk of IDPC primary tooth treatment failure in mandibular teeth was 2.35 times that of maxillary teeth and the lesion included mesial surface was 2.76 times higher than without mesial surface.

Conclusion:

The overall survival rate of IDPC in primary teeth is long-term retention and satisfactory. The tooth arch position and carious lesion may influence the success rate of IDPC.

Keywords:

IDPC, Deep caries, Primary teeth

O-08

Root Canal Treatment in a Child with Autism Spectrum Disorder under Monitored Anesthesia Care

Teresa Wing Yan Leung[1], Cynthia Kar Yung Yiu[1]

[1]Discipline of Paediatric Dentistry, Faculty of Dentistry, the University of Hong Kong, Hong Kong

Introduction:

Autism Spectrum Disorder (ASD) is a common disorder in Hong Kong, with an estimated incidence rate of 5.49 per 10,000 individuals. Among children under 15, the prevalence rate is 16.1 per 10,000. Males are more commonly affected than females, with a ratio of 6.58:1. Patients with ASD often struggle with cooperation during dental procedures. In addition to non-pharmacological behavioral management techniques, monitored anesthesia care (MAC) can be used to ensure smooth delivery of dental treatment.

Case Operation:

An 11-year-old Chinese boy with ASD visited the University of Hong Kong's dental clinic for fractured upper front teeth. Patient had experienced trauma four months prior and a composite restoration was placed in tooth 21 after the trauma. However, the restoration was of poor quality due to the patient's lack of cooperativeness. Upon clinical examination, a buccal abscess was found on tooth 22, with a defective composite restoration on tooth 21. Radiographic examination revealed radiolucency in both teeth, which had closed apices. Mother requested comprehensive operative treatment for her son under pharmacological sedation. Traditional root canal treatment was proposed, and mother opted for a shallower sedation under MAC. Root canal treatments and composite restorations were successfully performed for both teeth under MAC. Follow Up: The buccal abscess on tooth 22 subsided uneventfully. Patient received follow-up visits every 3 months for oral hygiene and fluoride varnish application to prevent dental caries.

Summary:

This case demonstrates the successful use of MAC in delivering dental treatments to patients with ASD who lack cooperation.

Keywords:

Root canal treatment, Autism spectrum disorder, Monitored anesthesia care

O-09

Silver Diamine Fluoride Is Cost-effective in Children with High Caries Activity

Shijia Hu[1], Sharon Hui Xuan Tan[2], Yi Wang[2], Clement Wei Ming Lai[1], Xiaoli Gao[1], Hwee aLin Wee[2], Bien Wen Pui Lai[3], Catherine Hsu Ling Hong[1]

[1]Faculty of Dentistry, National University of Singapore, Singapore
[2]Saw Swee Hock School of Public Health, National University of Singapore, Singapore
[3]Paediatric Dentistry Unit, National Dental Centre Singapore, Singapore

Objective:

To assess the cost-effectiveness of silver diamine fluoride (SDF) relative to sodium fluoride (NaF), and direct restorations, considering caries activity.

Methods:

A cost-effectiveness analysis was conducted using a decision tree model. Retrospective clinical data and data from literature were used in the construction. The population was children 1 to 6 years of age, with base-case scenarios of low caries activity (1 carious tooth) and high caries activity (7 carious teeth). Deterministic sensitivity analysis was carried out by varying the number of carious teeth at baseline. The primary outcomes were number of teeth caries controlled and extractions avoided. Incremental cost-effectiveness ratio (ICER), which summarises the differences in cost between interventions were reported.

Results:

In low caries activity cases, ICER for direct restorations relative to SDF was $9 per caries controlled tooth, and $68 per extraction avoided. In high caries activity cases, the ICER for direct restoration relative to SDF was $267 per caries controlled tooth, and $1,909 per extraction avoided. SDF was found to be more cost-effective when compare to direct restoration for controlling caries and avoiding extraction. However, as direct restorations were more effective than SDF at controlling caries (42,480 vs 27,410 caries controlled teeth), direct restorations were preferred (at willingness-to-pay threshold of < $30) in low caries activity cases. The NaF option was found to be more expensive and less effective than SDF and direct restoration.

Conclusion:

SDF is cost-effective for caries control and the prevention of extractions in children with two or more carious teeth.

Keywords:

Cost-effectiveness analysis, Decision trees, Fluoride, Pediatric dentistry, Silver diamine fluoride

O-10

Clinical Evaluation and Parental Satisfaction between Strip and Zirconia Crown in Primary Maxillary Anterior Teeth

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[1]Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

Objective:

Composite strip crowns in primary anterior teeth are challenged by the lack of color stability and retention. On the other hand, preformed zirconia crown for primary teeth fulfill esthetic demands, masticatory load, at the same time also promise good durability. The purpose of this study was to evaluate and compare the clinical efficacy between strip crown and zirconia crown in primary maxillary anterior teeth along with parental satisfaction.

Methods:

A total of 60 primary maxillary anterior teeth of 20 children aged 3-5 years fulfilling the inclusion criteria were selected for the study. 30 were treated with strip crown and the remaining 30 were treated with zirconia crown. Clinical follow up were done at 3, 6, and 12 months interval to evaluate crown retention, gingival health and opposing teeth wear using USPHS Alpha criteria rating system. Parental satisfaction regarding size, shape, color, durability and overall satisfaction was evaluated with 5-point Likert scale after 1 year.

Results:

Crown retention was significantly higher in zirconia crown (p=0.038) and gingival health showed excellent results (p=0.001). Regarding the zirconia crowns, the success rate in this study was 100% by the end of the 12 months follow up. Overall parental satisfaction was 96.7% which was significantly higher in zirconia crown than strip crown.

Conclusion:

Teeth restored with zirconia crowns show better gingival health, intact crown retention and better durability. Parental satisfaction with zirconia crowns is also high with being clinically acceptable full coverage restorations in the primary maxillary anterior teeth.

Keywords:

Strip crown, Zirconia crown, Early childhood caries

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O-11

Rice Husk Silica in Fissure Sealant: Degree of Conversion & Mechanical Properties

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Objective:

This study investigated the mechanical properties and degree of conversion of fissure sealant reinforced with rice husk derived nanohybrid silica.

Methods:

A conventional fissure sealant (Clinpro, n = 5) served as the control. Three experimental formulations containing rice husk-derived nanohybrid silica (nSi) and nano-hydroxyapatite (HA) fillers were compared: 15% nHA + 15% nSi, 20% nHA + 10% nSi, and 10% nHA + 20% nSi (n = 5 per group). Each formulation was prepared using two mixing methods: manual and sonication. Vickers hardness testing assessed the mechanical properties, while the degree of conversion was measured using Fourier Transform Infrared (FTIR) spectroscopy. Additionally, surface roughness was evaluated via profilometry. One-way ANOVA test was used for data analysis.

Results:

Vickers hardness testing revealed a significant difference between the control group and the experimental groups (both sonicated and manually mixed). nSi 20% and HA 10% group exhibited the highest hardness. Surface roughness analysis did not detect any statistically significant differences between any groups. The degree of conversion test showed significant differences between the control group and both sonicated and manually mixed groups across all experimental formulations. The control group displayed a higher conversion rate compared to the experimental groups.

Conclusion:

Incorporating a higher amount of the nanohybrid rice husk silica filler into the sealant significantly increased its hardness, regardless of the mixing method. Although these experimental groups had slightly lower conversion rates compared to the control group, all the experimental fissure sealant groups still achieved conversion degree levels that met the acceptable criteria.

Keywords:

Fissure sealants, Nanohydroxyapatite, Rice husk nanohybrid silica

O-12

Rare Occurrence of Oro-cutaneous Fistula on The Chin - a Case Report

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Introduction:

Oro-cutaneous fistula is a rare form of communication formed from the odontogenic infection and the skin. This condition has often been misdiagnosed by physicians as a simple skin infection, in which many cases were treated primarily for the skin lesion without a complete resolution. In most cases, a dentist evaluation is done after many years of failed treatment outcome.

Case Operation:

A healthy 12 years old male, Malay was referred by the General Surgery department for discharge on the chin for the past 3 years. It started as a pimple-like lesion, slowly progressing to a swollen punctum which constantly drained pus. Patient was taking different courses of antibiotics throughout the 3 years prescribed by attending doctors. Extraoral examination revealed a depression on the chin with a erythematous punctum and draining pus. Intraorally, there is a dilacerated tooth 41 with no obvious obliteration at the sulcus. CBCT investigation done revealing a well-defined radiolucency on the lower anterior involving tooth 41. Enucleation of the radicular cyst with fistulectomy repair is performed for this patient. After 6 months follow up, it has completely resolved with a good esthetic outcome.

Summary:

Awareness among physicians is necessary to consider odontogenic infection as a possible root cause for a long standing skin infection. This will also eventually prevent unnecessary antibiotics abuse.

Keywords:

Oro-cutaneous fistula, Radicular cyst, Patient care

O-14

Efficacy of Orthodontic Treatment versus Adenotonsillectomy in Mild OSA Children with Mandibular Retrognathia

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Objective:

Children with mild OSA and mandibular retrognathia, aged between 7 and 10 years will be enrolled and randomized into two groups –orthodontic group (Twin-block appliance combined with RME), or adenotonsillectomy (AT) group. After randomization they received treatments accordingly within 4 weeks. A polysomnography and CBCT scan were performed at the baseline and 8 months after the treatment.

Methods:

Children with mild OSA and mandibular retrognathia, aged between 7 and 10 years will be enrolled and randomized into two groups –orthodontic group (Twin-block appliance combined with RME), or adenotonsillectomy (AT) group. After randomization they received treatments accordingly within 4 weeks. A polysomnography and CBCT scan were performed at the baseline and 8 months after the treatment.

Results:

Forty one children (21 in the orthodontic group and 20 in the AT group) were included in the analysis. After treatment, the change of apnea/hypopnea index (AHI) in orthodontic group was -1.67 (95%CI: -2.34 to -1.00), and that in the AT group was -1.26 (95%CI : -2.39 to -0.12). No significant difference was detected in AHI and LSaO2 among groups. As for CBCT scanning, the orthodontic treatment widened the overall UA, while the AT mainly increase the volumes of nasopharynx and glossopharynx. But no significant difference was observed in the changes of UA volume and the narrowest cross-sectional area between two groups.

Conclusion:

Orthodontic treatment, while correcting malocclusion, also widens the boundaries of the UA, resulting in an overall increase in the volume of the UA, thus improving children's sleep respiratory function.

Keywords:

Orthodontic treatment, CBCT scanning, Obstructive sleep apnea, Upper airway

O-15

Factors Affecting the Effectiveness of Nitrous Oxide and Oxygen Inhalation Sedation for Pediatric Dental Patients

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Objective:

This retrospective cohort study aimed to investigate the effectiveness and associated factors with nitrous oxide and oxygen inhalation sedation (NOIS) in pediatric dental patients.

Methods:

This study conducted a retrospective chart review of pediatric patients who received dental treatments under NOIS between March 2022 and April 2024 at the Pediatric Dental Clinic, Faculty of Dentistry, Chiang Mai University. Each sedation session was evaluated as effective or ineffective using the Houpt Behavior Rating Scale and the presence of acute adverse effects from NOIS during or after the sedation 24 hours (i.e., nausea and vomiting, diffusion hypoxia). Determinant variables related to the NOIS in children no were evaluated as potential predictors of the effective sedation session using the multivariable logistic regression model via generalized estimating equations (GEE).

Results:

A total of 210 sedation sessions from 125 patients aged 3-12 years (mean age: 7.8±2.0 years) were included in the data analysis. Of these sessions, 86.7% (182/210) were deemed effective. In multivariable analysis, there was a significant association between children's anxiety levels before dental treatment and the effectiveness of NOIS. The odds of effective sedation for non-anxious or slightly anxious children were 3.4 times higher than for very anxious or extremely anxious children (adjusted OR 3.36, 95% CI 1.03-10.95, p=0.044).

Conclusion:

NOIS is safe and effective technique with minimal adverse effects for performing pediatric dental treatment, particularly in patients with non-anxious or slightly anxiety. Therefore, a child's anxiety level should be evaluated before undergoing inhalation sedation.

Keywords:

Effective inhalation sedation, Nitrous oxide and oxygen, Pediatric dental patients, Predictive factors

O-16

Positive-reinforced Oral Health Education among Preschool Children: a Randomized Controlled Trial

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Objective:

To investigate the efficacy of positive-reinforced oral health education in caries prevention among preschoolers.

Methods:

The two-armed randomized controlled trial was conducted among 261 pre-schoolers. Children in both control and test groups received oral health education talks. Additional verbal and tangible awards were delivered to children in the test group if they achieved the target behaviors taught in the health education sessions. Caries (dmft), simplified debris index (DI-S), caries activity test (Cariostat), and salivary pH were assessed at 3 months, 6 months, and 12 months. Data were analyzed by t test, GEE, and binary logistic regression.

Results:

A total of 18 children dropped out (response rate: 93%). There were no significant differences in baseline assessment and dropout between test and control groups. Children in the test group showed lower Cariostat scores and higher salivary pH values than their peers in the control group. GEE model showed DI-S scores were higher in the control group when compared to their peers in the test group (95% CI 0.06 to 0.26, p<0.001). Children with an increased salivary pH value showed lower DI-S scores (95% CI -0.16, -0.03, p=0.006), as well as lower Cariostat scores (95% CI -0.14, -0.01, p=0.024) than children whose salivary pH scores were not increased. When compared to the test group, control group showed caries increment (OR=2.22, 95%CI 1.19to 4.16, p=0.012). Additionally, caries increment tended to occur in younger children (OR=3.49, 95%CI 1.86,6.55, p<0.001).

Conclusion:

Positive-reinforced oral health education can be recommended for caries prevention among young children.

Keywords:

Oral health, Education, Positive reinforcement, Randomized controlled trial

O-17

Bridging Gaps in Oral Care for Children with Cancer: Insights from the Parental Perspective

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Objective:

A published survey revealed oral-health-related knowledge, attitudes, practices, and barriers of Singapore pediatric oncology nurses (Yee et al 2023). However, understanding of parents' perspectives is limited. The study objective was to understand parental views on oral health for children with cancer.

Methods:

A survey of parents of children diagnosed with cancer at KK Women's and Children's Hospital explored child's dental attendance/referral rate, and parental oral-health-related knowledge, attitudes, practices, abilities, and barriers.

Results:

Most parents were keen on dental care for their child after cancer diagnosis (86.2%) and agreed that oral hygiene is important before (93.1%) and after (96.6%) cancer diagnosis. However, they reported barriers that largely mirrored those of nurses (Yee et al 2023): (i) child behaviour/tolerance, (ii) child's oral condition, (iii) parental lack of knowledge on dietary and routine oral care, and (iv) lack of access to professional support. In the nurses' survey, 42.9% nurses felt that one barrier to performing oral care for their patients was their belief that parents should be the ones responsible for oral care (Yee et al 2023). However, the present survey showed that some parents perceived it to be the child's own responsibility (20.7%), or dentists' responsibility (3.4%). Although 62.1% recalled receiving a dental referral, almost three-quarters (72.4%) of children had not seen a dentist after cancer diagnosis.

Conclusion:

Caregivers faced challenges such as limited professional support and managing the child's behaviour. An Inter-professional Oral Care for Children with Cancer Oral Health Programme has been proposed to address these barriers.

Keywords:

Oncology, Oral Health, Parents

O-18

The Social Story Entitled "I go to the dentist" for Oral Examination in Autistic Children

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Autistic children often have difficulty with communication, which induces dental care challenging, while visual pedagogy has been shown an effective way and recommended to improve communication and cooperation in autistic children for oral examination.

Objective:

To evaluate the cooperative level of autistic children during the oral examination after using a social story entitled "I go to the dentist" before visiting the dental clinic.

Methods:

Amount of 30 autistic children and their parents aged 3-12 years who came to receive dental services from August 2023 to February 2024 from Queen Sirikit National Institute of Child Health, Rajanagarindra Institute of Child Development and Yuwaprasart Waithayopathum Child and Adolescent Psychiatric Hospital were recruited for this study. The dentists demonstrated the social story "I go to the Dentist" to parents and asked parents to use it with their children regularly for 4 weeks before dental service appointment. The level of autistic Children's cooperation was evaluated in each oral examination procedure using the Frankl behavior rating scale. Descriptive statistics were analyzed.

Results:

The score of cooperative level in autistic children who had no dental service experience was 3.4/4.0 while the mean score of cooperative level of all samples was 3.0/4.0. The highest score of the cooperative was the step of going to the hospital and waiting before entering the room. The lowest score was introducing the suction procedure and asking children to lie down and open their mouths.

Conclusion:

The social story is very useful for preparing autistic children before oral examination.

Keywords:

Autistic, Oral examination, Social story

O-19

Prevalence of Dental Fear and Anxiety and Associated Factors in Young Hong Kong Children

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Objective:

To investigate prevalence and extent of dental fear and anxiety (DFA) in young Hong Kong children and to explore the associated contributing factors.

Methods:

A total of 482 child-parent dyads were recruited. Parents completed a structured questionnaire on background information, parental oral health attitudes and knowledge, Corah Dental Anxiety Scale (CDAS), and Modified Child Anxiety Scale (MCDAS). Children's oral health condition and DFA level in Frankl Behaviour Rating Scale (FBRS) were recorded. Data analysis were performed.

Results:

Over two-fifths (43.4%) scored negatively for DFA. Girls (OR=0.68, 95% CI=0.46-1.00, p=0.049) and children being examined at the hospital (OR=0.59, 95% CI=0.40-0.86, p=0.006) were less likely to score negatively for DFA. Younger children (OR=2.04, 95% CI=1.40-2.98, p<0.001) and children with higher MCDAS (OR=1.05, 95% CI=1.01-1.09, p=0.025) were more likely to score negatively for DFA.

Conclusion:

The prevalence of DFA in Hong Kong children aged 30 months or younger was 43.4%. DFA was associated with the child's gender and age, examination site and MCDAS. Early introduction to dental setting at a young age is vital for building a positive attitude towards dental care.

Keywords:

Dental fear and anxiety, Children, Frankl Behaviour Rating Scale, Prevalence, Oral health

O-20

Effect of SDF on Atypical and Typical Cavities in Cambodian Children: Secondary Data Analysis

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Objective:

To examine whether there is a difference in the odds of caries arrest between Atypical Caries Lesions (AL) and Typical Caries Lesions (TL) among primary teeth following application of 38% Silver Diamine Fluoride (SDF).

Methods:

This was a secondary data analysis of Cambodian primary school children from a clinical trial investigating the efficiency of 38% SDF therapies (Turton et al., 2020). The participants were selected from two schools. All children received two SDF applications for caries arrest. Teeth were categorized as having atypical (hypomineralization /hypoplasia) or typical caries lesions.

Results:

At 12 months, 205 females (48.3%) and 156 males (51.7%) were followed, with a mean dmfs of 20.5 (SD14.7). 78.5% of children have at least one tooth with atypical caries. Overall the caries arrest rate of the AL group was 59.1% vs the TL group at 79.0% ($p \leq 0.001$). However, there was no significant difference in caries arrest after controlling for lesion size, tooth type, plaque scores, and caries risk (OR 0.80; 95% CI 0.49, 1.29). Larger lesions size, molar teeth, poor oral hygiene, and high caries risk were linked to significantly lower arrest odds ($p < 0.05$).

Conclusion:

Although the proportion of teeth demonstrating caries arrest was lower for the AL group compared with TL group, these differences can be accounted for by the size of the lesion and the position of the tooth in the mouth.

Keywords:

Atypical Carious Lesions (AL), Typical Caries Lesions (TL), Silver Diamine Fluoride (SDF), Caries arrest, Primary teeth

O-21

Probiotic Utilization to Prevent Recurrent Dental Black Stain: a Systematic Review

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Objective:

The purpose of this article is to systematically review the available literature to determine whether utilization of probiotic could decrease the recurrence of dental black stain.

Methods:

All the articles about probiotic and dental black stain were included. The selection of the articles was adjusted according to the PECO formula. Data collection was according to the PRISMA statement guidelines. Articles were conducted in the online databases through PubMed, ProQuest, Google Scholar, ScienceDirect. To evaluate the search strategy, preliminary article searches were performed in the last 10 years. Quality of the articles was judged by JBI Critical Appraisal Checklist.

Results:

There are three research publications that matched the eligibility criteria. Studies demonstrated risk of low-moderate bias because in some studies the control group did not receive placebo tablet. In general, studies suggest that probiotics exhibit antimicrobial activity to reduce the reformation of black stain. Probiotics also generate new oral bacterial equilibrium.

Conclusion:

The available evidences showed the potential effect of probiotics against bacteria that caused black stain. Limited studies are indicated weak positive association between probiotics and dental black stain. More studies are needed to ensure the probiotic utilization to counteract bacterial formation of black stain.

Keywords:

Dental black stain, Oral microbial, Probiotic

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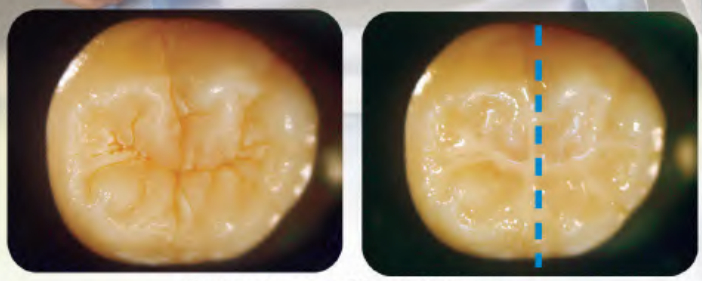

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O-22

Explain Prevention and Treatment of Dental Caries with One Graph

Anthony Tzong-Ping Tsai[1], Sandra Hui-Chen Chan[2], Lichuan Chuang[3], Chia-En Tsai[4], Chia-Pei Tsai[5] , Ruei-Ren Li[6], Jing Yi Wu[6]

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Introduction:

For clinicians, it is essential to communicate with patients about caries disease before making a treatment plan. The aim of this report is to develop a tool to facilitate doctor-patient communication and allow mutual trust. This will be contributing to the successful outcomes of short, medium, and long-term treatment plans. The goal is to synthesize all related concepts into one image

Case Operation:

1. We the X axial used to represent the timeline. Within each rectangle box, the structure of the plaque and tooth structures and the progression of dental caries are represented. 2. From the eruption of the tooth, plaque formed leading to the development of a biofilm community is illustrated. Following the introduction of sugar and bacteria through metabolism, acid is produced causing a shift in the microbiome. 3. In terms of mineral balance and caries activity, there are three dynamic stages of biofilm evolution: 1) Dynamic stability stage, net mineral gain, 2) acidogenic stage, intermittent net mineral loss, and 3) aciduric stage, sustained mineral loss. 4. The nature of plaque in the ecological niche determines the outcome of the progression of caries, from healthy plaque to acidogenic plaque. The formation of a white spot lesion is crucial for caries progression. 5. Prevention and fluorides are added in all processes.

Summary:

The graph integrated different concepts. Each influences the other within each stage as depicted in rectangle boxes. This useful tool may be used by dental/medical professionals in various levels of education.

Keywords:

Health communication, Ecosystem, Microbiota, White spot lesion, Fluorides

O-23

Sealant Retention between Using EasyPrep® versus Cotton Roll Isolation Techniques: a Split-mouth Randomized Controlled Trial

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Objective:

The objective of this split-mouth randomized controlled trial was to compare the retention of sealant placed on permanent first molars (PFMs) using the EasyPrep® (EP) isolation versus a cotton roll (CR) isolation.

Methods:

This study enrolled 75 children aged between 6 and 12 years who attended the Pediatric Dental clinic, Faculty of Dentistry, Chiang Mai University. Participants with matched contralateral pairs of maxillary or mandibular PFMs were randomly assigned to receive sealants with either the EP or CR isolation in one quadrant followed by another type of isolation in the contralateral quadrant. All sealants were applied by dental students under the supervision of one instructor and were assessed for retention, using the predefined criteria, by two calibrated blinded examiners at 6-month follow-up. A multilevel logistic regression model was used to evaluate sealant retention between the two isolation techniques.

Results:

Among 75 children, seven were lost to follow-up, resulting in a cohort of 68 children (mean age, 8.9±1.5 years) with a total of 266 PFMs included in the analysis. The overall sealant retention rate was 59% (157/266), with the retention rates of 57.9% (77/133) in the EP-isolated molars and 60.2% (80/133) in the CR-isolated molars. Regression analysis revealed no significant differences of sealant retention rates between the two isolation techniques (adjusted odds ratio: 1.35, 95% CI: 0.60-3.08, *p*-value: 0.465).

Conclusion:

The selection of isolation technique (EP or CR) did not significantly affect sealant retention rate of PFMs in children aged 6-12 at the 6-month follow-up.

Keywords:

Cotton roll, EasyPrep®, Pediatric patients, Permanent first molars, Resin sealant

O-24

Molar-Incisor Malformation; Long-term Follow Up Results

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Introduction:

Molar-Incisor malformation (MIM) is known as the morphologic anomality of tooth which commonly occur on the permanent first molars and maxillary central incisors. MIM-involved teeth present normal crown shape but have short, narrow and abnormally twisted root. Some of the patients with MIM displays hypoplastic enamel notch on the crown of the incisors. The cause of MIM is still unknown and extraction of the affected teeth are one of the most common treatments of the MIM.

Case Operation:

A-9-year-old girl visited department of pediatric dentistry with chief complaint of morphological abnormality of mandibular right first molar. She also had notches on maxillary incisors. Her first molars were treated orthodontically first and then all of her first molars were extracted as her second molars had begun to erupt. At the latest checkup she has not shown any discomfort regarding MIM. A-9-year-old girl visited the department of pediatric dentistry with chief complaint of mobility on mandibular left first molar. She also felt pain on the same area while mastication. The treatment plans were to extract the affected first molar along with orthodontic treatment of the entire dentition. After the completion of the treatment, she has been attending regular checkups.

Summary:

The cause of MIM is still unknown but in these two patients were related to premature birth. The treatment of MIM patient included extraction of the affected teeth and orthodontic treatment. However, the order of two treatment could be different depending on the condition of the patient.

Keywords:

Molar-Incisor malformation, MIM

O-25

Improvement of the Dentin Bonding Performance of Primary Molars with Dentinogenesis Imperfecta Using Ca/P-PILP

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Objective:

This study aims to investigate whether calcium phosphate polymer induced liquid precursor (Ca/P-PILP) is able to remineralize and improve the bonding performance of dentin in the primary teeth with dentinogenesis imperfecta type-II (DGI-II).

Methods:

Dentin were obtained from exfoliated or extracted primary molars with or without DGI-II and randomly allocated into Ca/P-PILP-treated and nontreated groups. Subsequently, scanning electron microscopy (SEM) was performed to observe the morphology of these dentin specimens. The calcium and phosphorus contents were determined by energy-dispersive X-ray spectroscopy (EDS). The bonding strength was evaluated by micro-tensile bond strength analysis (μTBS) and the failure modes were analyzed. The μTBS results were analyzed using a two-way ANOVA data analysis and Tukey tests.

Results:

SEM showed dramatically reduced number of dentinal tubules with abnormal structure in DGI-II dentin. Meanwhile, the arrangement of dentin collagen fibers was disordered. Compared with normal dentin, DGI-II dentin contained lower amounts of calcium and phosphorus. DGI-II dentin produced inferior bonding performance with resin compared to normal dentin. After pre-treatment with Ca/P-PILP, the calcium content and phosphorus content of DGI-II dentin were increased. Ca/P-PILP significantly improved the adhesive properties of DGI-II dentin, but slightly of normal dentin.

Conclusion:

Ca/P-PILP improves the calcium and phosphorus contents of DGI-II dentin and enhances its bonding strength.

Keywords:

Dentinogenesis imperfecta type II, Bonding, Dental adhesive, Micro-tensile bond strength, Calcium phosphate polymer-induced liquid precursor

O-26

Patterns of Tooth Agenesis and Tooth Width in Thai Cleft Patients: Cone-Beam Computed Tomography Analysis

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Objective:

This study aimed to 1) evaluate the prevalence and pattern of tooth agenesis, and 2) to examine mesiodistal width in a group of Thai patients with cleft lip and palate (CLP).

Methods:

Total of 89 CLP patients aged 3 years to 12 years and 11 months, treated at the Tawanchai Cleft Center, Khon Kaen University, Thailand, from 2012 to 2022 were included. Patients were categorized into unilateral right CLP (23 patients), unilateral left CLP (40 patients), and bilateral CLP (26 patients). Cone beam computed tomography (CBCT) was used to analyze tooth agenesis and mesiodistal width. Statistical analysis was performed using chi-square and binomial tests, and an independent-sample t-test ($p \leq 0.05$).

Results:

Tooth agenesis observed in 79.8% of patients, with no significant difference (chi-square and binomial tests; $p=0.359$) among different CLP types. The most affected tooth was maxillary lateral incisor (12 and 22; 46.6%, 83/178 teeth), followed by maxillary second premolar (15 and 25; 18.0%, 32/178 teeth). Missing of maxillary lateral incisor was more prevalent on the left side (22; 55.1%, 49/89 teeth) than the right side (12; 38.2%, 34/89 teeth). The mesiodistal width of maxillary lateral incisor was significant smaller on the cleft side (6.08mm) compared to the non-cleft side (7.07mm) (t-test; $p<0.001$).

Conclusion:

Tooth agenesis affected approximately three-quarters of the cleft population. Missing maxillary lateral incisor was higher on the left side, regardless of cleft type. Clefting might cause reduction of the mesiodistal width of maxillary lateral incisor.

Keywords:

Cleft lip and palate, Tooth agenesis, Tooth size

O-27

Assessment Factors for Management of Poor Prognosis First Permanent Molars in Children: a Scoping Review

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Objective:

Managing first permanent molar (FPM) with poor prognosis can be challenging because it depends on several modifying factors that must be considered, and each approach has potential implications and clinical outcomes. This review aimed to systematically review the assessment factors that should be considered prior to the management of FPM with poor prognosis in children.

Methods:

A computerized database search was conducted using Cochrane, PubMed, and Scopus with predefined search terms related to 'management, treatment, extraction, restoration, endodontic, and orthodontic' involving the 'first permanent molar.' The search covered studies published in English from 1990 to 2023. Two reviewers independently extracted data and assessed whether studies met the inclusion criteria. Any disagreement between reviewers were resolved through discussion. Inclusion criteria specified management approaches for FPM with poor prognosis in children aged 6-16 years.

Results:

A total of 1815 studies were initially screened, resulting in 37 full-text articles being retrieved. Seven retrospective observational studies met the inclusion criteria. All included studies focused on orthodontic assessment factors, such as the presence of third molar and angulation of the second permanent molar, aimed at achieving spontaneous space closure following FPM extraction. However, none addressed restorative perspectives on managing this problem, particularly in paediatric patient

Conclusion:

The findings of this review revealed that there are insufficient well-versed and strongly evident studies on the management of poor prognosis FPM, particularly restorative management in children. Therefore, further studies with more evidence are necessary to explore a holistic clinical approach that may influence the treatment outcomes.

Keywords:

First permanent molars, Management, Treatment, Extraction, Restoration

O-28

Simplicity in Treatment, Excellence in Healing: Paediatric Cases of Inflammatory Dentigerous Cysts

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Introduction:

The literature on jaw cysts in paediatric patients is sparse and probably under-reported. Given their rarity, there is often uncertainty about the optimal treatment approach. This case series aims to showcase the effective and straightforward treatment of inflammatory dentigerous cysts in paediatric patients through simple extraction, highlighting their remarkable healing capacity.

Case Operation:

This case series highlights four instances involving healthy patients aged between 7 and 11 years old, consisting of 2 boys and 2 girls, all of whom had cysts incidentally discovered on orthopantomograph (OPG) taken for other reasons. Clinically, a common feature observed among these cases was the presence of either a large caries or a deep restoration on the second primary molars, with the patients being asymptomatic. Radiographically, each lesion presented as a unilocular well-defined radiolucency involving the roots of the infected tooth, extending continuously to the underlying premolar. The clinical and radiographic presentation distinctly points towards an inflammatory dentigerous cyst, prompting extraction of the infected tooth during the same visit to impede cyst progression. Subsequent histopathological examination solidified our initial diagnosis. Notably, all affected successors erupted spontaneously, and in one instance, the buccally displaced tooth repositioned itself within the arch without any orthodontic intervention.

Summary:

Treatment decisions in children are crucial, aiming to minimize detrimental effects on facial growth, vital structures, and preserve the developing teeth. Therefore, conservative management should be prioritized whenever possible, supported by a strict follow-up protocol.

Keywords:

Inflammatory dentigerous cyst, Paediatric, Extraction

O-29

An Analysis of Referral Letters of Orofacial Vascular Anomalies Received at a Tertiary Centre

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Objective:

Vascular anomalies are abnormalities of the vascular system and classified into vascular tumours or vascular malformations; each with distinct characteristics. This study aims to analyse the vascular anomaly referral letters received at a tertiary centre.

Methods:

Referral letters of orofacial vascular anomalies seen at our centre from 2018 to 2023 were reviewed. The information in the letters were examined against a list of history and vascular anomalies characteristics deemed required in a referral. Subsequently, a redesigned standard form was developed.

Results:

A review was conducted on 47 referral letters. The cases comprised 25 males and 22 females, ranging from birth to 14 years old. Patient details such as name, gender, date of birth were adequately documented. However, 6.4% of the letters did not specify the complaint, and 19% had clinical findings but no investigations included. Medical history was mentioned in 61% of the letters, 34% included information on the child's medications and 38.3% stated allergies. Regarding specific characteristics of vascular conditions, 85% detailed the time of appearance, growth (66%), complications (55%), colour (72%), and shape (72%). 27.5% of venous malformation cases were misdiagnosed as vascular tumours.

Conclusion:

This study found that most referral letters are lacking in crucial information pertaining to the referred vascular anomalies. While the demographic data were adequate, important history were missed out and some clinical examination were insufficient with inadequate investigations prior to referral. Therefore, the development of a standard referral form will ensure crucial information captured to assist in precise diagnosis and specialized management.

Keywords:

Referral and consultation, Vascular malformations, Vascular neoplasms

O-30

Vascular Anomalies: What, Why, When and How

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Introduction:

Vascular anomalies are disorders of the vascular system and is classified as vascular tumours or vascular malformations. It's prevalence is 4.5% and commonly diagnosed during infancy. The cases presented aim to describe their varied presentations and management.

Case Operation:

Case 1: A 16-month-old boy was referred for upper lip swelling which developed at 4-month. Growth was consistent but slowly regressed at 9 months. Clinically, it was a single, nodular swelling at the midline of the upper lip, normal mucosal colour and compressible. Diagnosis was infantile haemangioma and monitored for involution.

Case 2: A 12-year old girl was referred for increasing swelling at the floor of the mouth over six years, affecting function.Clinically, swelling was bluish, compressible without bruit or pulsation. Magnetic Resonance Imaging (MRI) exhibited a hyperintense,multilobulated lesion at the base of tongue suggestive of venous malformation. Lesion was treated by sclerotherapy.

Case 3: An 11-year old girl presented in hypovolemic shock to the Emergency Department due to five episodes of spontaneous intraoral bleed over two days. Intraorally, tooth 36 and 37 were lingually tilted, mobile with strong pulsation interdentally. Imagings showed high-flow intraosseous lesion of the left mandible, consistent with arteriovenous malformation. A multidisciplinary management of embolization, hemimandibulecomy and reconstruction of the left mandible was undertaken.

Summary:

Diagnosis of vascular anomalies requires a comprehensive knowledge of the disease due to their complex and varied nature. It is crucial to accurately gather relevant history with thorough clinical assessments, and appropriate investigations. A multidisciplinary team approach is imperative to achieve the best outcome.

Keywords:

Vascular anomalies, Oral vascular tumor, Oral vascular malformation

O-31

Simple Interceptive Orthodontic Treatment of Pseudo Class III Malocclusion: a Case Report

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Introduction:

The following case report aims to show a simple appliance to reduce the side effects of the orthopaedic Class III treatment through the use of active plate with fan type screw.

Case Operation:

This case report describes the treatment of a 10-year-old patient with a skeletal Class III relationship with a maxillary deficiency and a severe hyperdivergency. The patient underwent a sagittal orthopaedic treatment with a removable active plate with fan type screw for 10 months. The retention period lasted 6 months.

Summary:

Pseudo Class III malocclusion, a condition characterized by premature contact between the incisors causing the mandible to shift forward, was successfully treated in a 10-year-old male patient. The patient presented with an inability to bite properly, a pseudo skeletal Class III malocclusion, functional shift, and reverse overjet. Fixed orthodontic treatment was employed to correct the discrepancy between centric occlusion and centric relation, resulting in a significant improvement in the patient's smile. Early and timely diagnosis of pseudo Class III malocclusion is crucial for achieving successful outcomes with fixed orthodontic treatment. A 4-year follow-up revealed sustained improvement in both dental and skeletal parameters.

Keywords:

Pseudo Class III, Interceptive orthodontic, Functional shift

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O-32

Treatment of a Mild Skeletal Class III Malocclusion with Vertical Growth in Early Mixed Dentition

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Introduction:

Treatment of skeletal Class III cases with vertical growth tendency is challenging. We describe a case of a young girl in early mixed dentition with these issues who received timely functional treatment, achieved ideal occlusion and profile. Emphasizing myofunctional training of tongue and lip muscles throughout the treatment may help control vertical growth.

Case Operation:

A 6-year-old girl with anterior and posterior crossbites on the right side, without family history, and prior unsuccessful palatal-tongue crib treatment. She had received adenoidectomy to improve nighttime breathing five months ago. Clinical examination showed facial asymmetry, a concave midface, a narrow maxillary arch, absence of lower lateral incisors, and undetected CR-CO shifts. Cephalometric analysis indicated a vertical growth pattern (PP-MP=27.7°) and skeletal Class III (Wits= -2.7mm). The treatment involved a Class III functional regulator (FRIII), lip closure, and tongue thrust training to coordinate the perioral muscles. After 15 months, the patient achieved a normal overbite and overjet, improved maxillary arch shape, and wore the FRIII thrice weekly for maintenance. Eleven-month follow-up showed harmonious facial proportions, continued maxillary growth, and class I molar relationship on the right side and partial class III relationship on the left. Long-term monitoring is necessary for vertical growth and potential mandibular hypergenesis. The patient experienced improved sleep quality, psychological well-being, and increased confidence.

Summary:

Early intervention for mild skeletal Class III malocclusion improves aesthetics, function, and psychological development in children. Myofunctional training may positively influence vertical growth control and enhance the facial profile in children.

Keywords:

Class III malocclusion, FR-III functional appliance, Interceptive treatment, Orthodontics.

O-33

Evaluation of Hyoid Bone Position and The Upper Airway in Children with Anterior Open Bite

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Objective:

The purposes of this study were to compare the hyoid bone position and the dimensions of upper airway in children with anterior open bite (AOB) and normal occlusion, and evaluate the changes of hyoid bone position and the upper airway dimensions after treating AOB by non-surgical orthodontic approach.

Methods:

Twenty-one children aged between 8 and 10 years old, with skeletal Class II malocclusion and vertical growth pattern, were included in this retrospective study. These children were divided into Group I (n=12, AOB), Group II (n=9, age matched, normal bite, with impacted teeth). Group I was treated with palatal cribs. Group II was treated to tract the impacted teeth. Lateral cephalograms were taken before and after treatment. The hyoid bone position and the dimensions of the upper airway before treatment was compared. Changes of these two measurements before and after treatment were also analyzed by t test.

Results:

The anteroposterior position of the hyoid bone was significantly forward and the vertical dimensions of the upper way was significantly smaller in subjects with Group I compared with Group II ($P < 0.05$). The vertical dimensions of the upper airway increased significantly in Group I after treatment compared to Group II ($P < 0.05$).

Conclusion:

The hyoid bone moved forward and the vertical dimensions of the upper way decreased in subjects with AOB. The vertical dimensions of the upper way increased significantly in children with AOB treated with palatal cribs.

Keywords:

Hyoid bone position, Upper airway, Anterior open bite

O-34

Early Correction of Class II Division 1 Malocclusion with Removable High-pull Headgear Splint Appliance

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Introduction:

This case demonstrates a successful interceptive orthodontics of Class II division 1 malocclusion in a 10-year-old boy with high-pull headgear splint contained palate expander, significantly correcting the overjet and molar relationships, improving lip closure appearance while avoiding an increase in the steep mandibular plane angle.

Case Operation:

The patient's chief complaint was his excessive protruding upper incisors. Clinical examination revealed Class II division 1 malocclusion in the mixed dentition, with mild convexity in the lateral view, accompanied by mild lip incompetence. Cephalometric analysis showed that he belonged to Class I skeletal type according to norms of mixed dentition (ANB=5.2°), with a steep mandibular plane angle (MP-SN=50.8°/ MP-FH=38.1°) and severe labial inclination of upper incisors (U1-NA=44.4°/ U1-SN= 118.9°). Based on the principles of early orthodontics, a removable high-pull headgear splint appliance with expansion screw was utilized. Specifically, maxillary expansion aimed to modify original V-shape arch into ovoid shape while gaining space for incisor retrusion. The high-pull headgear exerted a distal and intrusive directed force to the maxillary teeth. And the acrylic plate covered the cusps and approximately one third of maxillary molars buccal surface to restrain vertical eruption, facilitating control of mandibular plane. Finally, after nearly one-year treatment, the patient's excessive overjet was corrected mainly by retroclination of upper incisors and his lip incompetence was improved, without increasing the steep mandibular plane angle.

Summary:

Comprehensive and rational orthodontic design is essential to attain favorable occlusal and aesthetic results for preadolescent children, reducing the complexity of possible subsequent orthodontic treatment.

Keywords:

Early correction, Excessive upper incisor protrusion, Headgear splint, Maxillary expansion

O-35

An Infant with Congenital Micrognathia Was Diagnosed as Hutchinson-Gilford Progeria Syndrome Caused by a Novel LMNA Mutation

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Introduction:

Hutchinson-Gilford progeria syndrome (HGPS, OMIM# 176670) is an extremely rare disease characterized by appearance of premature aging, including the skin, bones, heart, and blood vessels caused by LMNA mutation.

Case Operation:

An 11-week-old female presented with congenital micrognathia and progressively aggravated upper airway obstruction as the initial symptom, which was relieved by bilateral mandibular distraction osteogenesis (MDO) surgery. The primary clinical diagnosis of Pierre Robin sequence (PRS) was made. However, other clinical features included sclerotic skin, dry skin, growth failure, lipoatrophy, joint stiffness, prominent scalp veins, small ear lobes, hair loss, and craniofacial disproportion gradually emerged, the diagnosis of HGPS was preferred when the patient was 5 months old. The genetic testing result with a novel and de novo LMNA mutation (c.1968 +3_1968+6delGAGT) further confirmed the HGPS diagnosis and expanded the clinical and mutational spectrum of HGPS. During the 12-month follow-up period after surgery, the patient no longer suffered dyspnea. Complications of other organs and systems have not happened at the moment.

Summary:

HGPS can be diagnosed gradually along with typical clinical manifestations gradually emerge as patients grow. For the cases of suspected multiple organ abnormalities of preterm birth, it is recommended to perform genetic testing as early as possible to help find the cause and determine the prognosis. Micrognathia and dyspnea may be the potential clinical manifestations of HGPS, and MDO surgery can be a viable solution.

Keywords:

Hutchinson-Gilford progeria syndrome, LMNA mutation, Congenital micrognathia, Dyspnea, Mandibular distraction osteogenesis

O-36

Distraction of the Impacted Canine of a Case Diagnosed as Basal Cell Nevus Syndrome

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Introduction:

A case complained of maxillary cyst accompanied by impacted canine was treated with cyst drainage and orthodontic distraction. After 18 months of treatment, multiple odontogenic keratosis was found, and treatment was abandoned because the further gene examination diagnosed as basal cell nevus syndrome. It is hoped that the introduction of this case can improve people's knowledge of basal cell nevus syndrome and enable them to choose treatment plans more accurately.

Case Operation:

A case at first complained of maxillary bone cyst with canine impaction was underwent local cyst drainage to decompression. After 1 year of treatment, the cyst diminished obviously, due to poor position of the impacted canine, the cyst curettage was performed and the impacted tooth was designed to help eruption by distraction. During the treatment, another cyst in the mandible was observed, and further general examination revealed that the child had bifurcated ribs and pitted skin of the palm. Considering the possibility of basal cell nevus syndrome, we did the genetic test, and the results reported PTCH1 gene mutation, confirming the diagnosis of basal cell nevus syndrome. Curettage was performed on the right mandibular cyst and the left maxillary cyst, and the impacted tooth were removed, postoperative pathological report was odontogenic keratocyst.

Summary:

In the treatment of jaw cystic lesions, attention should be paid to the possibility of multiple cysts and the possibility of basal cell nevus syndrome, and comprehensive examination should be conducted to evaluate whether impacted permanent teeth should be keep or extract.

Keywords:

Maxillary cyst, Basal cell nevus syndrome, Impacted tooth

O-37

A Case of Serious Gingival Recession Caused by Self-injurious Gingivitis of Deciduous Teeth

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Introduction:

Self-injurious gingivitis is a traumatic periodontal tissue injury caused by artificial or unconventional periodontal pathogens.

Case Operation:

An 8-year-old boy presented to our clinic with gingival bleeding in his left upper posterior tooth for 3 days; the patient has a long history of food impaction and hand picking but without physical and mental defects. Oral hygiene was poor. Gums in the left upper posterior region were red and swollen. 64 loosened I°. Distal buccal root was exposed to 1/3 of the dental cervix, and the furcation involvement was Glickman II°. 65 loosened II°. The roots were exposed to 1/3 of the dental apical, Glickman IV°, buccal gingival loss was 2 cm*1 cm, and 24 was visible. On panoramic radiography, periradicular radiolucency was observed in 64 and 65. Tooth roots of 64 were absorbed into 1/3 of the roots. The patient was diagnosed with 64, 65 self-injurious gingivitis; 24 early eruption. Oral local cleaning was performed to control infection. The patient was instructed to avoid hand picking. Teeth 64 and 65 were removed. At 1-year follow-up, the gums were normal, the patient's hand-picking habit was corrected, eruption of 24 was limited to the occlusal plane, and eruption space of 25 was alleviated.

Summary:

Self-injurious gingivitis in children is common in clinic but can be challenging to diagnose and prone to misdiagnosis. In this patient, we focused on the gingivitis and missed the best opportunities for space management, which highlights the need to check for self-injurious gingivitis in children.

Keywords:

Self-injurious gingivitis, Traumatic periodontal tissue injury

O-38

Regenerative Endodontic Treatment for Dens Invaginatus in a Child with Autism Spectrum Disorder: a Case Report

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Introduction:

Dens invaginatus, characterized by the invagination of enamel and dentin into the dental pulp chamber, presents a unique challenge in endodontic treatment due to complex anatomy and increased infection susceptibility. Regenerative endodontic treatment, a tissue engineering approach, aimed at restoring root canals to a healthy state and promoting continued development of the root and surrounding tissue, holds promise for managing this condition. However, managing dental treatment for children with autism spectrum disorder (ASD) can be intricate due to behavioral problems and communication difficulties.

Case Operation:

We present a case report of a 9-year-old Chinese boy with ASD referred for the management of a recurrent buccal abscess associated with dens invaginatus and an open apex in tooth 22. After multidisciplinary discussion, regenerative endodontic treatment was initiated using a double antibiotic paste. Following resolution of the abscess, bleeding induction was performed, collaplug, biodentine, and composite restoration were placed. At the 6-month follow-up, radiographic evaluation revealed resolution of apical radiolucency, bony healing, and increased root wall thickness and length.

Summary:

This case report highlights the successful management of dens invaginatus with an open apex and associated abscess in a child with ASD using regenerative endodontic treatment. The findings suggest that regenerative endodontic treatment can be an effective approach in such cases. Further research is warranted to investigate the long-term outcomes and success rates of regenerative endodontic treatment in children with ASD and other special needs. This study contributes to literature on management of complex dental anomalies in paediatric patients with neurodevelopmental disorders.

Keywords:

Regenerative endodontic, Dens invaginatus, Autism spectrum disorder

O-39

Study of Vital Pulp Therapy in Primary Teeth with Chronic Hyperplastic Pulpitis

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Objective:

To assess the treatment effectiveness of vital pulp therapy (VPT) in primary teeth with chronic hyperplastic pulpitis and to investigate potential factors. To assess the treatment effectiveness of vital pulp therapy (VPT) in primary teeth with chronic hyperplastic pulpitis and to investigate potential factors.

Methods:

This retrospective study included patients who experienced chronic hyperplastic pulpitis and accepted VPT from 2021 to 2023 with at least 6 months of follow-up. All primary teeth were treated with pulpotomy, pulp prognosis of teeth was evaluated according to clinical symptoms and radiological examinations.

Results:

Totally eleven patients/cases were included (5 males and 6 females) in the present study. The average age of patients was (5.8± 1.7) years old. The median follow-up is 13 months (6-20 months). The success rate of primary teeth with chronic hyperplastic pulpitis accepted VPT is 72.7%. 8 teeth were clinical and radiographic successful. Among 3 failed cases, 2 teeth were showed abnormal radiographic manifestation at the 10- and 16-months visits. They both showed a widen periodontal ligament space preoperatively. Another case appeared abnormal mobility but normal radiograph at the 10-month visit.

Conclusion:

The present study found vital pulp therapy in primary teeth with chronic hyperplastic pulpitis had a relatively good prognosis. VPT might be an option in treating immature teeth with chronic hyperplastic pulpitis, which need more researches.

Keywords:

Vital pulp therapy, Chronic hyperplastic pulpitis, Primary teeth

O-40

The Treatment Effect of Regenerative Endodontic Protocol Using Blood Clot versus Concentrated Growth Factors

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Introduction:

In regenerative endodontic treatment (RET), blood clot (BC) and concentrated growth factors (CGF) have emerged as scaffolds for promoting tissue regeneration. This retrospective study aimed to comparatively evaluate the efficacy of CGF versus BC in stimulating root development and healing of periapical lesions post tooth revascularization.

Methods:

A total of 50 patients were enrolled, with 25 patients undergoing RET utilizing CGF as the scaffold and 25 patients matched 1:1 who underwent tooth revascularization by inducing periapical bleeding (BC method). Clinical evaluations were conducted at follow-up appointments to assess signs and symptoms. Radiographic monitoring tracked the progression of periapical lesion healing and root development.

Results:

Nearly all patients (96%) exhibited resolution of clinical signs and symptoms, as well as reduction in periapical radiolucency. Notably, dentinal wall thickening and apical closure were observed in the majority of cases, with slightly higher percentages in the CGF group (88% and 92%) compared to the BC group (80% and 88%). There were no significant changes in root length observed in either the BC group or the CGF group. However, significant changes in root width ($p<0.05$) and apical width ($p<0.001$) were noted over time within both groups.

Conclusion:

While BC remains a widely used revascularization technique, CGF represents a viable alternative, demonstrating comparable if not superior outcomes in regenerating immature permanent teeth. Proper application of regenerative procedures can fortify the structural integrity of these teeth, thereby reducing the risk of fracture and tooth loss.

Keywords:

Immature permanent teeth, Revascularization, Necrotic pulp, Root development, Concentrated Growth Factors

O-41

Broken File Treatment Considerations in Endodontic: a Case Series

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Introduction:

The incidence of instrument fragments occurring during endodontic treatment procedures is mostly due to iatrogenic errors. Optimal management of instrument fragments is required so that they can be sufficiently obturated.

Case Operation:

Three cases of successful endodontic treatment in the presence of broken instrument files are presented: cases 1 and 2 include removing the broken files, meanwhile case 3 involves bypassing the broken files and leaving them in place. Case 1, tooth 46 removal of a 1.5 mm length of F2 instrument fragment left in the mesiobuccal canal. Case 2, tooth 46 removed a 3 mm length of F1 instrument fragment that was left in the distobuccal canal. Case 3, tooth 36 bypassed 7.5 mm F1 instrument fragment left in the mesiolingual canal, while 1.5 mm K-file 10 instrument fragment retained in the distal canal did not allow bypass and risked further damage to the apical structure, so it was decided to keep it.

Summary:

The region of the fragment and the shape of the root canal affect success, and retrieval of broken instruments is not always possible. Some techniques in this case were a better approach to preserve tooth structure and dentin preservation in the root canal.

Keywords:

Broken file, Bypass, Endodontics

O-42

Sedation Level of Oral Midazolam in Paediatric Dental Patients with Different Fasting Protocols

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Objective:

To assess the sedation level of oral midazolam (OM) with different fasting protocols in paediatric patients undergoing dental treatment.

Methods:

A total of 32 patients aged 3 to 17 years that were scheduled for dental treatment under OM sedation participated in this interventional study. They were randomly assigned into two groups, which included the 8-6-4-2 fasting group (Group A) and light meal group (Group B). Group A adhered to pre-operative fasting recommendations from the American Association of Paediatric Dentistry, while Group B followed the European Association of Paediatric Dentistry with a standardised list of meal. The OM dosage used was 0.5 mg per kilogram bodyweight, with maximum dosage of 10mg. Evaluation of the level of sedation was done using the Ramsay Sedation Scale.

Results:

Approximately 62.5% in Group A and 56.3% in Group B achieved adequate level of sedation. However, there was no significant different ($p= 0.819$) between these two groups. Spearman's rank correlation was computed to assess the association of sedation level achieved with different fasting protocol and the association is not statistically significant ($r= 0.160$, $p > 0.05$).

Conclusion:

Despite numerical variations in the distribution of sedation levels between the two groups, the statistical analysis did not identify any significant differences, implying that fasting status did not substantially affect the OM sedation level in the studied population. Future study with larger sample size may assist in exploring more relevant findings.

Keywords:

Sedation, Paediatric, Midazolam, Fasting, Light meal

O-43

Behavioral Approach Using Conscious Intravenous Sedation in Dental Care Management for Children with Cerebral Palsy

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Introduction:

Children with cerebral palsy (CCP) often face oral health challenges, with caries being a common issue. Managing CCP patients with involuntary movements can be problematic due to safety concerns in dental practice.

Case Operation:

A 13-year-old underweight boy with spastic quadriplegia CCP presented at the Special Care Dentistry Center of Unpad Dental Hospital. An intraoral examination revealed caries in his anterior teeth, including tooth 14, and the persistence of tooth 83. Due to his involuntary movements, wearing the inhalation sedation mask proved difficult. Conscious intravenous sedation was preferred following parental consent. Methods (Case Management) Preoperative instructions included 6 hours of fasting and clearing liquids 2 hours prior to treatment. Intravenous sedation was induced with 1 mg of propofol bolus, maintaining a target plasma concentration (TPC) of 3.0 µg/ml/hour, and administering 0.01 mg/ml of fentanyl bolus for pain management. During treatment, oxygen was delivered at 3 L/min via nasal cannula, and a 0.5 mg/mL sulfas atropine bolus was introduced to reduce hypersalivation. Dental treatment commenced once vital signs stabilized and the TPC was achieved. Propofol was discontinued post-treatment, and the patient was discharged following a post-sedation evaluation. Results CCP often results in limited limb mobility, muscle stiffness, and involuntary movements, posing challenges for oral care. Intravenous sedation with TPC based on the patient's BMI ensures treatment comfort and safety.

Summary:

Safe dental treatment can be administered to CCP patients with involuntary movements using conscious intravenous sedation, addressing both their oral health needs and safety concerns in the dental setting.

Keywords:

Special care dentistry, Cerebral palsy, Pediatric dentistry, Conscious sedation, Target-controlled infusion

O-44

General Anesthesia: One Choice for Children's Better Life

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Introduction:

In Vietnam, caries pathology in children is so various and there are many severe cases due to poor oral hygiene, lack of knowledge of primary teeth's functions as well as preventive methods. Children are often brought to dental clinics by their parents when having complications like abscess, swelling or pain. As the results, the more painful they are suffered from, the more anxious and fearful they are. General anesthesia (GA) is one of our choices for these uncooperative patients with poly-caries. Moreover, special needs patients are also often treated by this method if they cannot cooperate on dental chair and have multi-caries.

Case Operation:

In this presentation, we would like to present series of cases treated by this method at our School of Dentistry. Patient's age range is often from 4 to 6 with severe caries which were treated by the methods of pulpotomy, pulpectomy, even extraction and after that restoring the teeth with crowns or some kinds of prosthetic denture in case of dental extraction, in order to re-establish oral functions.

Summary:

Autism children are also our popular patients treated under GA. Thanks to this treatment, many patients can come back to their normal life happily, restore their teeth until natural exfoliation, improve the functions of biting, chewing, speaking, and even be more confident to smile. Especially, their psychology is protected safely, no fear, no anxiety during the treatment.

Keywords:

General anesthesia, Poly-caries, Dental fear and anxiety

O-45

Surgical and Orthodontic Management of Maxillary Incisors Following Trauma to Their Primary Predecessors

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Introduction:

The report presents two cases of immediate diagnosis and management of impacted maxillary central incisors due to traumatic injury to primary predecessors.

Case Operation:

The two 8-year-old boys were diagnosed with uneruption of unilateral maxillary central incisors during the outpatient examination. Radiographic assessment revealed that the impacted central incisors presented varying degree of dilaceration and severe intraosseous displacement. The treatment plan was formulated immediately as minimally invasive surgical exposure, and a closed eruption traction with operated necessary space to move the impacted tooth in the normal position. After four months of traction, the impacted teeth were ultimately aligned within the dental arch using the 2x4 orthodontic technique, and presented suitable outcomes at the periodontal, occlusal and esthetics levels that satisfied the parents of the children.

Summary:

Pediatric dentists should regularly perform radiographic examinations on children suffering from injuries to primary teeth, intervening promptly if any abnormal development was detected in the succeeding teeth. Combination of surgical exposure and forced eruption is the treatment most often used in the cases of posttraumatic impacted incisors, leading to more definitive and acceptable outcomes than that of other treatment options.

Keywords:

Delayed eruption, Impacted incisor, Oral trauma, Orthodontic traction

O-46

Seal with Care: Introducing Eco-friendly and Affordable Flowable Composite

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Objective:

To characterize newly fabricated flowable composite using nanohybrid silica synthesis from rice husk; compare and correlate with commercial flowable composite.

Methods:

This study is laboratory-based. Experimental flowable composite fabricated using inexpensive and non-toxic nanohybrid silica from rice husk as fillers. Physical and mechanical properties of experimental flowable composite (n=7) and commercial flowable composite G-œnial Universal Flo as the control (n=7) were evaluated. In this experiment, we used a VALOTM light-emitting diode to cure experimental and commercial flowable composite at 10, 8 and 3 seconds. The degree of conversion and surface hardness of flowable composites were analyzed using Fourier-transform infrared spectroscopy and Vickers hardness tester. The data was presented as mean and standard deviation (SD). An independent t-test, a one-way ANOVA, was followed by Turkey's HSD post hoc test, and Pearson correlation was done.

Results:

The degree of conversion of experimental flowable composite ranges from 3.81 to 54.58%, while the Vicker hardness ranges from 14.97 – 10.09 HV. Significant differences in the degree of conversion and surface hardness between the experimental and control flowable composites at different curing times (10 seconds, 8 seconds, and 3 seconds) were noted. A positive correlation between the degree of conversion and surface hardness for different curing times was found. The results were explained by the filler weight and the monomers used.

Conclusion:

Newly fabricated flowable composite from rice husk is promising and may replace the expensive commercial flowable composite in the future and reduce the economic burden.

Keywords:

Flowable composite, Rice husk, Dental material

O-47

Comparative Evaluation of HALL Technique and Conventional Restorative Technique for Managing Carious Primary Molars

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[5]Bangabandhu Sheikh Mujib medical University, Dhaka, Bangladesh

Background:

Hall Technique is a biological approach where decay is sealed under preformed metal crowns without any caries removal, tooth preparation, or local anesthesia.

Objective:

To evaluate and compare the effectiveness of the HALL Technique and Conventional Restorative Technique for managing carious primary molar.

Methods:

A prospective randomized control trial was conducted on patients aged 4-7 years attending the Department of Pediatric Dentistry at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka. A total of 64 teeth, that fulfilled the inclusion criteria were selected after clinical and radiographic evaluation. Out of these 64 Primary molars 32 teeth were treated with HALL Technique and the remaining 32 teeth were treated with the Conventional Restorative Technique. Clinical follow-up examination was done at 3 months, 6 months, 9 months, and 12 months intervals to evaluate and compare the discomfort, retention of restoration, and pain.

Results:

After 1 year follow-up HALL Technique outperformed Conventional Restorative Technique. HALL Technique success rate was 93.8% clinically while in Conventional Restorative Technique was 62.5%. Most of the failures in the Conventional Restorative Technique were due to dislodgement of restoration. P-value (p=.005) showed a statistically significant difference between the HALL technique and the Conventional Restorative Technique.

Conclusion:

HALL Technique treated molars demonstrated better performance. The HALL technique seems to be a suitable replacement instead of the Conventional Restorative Technique for the management of carious primary molars.

Keywords:

HALL technique, Dental caries, Conventional restorative treatment, Drill and fill approach

O-48

Caesarean-section Delivery and Caries Risk of 3-year-old Chinese Children: a Retrospective Cohort Study

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Objective:

Few studies have focused on the association between C-section delivery (CSD) and dental caries. This study aimed to explore whether CSD would increase the risk of early childhood caries (ECC) in preschool children in China.

Methods:

Three-year-old children with full primary dentition were included through the medical records system. Children in the non exposure group were vaginally delivered (VD), while children in the exposure group were delivered through C-section. The outcome was the occurrence of ECC. Guardians of included children completed a structured questionnaire on maternal sociodemographic factors, children's oral hygiene and feeding habits. Subsequently, potential risk factors for ECC were identified through univariate analysis and multiple logistic regression analysis.

Results:

The VD group included 2115 participants while CSD group included 2996 participants. The prevalence of ECC was higher in CSD children than in VD children (27.6% vs. 20.9%), and the severity of ECC in CSD children was higher (mean dmft: 2.1 vs. 1.7, $P < 0.05$). CSD was a risk factor for ECC in 3-year-old children (OR = 1.43, 95% CI = 1.10-2.83). In addition, irregular tooth brushing and always prechewing children's food were risk factors for ECC. Low maternal educational attainment (high school or below) or socio-economic status (SES-5) may also increase the prevalence of ECC in preschool children and CSD children.

Conclusion:

CSD would increase the risk of ECC in 3-year-old Chinese children. Paediatric dentists should devote more attention to the development of caries in CSD children. Obstetricians should also prevent excessive and unnecessary CSD.

Keywords:

Early childhood caries, Caesarean-section, Primary dentition, Risk factor, Preschool children

O-49

Intelligent pH-Responsive Self-assembled Antibacterial Nanoparticles for the Inhibition of Dental Caries

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Objective:

To investigate the anti-caries property of intelligent DMAEM nanoparticles and the antibacterial mechanism.

Methods:

DMAEM was characterized by NMR. The particle size was tested by TEM and DLS analyzer. The pH-sensitive property was tested by *Streptococcus mutans* (*S. mutans*) model cultivated in broth with various pH values. The cytotoxicity was tested by CCK8 analysis. The *S. mutans* biofilms were then treated by DMAEM with a repeated mode (10 mins, twice per day) like daily oral care. The biofilms were tested by MTT and lactic acid measurement. The biofilms morphology was further observed by CLSM, SEM and TEM. The RNA sequencing and transcriptome analysis were further conducted. The biocompatibility and anti-caries effect were investigated in a rat model.

Results:

In acidic solution, DMAEM self-assembled into nanosized micelles. DMAEM could inhibit the viability of *S. mutans* biofilms in acidic broth, which was attenuated in neutral broth. DMAEM showed good biosafety on HOK cells. The *S. mutans* biofilms cell activity and acid production were significantly inhibited after treated by DMAEM with a repeated mode. The EPS production was also reduced. The *S. mutans* cell membrane was broken by DMAEM and showed swelling morphology. DMAEM down regulated the expression of *gtfB, gtfC, VicK*. Pathway such as ribosome, macromolecule metabolic process, peptide metabolic process were down regulated. In rat model, DMAEM treatment reduced tooth lesion depth, without side effect on oral tissue.

Conclusion:

Self-assembled nanoparticles DMAEM showed intelligent antibacterial effect on *S.mutans* and inhibit the dental caries in vitro and in vivo.

Keywords:

Dental caries, pH-Responsive Nanoparticles, Antibacterial, Oral biofilms

O-50

Dental Age Estimation Methods Using Cone-beam Computed Tomography in Children and Adolescents: a Systematic Review

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Most dental age estimation (DAE) methods deployed two-dimensional (2D) radiographic techniques to assess developmental and regressive changes in teeth. This is because radiographic evaluation of teeth is simple, less invasive, and less time-consuming. However, 2D imaging techniques are prone to distortion errors which may cause misinterpretation and measurement mistakes. Three-dimensional (3D) imaging such as cone-beam computed tomography (CBCT) can overcome this limitation.

Objective:

This systematic review aimed to evaluate the correlation of DAE methods using CBCT in children and adolescents.

Methods:

This systematic review was designed according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines. PubMed, Scopus, Web of Science and EBSCO host DOSS were used as primary search sources with several search keywords such as “cone beam computed tomography”; “CBCT”; “dental age determination”; “dental age estimation”; “dental age assessment”; “children” and “adolescents”. Of the results obtained, articles which reported correlation values of dental age estimation using CBCT were included in the study.

Results:

Electronic search yielded 833 studies after removal of duplications. The final selection of 31 studies that fitted the inclusion criteria was chosen for qualitative synthesis. The value of correlation was reported as the correlation coefficient (r-) and the coefficient of determination (R2). The r-values ranged from -0.16 to -0.978 whereas the R2 values ranged from 0.01 to 0.72. The risk of bias of the included articles was assessed by means of Joanna Briggs Institute Critical Appraisal Tools for Systematic Review which found 30 studies with low risk and 1 study with moderate risk.

Conclusion:

DAE methods using CBCT have shown to be correlated for children and adolescents.

Keywords:

Dental age estimation, Cone beam computed tomography, Children, Adolescents

O-51

Association between Early Childhood Caries and Malnutrition on Urban and Rural Setting in Indonesia

Samuel Pramadisa[1], I Wayan Gede Artawan Eka Putra[2], Kadek Tresna Adhi[2], Mia Ayustina Prasetya[1], Luh Wayan Ayu Rahaswanti[1]

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[2]Department of Public Health and Preventive Medicine, Udayana University, Bali, Indonesia

Objective:

This study aims to determine the association between Early Childhood Caries (ECC) and malnutrition among children aged 3-5 years in an urban and rural setting in Indonesia. This study also compares the prevalence of ECC and malnutrition among the two settings.

Methods:

A secondary cross-sectional analysis of the 2018 Indonesian National Health Survey was conducted. Sample consists of 1268 children aged 3-5 presented with dental examination, height, and body weight data. Malnutrition was evaluated using the WHO weight-for-age index. The independent variables were ECC severity and socio-demographic characteristics. The data were stratified by area of residence and afterwards analysed using proportion comparison and regression.

Results:

ECC prevalence were similar (p-value= 0.127), whereas there was a difference in the prevalence of malnutrition between the two settings (p-value= 0.001). ECC severity was not associated with malnutrition among children in rural and urban areas (p-value> 0.05). There was an association between paternal occupation (p-value= 0.030; AOR= 1.220; 95% CI 1.020-1.458) and age (p-value= 0.009; AOR= 0.647; 95% CI 0.468-0.895) with underweight among children in urban areas. In rural areas the association between child’s age and underweight (p-value= 0.003; AOR= 0.629; 95% CI 0.465-0.850) as well as between maternal education and overweight risk (p-value= 0.047; AOR= 3.923; 95% CI 1.016-15.138) was detected.

Conclusion:

ECC is not associated with malnutrition among children aged 3-5 years in rural and urban areas. However, caries-free children tend to show a lower incidence of malnutrition. The prevention and treatment of ECC is vital to support healthy child growth.

Keywords:

Early childhood caries, Malnutrition, Children under five, Rural, Urban

O-52

Genetic Factor in Children with Early Childhood Caries: a Systematic Review

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[2]Oral and Maxillofacial Pathology Department, Faculty of Dentistry, Universitas Padjadjaran, Bandung, Indonesia

Early Childhood Caries affects 48% of children globally. Recent study findings suggested that ECC is affecting 29 out of 195 countries by WHO criteria. ECC associated with genetic and environmental factors contribute to the severity of the disease.

Objective:

This study analyzes the association of genetic factor to Early Childhood Caries.

Methods:

PubMed, Scopus, Ebscohost, and additional manual searching from from case control and cross-sectional study design that were published in English was done from 2014 to 2024. The risk of bias and quality were assessed by using JBI Critical Appraisal Checklist.

Results:

From 839 papers, 9 studies fulfilled the inclusion criteria. Majority of the result showed genetic factor has correlation to Early Childhood Caries. Polymorphism, Consanguinity, and the Dermatoglyphics are the genetic factor that correlated with the studies. Polymorphism emerges as the most prominent genetic factor associated with ECC.

Conclusion:

These findings showed that genetic factor has a correlation to Early Childhood Caries. This research examines the significance of genetic factors to Early Childhood Caries. Further studies are needed to arrive to a definitive conclusion for the development of prevention and intervention strategies.

Keywords:

Dental caries, Childhood, Polymorphism, Genetic, Systematic review

STORY BEHIND CURADEN

Swiss Oral Care Company that Empower Users to Prevent Oral Diseases

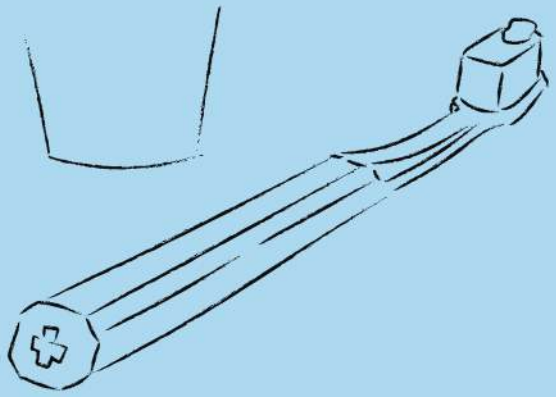
> “If you care about your patient's mouth, you care for their whole body and happiness.”

This is the philosophy that has driven the Breitschmid family and Curaden since its beginning.

Ueli Breitschmid, the father, took over the family business in 1972. He founded the oral care brand Curaprox on the belief that if everyone could properly care for their mouths, they would never suffer from oral diseases.

Since 1979, when Curaprox launched its flagship toothbrush, the CS 5460, which has remained unchanged in design for nearly 50 years, the company has introduced a wide range of products meticulously designed to address oral health concerns, with a focus on prevention.

In addition, Curaden Academy is an educational organization established to support and collaborate with dentists worldwide. The ITop curriculum teaches dentists and hygienists about self-care oral health practices, as Curaden believes that empowering these professionals is crucial to making a significant impact.



In Thailand, Curaden collaborates with many dentists. A key figure is Dr. Kanokwan Urthamapimuk, also known as Dr. Catt, who has been pioneering preventive dentistry in the private sector. She works to teach patients to prevent dental problems before they occur, aligning with Curaden's vision.

Dr. Catt is also an important part of Curaden Academy as an Itop Lecturer and will be a speaker at PDAA 2024 on the topic "Oral Health Promotion as The Service Differentiation in Private Dental Practice."

This is her story.

Why is prevention important for people? Is it necessary to start from childhood?

Prevention is important and should start in childhood. There is a difference between oral health promotion (encouraging good oral health) and disease prevention (stopping diseases from happening). Good oral health habits are learned behaviors, and children can be easily taught. Ideally, it should begin from pregnancy. Good oral health is influenced by parents' views, culture, and education, not just genetics or financial status.

Has this issue become bigger than an individual level?

Yes, but not entirely. Each family's culture affects their habits. Some believe that brushing sometimes is good enough. Some countries have diets high in carbohydrates and sugar. While some issues are broad, solutions can be individual or policy-level. Bigger changes need new policies; smaller changes need new household rules. In Thailand, the government has done well, but results vary. The private sector struggles due to a lack of funds.

curaden
better health for you

How much have people adopted and valued this approach over the last 7 years?

On an individual level, I believe it's possible now. After years of effort, patients see the results and follow through. If we spread this message widely and quickly, we'll see a big impact. However, progress is slow because many dentists need to work together.

Teaching self-care in oral health is different from other treatments. It's not just about instructions but building relationships and understanding cultural, financial, or belief-based barriers. We need to address these issues step by step.

How much do dentists in Thailand focus on oral health promotion and disease prevention?

Very little. There are challenges,
like promoting fluoride toothpaste to reduce decay. Despite our efforts, social media misinformation about fluoride being toxic has caused its use to drop. We need better and broader communication, involving dentists, the government, and the private sector.

WHO is emphasizing oral health. What changes might we see if their efforts succeed?

People will engage more in oral health activities, similar to how marathon running became popular. We will see brands developing products that support oral health care and new policies that better address these needs. Clinics will promote oral health and disease prevention, sugar consumption will decrease, and tooth decay rates will drop. Even awareness alone will be a significant step forward.

What have you experienced through promoting prevention and self-care?

In the past, I couldn't have imagined speaking about this at a large dental event. Initially, people were skeptical about preventing dental issues, and even fellow dentists doubted that patients would follow the advice. Now, I see real results. My clinic may not be luxurious, but it attracts both regular and new patients who want to improve their health.

Working with Curaden Academy was eye-opening. It brings me the network of the dentists and hygienists from other countries. I then realize that I wasn't alone. It is a very supportive community. I gain my confident and have a chance to share my cases from Thailand while learning from the others. It's very beneficial. Recently, Dr.Kullanant Pansrimongkorn, a pediatric dentist, just become the second iTop lecturer from Thailand. She will bring her practices and case studies, especially in the pediatric cases to the global community.

What kind of skills are needed for successful Oral Health Promotion and Disease Prevention?

You need to believe in the potential for success, stay determined, and persist through failures. Working with patients requires ongoing process refinement. Belief in change is crucial, as many challenges will test your resolve.

Do you see light at the end of the tunnel now?

Yes, there has been significant progress comparing to 7-8 years ago. The perspective of both patients and dental clinic have changed. The patients realize the difference in their health. And they started talking about their positive experience. It broadens the awareness of what we do. I'm hopeful, especially seeing younger team members eager to continue this work. Success will benefit not just dentists but everyone, even if we don't fully realize it yet.

Curaden continues to create safe, effective products to aid in oral health education and supports dentists in spreading awareness. We believe this collaboration will help achieve the brand's vision, leading to better oral health for everyone, not just from using our products but from understanding and valuing prevention.

Poster Presentation Abstract

Poster Presentation Abstract

31 October 2024

Mo Chit Room			
Time	Order Number	Presenter	Title
10.45-11.30	P-001	Hui Jan, Ang	Do you C what I C? Oral manifestations of Scurvy in Two Children with Autism
	P-002	Anis Marlina Ibne Walid	A Radical Dental Management for a Child with Chronic Liver Disease
	P-003	Sawako Nakama	Changes in Oral Status of Patients with Dental Hypophosphatasia during the Deciduous and Mixed Dentition
	P-004	Syed Ahmad Aljunid, Syarifah Sumayyah	A Case Report of a Boy with Frontometaphyseal Dysplasia (FMD)
	P-005	Narjit Kaur, Paramjit Singh	Congenital Sialolipoma of Tongue in a Child with Joubert Syndrome: a Case Report
	P-006	Satoko Sumi	Two Cases of Unicystic Ameloblastoma with Preservation of Permanent Teeth by Marsupialization
	P-007	Erin Imaniar Basar	Anemia as a Convoluted Cause of Pediatric Drug-Induced Erythema Multiforme: a Case Report
	P-008	Rosely Lydia Ingkiriwang	Effectiveness of Twin-Block Therapy for Pediatric Obstructive Sleep Apnea: a Systematic Review
	P-009	Makoto Okuda	Clinically Diagnosed Dentin Dysplasia Type I – Case report
	P-010	Hoang Anh Pham Thi	Management of Dentigerous Cysts with Cyst Decompression in a 9-year-old Child: a Case Report
	P-011	Rizelle Rizza D. Robles	Guardians' Perception Towards SDF Caries Control, Impact on Oral Health Related Quality of Life
	P-012	Shani Ann - Mani	Pre-schooler's Ability to Adapt to a New Toothbrushing Technique
	P-013	Kim Kyoung Min	Combination Effect of Arginine and Morin on Dental Biofilm
	P-014	Ami Kaneki	Collagen-Binding Property of Major Oral Streptococcus Species in Japanese Children
	P-015	Jinqiu Feng	Comparative Analysis of the Epidemiological Survey of Caries among 3-5 year-old Children in Shanghai
11.30-12.15	P-016	Kathleen Raveena Victor	Unveiling the Oral Variant of Erythema Multiforme: Clinical Insights and Management Strategies
	P-017	Yunhan Zhang	Novel Mutations in ATP6AP1 Cause Dental Anomalies: a Rare Case Report
	P-018	InYoung Yoon	Treatment of a Malformed Tooth Using 3D Reconstructed Surgical Mode: a Case Report
	P-019	He Xu	Chairside CAD/CAM Restoration for a Young Permanent Tooth with Dental Tissue Deficiency
	P-020	Xiao Huang	Extraction of Impacted Supernumerary Teeth with a Bipartite Guide Plate and a 19-month Follow-up
	P-021	Yuto Suehiro	Antibacterial Effect of Lysozyme on *Streptococcus mutans*

Poster Presentation Abstract

31 October 2024

Mo Chit Room

Time	Order Number	Presenter	Title
11.30-12.15	P-022	Dimas Prasetianto Wicaksono	The Potency of Nitrite-Fluoride Combination in Inhibiting the Growth of *Streptococcus mutans*
	P-023	Ningyan Yang	Microbial Changes Before and After Single/multi appointment Treatments in Patients with Severe Early Childhood Caries
	P-024	Maiko Watanabe	Alterations in Oral Microbiota in Early Childhood Caries among Young Children
	P-025	Iramayanti Kas	Level of Oral Health and Dental Care Needs in Pediatric Patients with Diagnosis of Hemophilia
	P-026	Hamzah AA	Modified Essix Retainer for a Better Smile
	P-027	Ryo Bando	Space Maintenance for Early Loss of a Second Deciduous Molar Using The Novel W-type Loop
	P-028	Suzuka Himeno	Two Cases of Anterior Cross-bite Improved by Surgical Intervention of Lingual Frenectomy for Ankyloglossia
	P-029	Gowry Paramasivam	Navigating Dental Challenges in Osteogenesis Imperfecta
	P-030	Khuat Thu Huong	Prosthodontic Management of Hypohidrotic Ectodermal Dysplasia in Two Siblings: Two Case Reports
14.45-15.30	P-031	Avina Anin Nasia	Neonatal Ankyloglossia and Feeding Difficulties: Successful Frenotomy Intervention
	P-032	Kensuke Sakata	A Case of Oral-management of a Patient with Both CPT2-deficiency and Cyclic-neutropenia Through Medical-dental Collaboration
	P-033	Nurasisa Lestari	Nonpharmacological and Pharmacological Oral Care Management of Children with Autism Spectrum Disorder
	P-034	Steve Hsiang Chih YEH	Severe Early Childhood Caries Management in Child with Autism Spectrum Disorder under Monitored Anesthesia Care
	P-035	Siqian xia	An Evaluation of Refined Pre-/post-operative Care for Children Receiving Dental Treatment under General Anesthesia
	P-036	Eko Sri Yuni Astuti	Barracuda Fish Scale Nano Paste Effect on TGFβ-1, BMP-2, ALP in Rats with Early Childhood Caries
	P-037	Marchelina Triana	Profiling Desmosome-related Genes that Associated to Dental Anomalies Using Single Cell RNA-sequence
	P-038	Yoshihito Yamakawa	Analysis of FBS Components to Identify Factor that Promotes Cell Differentiation in Dental Epithelial Cells
	P-039	Xue Han	Nkx2-3 Contribute to Salivary Gland Development via Affecting Acinus Formation
	P-040	Yingxue Li	The Involvement of NMDA-associated Glutamate Signaling in Pg-LPS-induced Neurotoxicity in vitro
	P-041	Chiaki Kanakubo	Effects of Phenytoin on The Gene Expression and Store-operated Ca^{2+} Entry in Gingival Fibroblast
	P-042	Wahono, Nieka A.	Trace Elements Distribution in Dentine of Primary Tooth: Does It Correspond to Human Early Life?

Poster Presentation Abstract

31 October 2024

Mo Chit Room			
Time	Order Number	Presenter	Title
14.45-15.30	P-043	Biying Deng	Clinical Diagnosis and Treatment of Prolapse Dislocation of Young Permanent Teeth: a Case Report
	P-044	Hao-Tung Hsu	Orthodontic Treatment for Failing Replanted Maxillary Central Incisors: a Case Report
	P-045	Varellia Kardikadewi	Multipurpose Flexible Splint for Immature Permanent Teeth with Lateral Luxation and Malposition: a Case Report
15.30-16.15	P-046	Taku Nishimura	Fully Automated Teeth Detection from Mixed Dentition Panoramic Radiographs Using Deep Learning Object Detection Model
	P-047	Wanjin Zhong	Three-Year Outcomes of Iroot Bp Plus Pulpotomy in Primary Molars: a Retrospective Study
	P-048	Nicholas Li Jie Thong	Clinical Performance of Three Treatment Modalities for Molar Incisor Hypomineralisation (MIH) after 3 Years Follow-Up
	P-049	Hyuntae Kim	Assessing the Accuracy of a Large Language Model in Responding to Dental Trauma Queries
	P-050	Iki Nopalia - Syam T	Implications of Electrostimulation in Relation to Masticatory Training in Individuals with Down Syndrome
	P-051	Liane Yang	Treatment and Follow-ups of a 3-Year-Old Child with Severe Early Childhood Caries: a Case Report
	P-052	Sharon Isidro-Alvarez	Filipino Mothers' Knowledge, Attitude, and Practice Regarding Children's Diet in Relation to Oral Health
	P-053	Noor Khairin Nazifa Khalid	Oral Health of Paediatric Cancer Patients & Impact of Dental Education on Their Caregivers
	P-054	Primanda, Nidia Risky	The Parenting Stress in Parents of Cleft Lip and Palate Children
	P-055	Dewi Kurniyanti	Effects of Mouth Breathing with The Severity of Caries in Children
	P-056	Norsamsu Arni Sam-sudin	Premedication Oral Midazolam Prior to Paediatric Dental General Anaesthesia: the Future Conqueror of Dental Anxiety
	P-057	Ferianto	Potential of Salivary Biomarkers in Attention Deficit Hyperactivity Disorder (ADHD) Children: Systematic Review
	P-058	Ida Ayu Darinyana	Golden Period Management of Avulsed Young Permanent Maxillary Incisors: a Case Report
	P-059	Suhyun, Park	Sports-Related Dental Injuries in the Pediatric Patient: a Retrospective Study
	P-060	Kuangdi Xin	Knowledge among Dentists in Guangxi Regarding Treatment of Traumatized Immature Permanent Teeth and Related Factors
	P-063	Nor Qistina Hanum Abdul Razif	Innovative Approaches to Assess Dental Anxiety in Children: MY-ACDAS and HRV Biofeedback

Poster Presentation Abstract

1 November 2024

Mo Chit Room			
Time	Order Number	Presenter	Title
10.45-11.30	P-061	Lin Qing	The Application of VR Technology in Children's Stomatology
	P-062	Liew Su Reen	Validation of Dental Anxiety Coping Module: Dental Tour and Expressive Art Therapy
	P-124	Jiajian Shang	A Short-term Analysis of Plaque Microbial Change before and after Treatment in S-ECC Children
	P-064	Eiko Inenaga	Stress Relieving Effects of Topical Anesthetic with Aroma in Pediatric Dentistry
	P-065	Harliati	Evaluation of Behavior Management Technique for Children with Time Out Method: a Systematic Review
	P-066	Amrita Widyagarini	Digital Technology in Managing Dental Anxiety/Fear and Pain in Children: a Systematic Review
	P-067	Yuko Fujita	Relationship between Underweight and Low Tongue Pressure in Japanese Young Women
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Poster Presentation Abstract

1 November 2024

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Poster Presentation Abstract

1 November 2024

Mo Chit Room			
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1 November 2024

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	P-123	Prapai Choonhaklai	Space Regaining with Screw in Space Management in Pediatric Congenital Heart disease: a Case Report

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P-001

Do You C What I C? Oral Manifestations of Scurvy in Two Children with Autism

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Introduction:

Scurvy is rare today. Scurvy results from severe deficiency in vitamin C (ascorbic acid); symptoms include anaemia, swollen or bleeding gums and loose teeth. We report two 11-year-olds males with Autism Spectrum Disorder (ASD) with extremely restrictive diets, who were diagnosed with scurvy.

Case Operation:

A Child with ASD presented with black discharge behind his lower incisors for a month, intermittent fever and poor appetite. He had dry lips, swollen tonsils, poor oral hygiene, halitosis, tongue ulcers and generalized swollen gingivae with dark blood stains. His diet is restricted to instant noodles, fried chicken, mashed potatoes, and candies. Blood tests revealed anaemia and deficiencies in Vitamin D and Zinc. Child 2 with ASD, attention deficit hyperactivity disorder, anxiety, and anemia presented with poor oral hygiene, generalised severe gingival inflammation, and bleeding. Fluctuant soft tissue swellings were noted around unerupted #45 and partially erupted #35. His diet is restricted to meat broth and fried rice. Severe gingival inflammation due to viral-/bacterial-/plaque-induced causes were considered as differential diagnoses. However, systemic signs and symptoms, gingival appearance, its persistence, and restrictive diet prompted the consideration of scurvy. Plasma levels of ascorbic acid confirmed Scurvy in both children. Vitamin C supplementation, proper tooth brushing techniques and temporary use of chlorhexidine, resulted in significant improvements in gingival health.

Summary:

Persons with restrictive diets (e.g. with neurodevelopmental disorders) are at risk of micro-nutritional deficiencies, including vitamin C. Health professionals should be familiar with systemic and oral manifestations of scurvy. Early recognition and treatment would significantly improve health.

Keywords:

Scurvy, Special needs, Selective diet

P-002

A Radical Dental Management for a Child with Chronic Liver Disease

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Introduction:

Children with chronic liver disease (CLD) have oral manifestations e.g. green staining of teeth, enamel hypoplasia and dental caries. Dental management in these children may be complicated by many factors, like bleeding tendency, infections, and inability to metabolize routine anaesthetics. This case report addresses a clinical dilemma in treating a paediatric patient with CLD.

Case Operation:

A 4-year-old boy with underlying CLD was referred for management of early childhood caries prior to a liver transplant. He is a high caries risk with multiple carious teeth attributable to his prolonged bottle-feeding habit. During the initial intraoral assessment, the treatment plan included extracting two teeth and restoring thirteen teeth. He underwent comprehensive dental treatment under General Anaesthesia with antibiotic prophylaxis coverage due to his uncooperative behaviour and co-morbidity. Given the patient's aberrant blood profile, characterized by anaemia (haemoglobin 10.7 g/dL), thrombocytopenia (96,000/µL), and prolonged prothrombin time, a multidisciplinary team deemed it acceptable to proceed with extraction without the need for transfusion. Intraoperatively, we elected to extract teeth with a guarded prognosis to mitigate the risk of subsequent infection. This decision led to significant haemorrhage due to the increased number of extractions, necessitating platelet transfusion.

Summary:

Comprehensive planning and a team approach are essential for the dental management of children with CLD. This involves carefully weighing the risks and benefits between restoration and extraction. A radical treatment approach is necessary to prevent any potential source of infection in the mouth, which may lead to systemic infection.

Keywords:

Chronic liver disease, Dental management

P-003

Changes in Oral Status of Patients with Dental Hypophosphatasia during the Deciduous and Mixed Dentition

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Introduction:

Hypophosphatasia (HPP) is a rare disease caused by a genetic abnormality in the ALPL, which is characterized by low serum ALP activity and early exfoliation of deciduous teeth. The disease is classified by perinatal, infantile, childhood, adult, and odonto. Here, we report the oral environment transition of odonto HPP patients receiving enzyme replacement therapy (ERT).

Case Operation:

A girl, 4y8m at first visit. Her 82 exfoliated at 2y5m, and 71 exfoliated at 3y5m. A family pediatrician refers the patient to our hospital suspecting the disease due to low ALP (286U/L). There was a heterozygous mutation by gene analysis. The patient's mother is also diagnosed with odonto HPP due to the same mutations and multiple features of the disease. The patient starts an ERT (Strensiq®) at 5y2m. There are no treatment guidelines for HPP and no indications regarding treatment plans for patients with mild symptoms. The treatment period for this case is 4y9m as of March 2024. There is no early exfoliation of deciduous teeth after the treatment starts, but physiological tooth exfoliation with root resorption appears at the appropriate period of Hellman's dental stage IIC. The patient turns 9y at Hellman's dental stage IIIA without any slight symptoms of tooth mobility or exfoliation.

Summary:

Thus, an ERT contains the possibility of therapeutic effects for odonto HPP if there is no tooth mobility or premature exfoliation after patients have grown up. We will continuously follow up this case and report our experience.

Keywords:

Hypophosphatasia, Early exfoliation of deciduous teeth, Mixed dentition, Enzyme replacement therapy

P-004

A Case Report of a Boy with Frontometaphyseal Dysplasia (FMD)

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Introduction:

Frontometaphyseal dysplasia (FMD) is a rare genetic disorder characterized by abnormalities in skeletal development affecting long bones and other organs of the body. The exact etiology is still unknown; however, most individuals have missense mutations or small deletions in the X-linked gene, FLNA. Patients may present with prominent supraorbital ridges, malar flattening, wide nasal base and bridge, micrognathia, oligodontia, or anodontia.

Case Operation:

A 5-year-old boy came to Hospital Sandakan, Malaysia in January 2019 complaining of toothache with localized swelling of lower right molar tooth. The patient has underlying patent ductus arteriosus (PDA) which is not in failure, and bronchial asthma. Upon examination, lower right first primary molar had periapical abscess and extraction was performed. During his regular follow up, prominent supraorbital ridge, depressed nasal bridge, generalized prominent alveolar ridges with absence of multiple permanent teeth were noted. Radiographic examination revealed absence of permanent teeth except for all the first permanent molars. Referral was made to the pediatric team for further investigations. The patient was then diagnosed with FMD. Comprehensive dental treatment (pulpectomy, composite build-up, and extraction) was performed under general anesthesia.

Summary:

FMD is a rare disease that requires long-term follow-up, including dental care and full mouth rehabilitation in order to improve quality of life. Dental anomalies can serve as indicators of underlying rare diseases, necessitating thorough investigation across multiple medical specialties. Implementing a multidisciplinary approach is vital to ensure comprehensive care for these patients, ultimately leading to improved management of both their physical and psychosocial well-being.

Keywords:

Oligodontia, Prominent supraorbital ridge, Abnormality in long bones, Frontometaphyseal dysplasia (FMD)

P-005

Congenital Sialolipoma of Tongue in a Child with Joubert Syndrome: a Case Report

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Introduction:

Sialolipoma is an uncommon benign salivary gland tumour that mostly affects adult females' palates and parotid glands. We describe the occurrence of congenital sialolipoma in an infant with Joubert syndrome, a rare autosomal recessive genetic disorder. Children with this syndrome, especially the clinical subtype; Joubert syndrome with oral-facial-digital features (JS-OFD) are known to present with tongue hamartomas.

Case Operation:

A syndromic infant was referred for management of multiple tongue polyps noted at birth. Upon initial presentation, several yellowish bilateral tongue enlargements with varying consistencies were observed at bilateral borders and apex of his tongue. Soon after, magnetic resonance imaging (MRI) revealed "molar tooth sign" leading to the diagnosis of Joubert syndrome by the paediatric medical team. After the eruption of deciduous molar teeth, the patient experienced recurrent tongue bleed due to occlusal trauma. MRI was taken before surgical intervention describing polyps at tongue apices without deep muscle involvement. The 2.5-year-old child was then brought to the operating room for transoral removal of multiple tongue polyps. Histological analysis showed a well-defined lesion made up of mature adipocyte lobules with fibrous tissue encircling them. A salivary gland island with ductal dilatation and acinar atrophy was visible at the edges and within the lipomatous growth, consistent with a sialolipoma.

Summary:

Congenital sialolipoma should be taken into consideration as a differential diagnosis of congenital tongue masses in a syndromic child. A multidisciplinary approach is essential in the care of children with Joubert syndrome.

Keywords:

Congenital sialolipoma, Joubert syndrome, Tongue mass (es), Benign salivary gland tumours

P-006

Two Cases of Unicystic Ameloblastoma with Preservation of Permanent Teeth by Marsupialization

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Introduction:

Ameloblastoma is an odontogenic tumor that occurs in children and may often recur. We report 2 cases of unicystic ameloblastoma that had been treated by marsupialization, and followed up without relapse and could preserve permanent teeth.

Case Operation:

Case 1: A 10-years-old boy visited the hospital with the oval radiolucent area of mandibular left molar on panoramic radiograph. Under local anesthesia, we did extraction of mandibular left first and second deciduous molars with marsupialization, after that an obturator was placed immediately. Based on pathological diagnosis, we identified it as unicystic ameloblastoma. Two months after the treatment, the lesion shrunk rapidly, and the permanent tooth naturally improved its axis and erupted. It has now been 9 years with no recurrence and no re-operation. Case 2: A 5-years-old girl visited the hospital for a dental checkup. Panoramic radiograph showed left-right difference in mandibular first molars with cyst-like image on left-side, and knife-cut resorption of the second deciduous molar root. After biopsy, we diagnosed unicystic ameloblastoma. Therefore, we performed marsupialization under general anesthesia, and an obturator was placed. One year after the surgery, the first molar erupted. While remaking the obturator, the second premolar erupted another year later. It has now been 3 years with no recurrence.

Summary:

Unicystic ameloblastoma has high recurrence rate, so both patients might be indicated for osteotomy. However, flowing and considering the guideline, we decided to preserve permanent tooth. We must follow up the case 2 for long period as the case 1.

Keywords:

Ameloblastoma, Marsupialization, Recurrence

P-007

Anemia As a Convoluted Cause of Pediatric Drug-Induced Erythema Multiforme: a Case Report

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Introduction:

Drug-induced erythema multiforme (DIEM) is an acute, immune-mediated dermatologic disease due to adverse reactions to certain drugs. Typically DIEM will resolve in 10-14 days, yet hematological factors can result in more severe DIEM and slows healing. This case reported DIEM and highlighting anemia as the convoluted cause.

Case Operation:

A 3-year-old boy visited University of Airlangga's Dental Hospital presenting black ulcers and desquamation on his lips for a week. His mother gave a history of sore throat of which he received a dose of spiramycin and dexamethasone a week earlier. Subsequently, an ulcer appeared a few days later that raised discomfort and disrupted appetite. Allergy history was denied. Clinical examinations on the skin found no involvement of fistula, conjunctiva, and genital injuries. Extraoral examination indicated the presence of desquamative blood encrustation on his lips accompanied by itching and bleeding. The patient was advised to stop the previous oral anti-inflammatory drugs. Progressive black-desquamative ulcers on lips followed by blood encrustation were managed with saline debridement and antihistamines, topical corticosteroid, oral analgesic, combined with antibiotic ointment. The prolonged healing process of DIEM urged a complete blood count to be carried out and anemia was found. The iron syrup was then supplemented. Lesion healing was speed up and parent's satisfaction was reached.

Summary:

The identification of convoluted cause of prolong pediatric DIEM shows the importance of distinguishing the etiology to gain effective treatment.

Keywords:

Oral health, Anemia, Drug-induced erythema multiforme, Human & Health, Pediatric dentistry

P-008

Effectiveness of Twin-Block Therapy for Pediatric Obstructive Sleep Apnea: a Systematic Review

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Obstructive Sleep Apnea (OSA) is a growing concern for children's health globally. Recent research found a 7.45% snoring prevalence, indicating OSA, and pre-schoolers show habitual snoring rates ranging from 5.3% to 34.5%. In pediatric OSA treatment, craniofacial issues often involve jaw retraction and interventions like Twin Block (TB) appliance can be used for this condition.

Objective:

To evaluate the efficacy of TB appliance in the treatment of children with obstructive sleep apnea (OSA).

Methods:

A systematic search was conducted in the databases PubMed, Scopus, Cochrane Library, and Ebscohost, up to May 2024. Inclusion criteria: participant under 18 with no severe medical conditions or craniofacial syndromes, studies that include any of the following: apnea-hypopnea index (AHI), oxygen saturation levels, alterations in pharyngeal airway dimensions, and quality of sleep. Exclusion criteria: systematic/literature reviews. The quality of the selected studies was evaluated utilizing the JBI's critical appraisal tools.

Results:

Out of 118 articles screened, 8 met the inclusion criteria. TB demonstrated significant reductions in AHI among pediatric patients with mild to moderate OSA.

Conclusion:

TB is effective in improving AHI and oxygen saturation levels in pediatric OSA patients and due to its orthopedic mechanism, promoting greater mandibular growth, suggesting more significant skeletal correction.

Keywords:

Obstructive sleep apnea, Functional orthodontic appliance, Mandibular advancement devices

P-009

Clinically Diagnosed Dentin Dysplasia Type I – Case Report

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Introduction:

Dentin dysplasia (DD) is a rare anomaly that shows an autosomal dominant pattern of inheritance, and affects either or both primary and permanent dentition, with an incidence of 1/100,000. Based on radiological findings, affected cases are classified into two types. DD type I (DD-I) is characterized by crowns with a normal shape and color, and a short or absent root. In the present study, findings of a patient with a clinical diagnosis of DD-I determined using oral and radiographic examinations are presented.

Case Operation:

An 8-year-10-month-old girl was presented with abnormal mobility and short permanent tooth roots. No notable information regarding the pregnancy or labor for her mother, or medical history of the patient were reported. Her father had lost several permanent teeth, though the details were unknown as he had not undergone a dental examination over twenty years. Intraoral examination findings showed that all crowns of erupted teeth had a normal appearance, while severe mobility was observed for the mandibular permanent incisors. Panoramic radiography revealed extremely short root formation for the permanent incisors, and abnormal root formation for the primary and first permanent molars. Based on these findings, a clinical diagnosis of DD-I was made. The mandibular right primary lateral incisor with prolonged retention was extracted and periodic examinations were scheduled.

Summary:

Premature loss of permanent teeth because of a short root often occurs in DD-I cases. Severe mobility was observed in the present patient; thus, denture use is planned should permanent tooth exfoliation occur.

Keywords:

Dentin dysplasia, Short root, Abnormal mobility

P-010

Management of Dentigerous Cysts with Cyst Decompression in a 9-year-old Child: a Case Report

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Introduction:

Dentigerous cysts are the second most common type of odontogenic cysts, following radicular cysts. This is a benign lesion that occurs only in jaw bones. The disease progresses slowly and mildly with minimal clinical manifestation, which makes it difficult to perform early diagnosis. Usually, the cysts only become apparent at later stages, when the lesions grow larger with a considerable amount of bone loss.

Case Operation:

A 9-year-old female child patient was referred to the Department of Pediatric Dentistry in School of Dentistry at Hanoi Medical University because of a painless swelling in the left side of the mandibular for the last month. Clinical examination revealed that the swelling associated with mandibular left second primary molar was treated by pulpotomy a year prior. The radiographic examination showed an unilocular radiolucent cystic lesion associated with the crown of tooth 35. The indications for the patient were extraction of lower left E, decompression, histopathological examination and fabrication of an acrylic resin obturator. One week post-surgery, histopathological results showed nonkeratinizing stratified squamous epithelium, confirming the initial diagnosis was dentigerous cyst. Over several months, a significant reduction in cyst size was observed, along with movement of tooth 35 towards its normal position. The cystic cavity showed signs of bone regeneration, and the surrounding tissues remained healthy.

Summary:

Cyst decompression represents a conservative approach to the management of dentigerous cysts in pediatric patients, offering advantages in terms of preserving tooth vitality and promoting natural eruption.

Keywords:

Dentigerous cysts, Decompression

P-011

Guardians' Perception Towards SDF Caries Control, Impact on Oral Health Related Quality of Life

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Objective:

The study investigated the impact of SDF on oral health-related quality of life (OHRQoL) of pediatric patients after SDF treatment in KATUWANG Satellite Dental Clinic.

Methods:

A prospective study was conducted, 22 pediatric patients whose respective legal guardians were invited to complete an oral health-related questionnaire concerning SDF application and to have their child undergo dental examination. Children with untreated dental caries with ICDAS 2 to 4 were treated with SDF. The Oral Health Impact Profile-14 questionnaire for descriptive correlational study design was used to evaluate the OHRQoL of the pediatric patients utilizing the answers set by their respective legal guardians.

Results:

A score of 1.97 in terms of the functional limitations of their children after SDF treatment on both anterior and posterior teeth which is interpreted to have a general disagreement on having any hindrances to speech, mastication, and deglutition. As per the domain of physical pain, the average numerical score is 1.80 which is interpreted to have a strong disagreement of having negative impact on the child's physical comfort after SDF treatment.

Conclusion:

A significant relationship between the respondents' age and their highest educational attainment which implies that these demographic factors greatly influence the impact on the oral health related quality of life of the pediatric patients treated with SDF. On the other hand, their socioeconomic status poses no significant relationship with their child's oral health related quality of life.

Keywords:

Dental caries, Oral health quality of life, Silver diamine fluoride

P-012

Pre-schooler's Ability to Adapt to a New Toothbrushing Technique

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Objective:

To assess preschooler-parent pairs ability to adapt to a new tooth brushing technique

Methods:

A total of 92 preschool children and their parents/guardians consented to participate. Pre-intervention plaque scores were recorded following which they were taught a new tooth brushing technique using pre-recorded videos. They practiced the technique on a model of the oral cavity and on their own teeth. Immediate and one month follow up visit involved video recording of their tooth brushing behaviour, parental involvement and plaque score recording. Descriptive statistics and non-parametric Wilcoxon signed-rank test for repeated measures was used for comparison of oral health behaviour during immediate and follow up visit.

Results:

Seventy-one child-parent pairs completed the follow up. At baseline, all children had poor plaque scores, while none had poor scores after intervention. A graded visual assessment of the toothbrushing showed most were categorised as partially satisfactory (67.4%). Majority brushed for 1-2 minutes after the intervention (72% and 39%). There was improvement of children who used pea/smear amount of toothpaste (40% and 46.5%) and the involvement of parents during the toothbrushing activity. A significant difference was recorded in the adaptability of newly taught toothbrushing teeth in terms of plaque score (0.00), graded visual assessment (0.006), toothpaste amount (0.003), toothbrushing duration (0.00) and parental guidance (0.00).

Conclusion:

The toothbrushing behaviour improved immediately after the new technique was taught, but the scores dropped after one-month follow-up. Consistent reminders to children and parents are essential to sustain good oral hygiene practices.

Keywords:

Dental hygiene, Pre-school children, Toothbrushing behaviour

P-013

Combination Effect of Arginine and Morin on Dental Biofilm

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Objective:

The aim of this study was to investigate the antibacterial effect of arginine and morin on *S. mutans*, *S. sobrinus* and *S. sanguinis* biofilms.

Methods:

The antibacterial effect of arginine and morin was evaluated against *S. mutans*, *S. sobrinus* and *S. sanguinis*. The anti-bacterial effects of arginine and morin on biofilm formation were analyzed by crystal violet staining. Confocal laser scanning microscopy (CLSM) was used to analyze live and dead bacteria in the biofilm and extracellular polysaccharides (EPS). Morphological changes were examined by scanning electron microscopy (SEM) in the biofilms. Qualitative analysis was also performed by analyzing the pH of biofilm media.

Results:

Arginine showed effective antibacterial activity against *S. mutans*, *S. sobrinus* and *S. sanguinis* in a dose-dependent manner. These results were seen in both the planktonic and biofilm forms of the bacteria. A dose-dependent decrease in acidity was also observed in the pH measurements. For arginine, pH was above 7 at concentrations over 1.25%.

Conclusion:

The use of arginine and morin has been shown to have synergic effect and reduce biofilm formation. Therefore, the use of arginine and morin in oral hygiene products can be expected to prevent caries.

Keywords:

Arginine, Morin, Dental biofilm, *Streptococcus mutans*, *Streptococcus sobrinus*, *Streptococcus sanguinis*, Anti-bacterial effect

P-014

Collagen-Binding Property of Major Oral Streptococcus Species in Japanese Children

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Objective:

Some *Streptococcus mutans* strains have collagen-binding property and involved in dental caries and systemic diseases. In the present study, we analyzed the collagen-binding property of oral streptococci other than *S. mutans*.

Methods:

Dental plaque specimens from 50 Japanese children aged 0 to 11 (median 6 years) were streaked on Mitis-Salivarius agar plates. After culturing, five colonies were picked up from the plates, and genomic DNA was extracted. Then, four oral streptococci (*Streptococcus salivarius, Streptococcus sanguinis, Streptococcus oralis,* and *Streptococcus gordonii*) were detected by PCR method. These strains were added to 96-well plates coated with type I collagen, and a collagen-binding assay was performed. The collagen-binding rate of *S. mutans* SA83 strain was defined as 100%.

Results:

The detection frequency of oral streptococci among 50 subjects was 18 (36.0%) for *S. salivarius*, 13 (26.0%) for *S. sanguinis*, 18 (36.0%) for *S. oralis*, and 3 (6.0%) for *S. gordonii*. The average collagen-binding rate of *S. salivarius* (33.8%) was significantly higher than that of *S. sanguinis* (8.8%) and *S. oralis* (10.0%) ($P<0.05$). The frequency of each oral streptococci with collagen-binding property was significantly higher in S. salivarius (77.8%) than in *S. sanguinis* (23.1%) and *S. oralis* (27.8%) ($P<0.05$). As for *S. gordonii*, one of the three strains had the collagen-binding property.

Conclusion:

Our results suggest that oral streptococci other than *S. mutans* have collagen-binding property and that *S. salivarius* frequently and highly binds to collagen.

Keywords:

Oral streptococci, *Streptococcus salivarius*, *Streptococcus mutans*, Collagen-binding property, Children

Tantavade 1988

P-015

Comparative Analysis of the Epidemiological Survey of Caries among 3-5 year-old Children in Shanghai

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Objective:

To investigate the caries prevalence of 3-5 year-old children in Shanghai and the trends from 2005 to 2020, and to approach their pathogenic factors and corresponding methods for the prevention of the disease by a 15-year comparative analysis.

Methods:

Four hundred and twelve samples of 3-year-old children from kindergartens in Shanghai were selected for clinical examination. The prevalence of dental caries, mean dmft score, caries severity index (CSI) and caries filling rate were calculated. The results were analyzed with SPSS22.0 software package for $\chi 2$ test, ANOVA, compared longitudinally with the caries prevalence of 372 children in the same six kindergartens in 2005.

Results:

The rates of caries in 2020, 2021 and 2022 were 32.28%, 40.05% and 51.70%, respectively. The mean DMFT of caries were 1.37±2.03, 1.89±2.52 and 2.36±3.71, respectively. The caries severity index (CSI) was 3.83±4.84, 6.15±8.64 and 7.73±10.03, respectively. The caries incidence rate, DMFT and CSI showed an increasing trend year by year, and the difference was statistically significant ($P < 0.05$). Compared with the survey in 2005, the rate of caries, the average caries and the index of caries severity decreased obviously.

Conclusion:

Although the prevalence of caries in primary teeth of pre-school children in Shanghai has decreased in the past 15 years, it is still at a high level. The situation of prevention and control of caries in primary teeth is still serious, and more effective measures should be taken.

Keywords:

Preschool children, Dental caries, Prevalence, Oral health promotion

P-016

Unveiling the Oral Variant of Erythema Multiforme: Clinical Insights and Management Strategies

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Introduction:

Erythema multiforme (EM) is an acute immune-mediated disorder primarily triggered by infections. It is a rare condition in the paediatric population, with an incidence of 0.01% to 1%. Oral EM (OEM) is even rarer, characterized by oral and lip ulcers resembling EM but lacking target skin lesions. This case series discusses two paediatric cases of OEM, highlighting diagnostic challenges and management strategies.

Case Operation:

A 5-year-old girl was referred for oral ulcers affecting her oral intake. She initially presented with fever and sore throat, followed by development of oral ulcers. Examination revealed hemorrhagic encrustation on both lips and bleeding upon manipulation. Intraorally, sloughing was observed on the buccal mucosa. A 7 year old boy was referred for oral ulcers, lip swelling, and decreased oral intake. His symptoms began with fever and sore throat, followed by the appearance of lip vesicles and ulcers. Examination demonstrated hemorrhagic encrustations, irregularly shaped superficial ulcerations and erosions on both lips, with areas of fresh bleeding. Additionally, ulceration and sloughing were observed on various intraoral surfaces. Both patients were admitted and received supportive care including pain relief, soothing mouth rinses, and dietary adjustments. Oral hygiene modification was emphasized to prevent secondary infections. Triamcinolone acetonide 0.1% cream was topically applied, and hyaluronic acid gel was intraorally used to expedite healing.

Summary:

Diagnosing and managing EM without skin lesions can be challenging due to its rarity and resemblance to other oral ulcers. Early differentiation is crucial for appropriate treatment and follow-up, given the potential for recurrent attacks involving the skin.

Keywords:

Erythema multiforme, Herpes simplex, Oral ulcer, Paediatric

P-017

Novel Mutations in ATP6AP1 Cause Dental Anomalies: a Rare Case Report

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Introduction:

Vacuolar H+-ATPases (V-ATPases) are ubiquitous multisubunit proton pumps responsible for organellar pH maintenance. Mutations in V-ATPases related genes may cause bone and dental anomalies. In this report, we describe dental anomalies in a Chinese male with a novel mutation in *ATP6AP1* mutation, including clinical, radiographic and laboratory findings and management aspects.

Case Operation:

A 10-year-old boy with poor health complained of "spontaneous pain" for 2 weeks. Clinical examination revealed unusual appearances in all his teeth. Five caries-free teeth showed painful on percussion or had buccal abscesses. Radiographically, all incisors and premolars present pulp stones, and molars exhibited curved roots and pulp obliteration. Periapical radiolucency was observed in the aforementioned 5 teeth. Eventually, three teeth underwent pulp revascularization, one tooth received root canal therapy, and one tooth was extracted. Besides, fluoride was applied regularly. During the 1-year follow-up period, the remaining teeth remained asymptomatic and periapical radiolucency were repaired. Trio-based whole exome sequencing identified a presence of maternally inherited hemizygous mutation c.1249G > T (p.D417Y) in exon 10 of the ATP6AP1 gene. Scanning Electron Microscope analysis revealed a notable reduction in enamel thickness and the presence of hypomineralised enamel, concomitant with a decrease in mineral content as detected by Energy Dispersive Spectrometer.

Summary:

This study represents the initial documentation of dental anomalies in a patient with a new *ATP6AP1* mutation. The findings of this case have the potential to broaden the phenotypic spectrum of relevant disease and provide insights into a potential genetic locus for elucidating the mechanisms underlying tooth development.

Keywords:

ATP6AP1 mutation, Dental anomalies, Enamel

P-018

Treatment of a Malformed Tooth Using 3D Reconstructed Surgical Mode: a Case Report

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Introduction:

This report presents the therapeutic approach and results of a case involving an underdeveloped malformed tooth.

Case Operation:

A 6-year-old girl was referred to the hospital for the evaluation and treatment of a malformed, impacted lower left incisor. Cone beam computed tomography showed a malformed, excessively coronal portion containing pulp was observed in the lingual coronal aspect of the lower left incisor. The malformed tooth exhibited 2/3 root formation. The patient was followed up for 1.5 years, expecting spontaneous eruption, root formation, and pulp chamber contraction. Due to reduced eruption and inflammation under the malformed coronal part, tooth trimming surgery was performed based on a 3D model in a partially erupted state. For surgical accuracy, replicas of the malformed tooth and the mandible were made using CBCT image and a 3D printer, and mock surgeries were done.

Summary:

This treatment aims to investigate the growth change during 1.5-year follow-up of a malformed lower left incisor, to widen the treatment spectrum with modern diagnostic approaches, and to refine the surgical procedures of existing surgeries using 3D reconstructed surgical models in its surgical accuracy.

Keywords:

Mock surgery, 3D printer, CBCT image

P-019

Chairside CAD/CAM Restoration for a Young Permanent Tooth with Dental Tissue Deficiency

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Introduction:

An 8-year and 10-month-old girl presented with an upper left anterior tooth trauma resulting in a fracture two weeks ago, the tooth fragment not retrieved. She visited the emergency department right after the trauma and had pulpotomy performed. Examination revealed approximately 1/2 defects on the upper left central incisor crown, with intact resin filling, no tenderness to percussion, no mobility, and normal gingiva. Cold testing was consistent with the control tooth. X-rays showed crown fracture with high-density filling material near the cervical area, no evidence of root or bone fractures, slight widening of the periodontal ligament, root developed at Nolla stage 9. The anterior teeth had a Class 3 deep overbite and deep overjet. Mixed dentition, with the lateral teeth not replaced.

Case Operation:

After discussing the condition with the parents and obtaining informed consent, a chairside CAD/CAM resin-based ceramic crown restoration was applied using 3M Lava™ Ultimate material (Shade A2). The patient was advised to regularly monitor the pulp vitality of the treated tooth.

Summary:

When dental defect of the anterior teeth happens after traumatic injuries, it is essential to promptly restore their anatomical form, regain chewing function, maintain interdental spaces, and preserve the aesthetic appearance of the anterior teeth, thus enhancing the quality of life for these children. Chairside CAD/CAM restoration methods can effectively and promptly complete the restoration treatment of anterior tooth defects, making it worth trying for pediatric dentists.

Keywords:

Dental trauma, Dental deficiency, Chairside CAD/CAM restoration

P-020

Extraction of Impacted Supernumerary Teeth with a Bipartite Guide Plate and a 19-month Follow-up.

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Introduction:

A 9-year-old boy came for a dental visit due to uneven front teeth. Upon X-ray examination, there were two impacted supernumerary teeth in the upper anterior tooth area, one of which was deeply impacted and closely attached to the adjacent tooth. The treatment plan involved using extraction guide plate to remove the supernumerary teeth.

Case Operation:

Before the operation, we designed the surgical approach and the surgical guide plate based on the CBCT data and the dentition model of the patient. The guide plate consisted of two parts, a fixing part and an arm. They are linked by anchor type fixation and along this section, it can move up and down. At the beginning of the surgery, the 3-dimensional printed-guide plate was mounted on the teeth and soft tissue, the arm indicated the position of the supernumerary teeth and helped to decide the surgical incision. After the mucoperiosteal flap was lifted, the bone exposed, the guide-plate was mounted in place again with the arm moved down to attach the bone surface. There was a window on the arm to indicate the sites of fenestration. After fenestration, all teeth were extracted successfully in half an hour. The patient underwent four follow-up visits in 19 months with no postoperative pain or complications.

Summary:

Plate-guided extraction can avoid the unnecessary removal of bone, protect important anatomical structures and adjacent teeth, reduce the difficulty of operation and shorten the time of the operation. It's a minimally-invasive approach, especially suitable for our children.

Keywords:

Supernumerary teeth, Extraction, A bipartite guide plate, Digital

P-021

Antibacterial Effect of Lysozyme on *Streptococcus mutans*

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Objective:

Streptococcus mutans, a major pathogen of dental caries, is also regarded as a causative agent of some systemic diseases. Breast milk is known to contain lysozyme, an antimicrobial enzyme, at concentrations ranging from 0.03-3 mg/ml. However, the antimicrobial effects of lysozyme in breast milk towards *S. mutans* are unknown. The present study evaluated in detail those antimicrobial effects at concentrations generally found in breast milk on *S. mutans.*

Methods:

S. mutans strain MT8148 bacteria were cultured at 37˚C for 18 hours, then adjusted to a concentration of 1.0×10^7, 1.0×10^5, or 1.0×103 CFU/ml. Lysozyme at a concentration of 0, 0.03, 0.3, or 3 mg/ml was then added, and bacterial suspensions were incubated at 37˚C for 0, 0.5, 1, 2, 3, 6, 12, and 24 hours. Finally, the bacterial suspensions were spread onto Mitis-salivarius-bacitracin agar plates and cultured at 37˚C for 48 hours, and the number of colonies counted. Bacterial viability was calculated based on the number of bacteria affected by each concentration of lysozyme relative to 0 mg/ml.

Results:

With 1.0×10^7 and 1.0×10^5 CFU/ml of *S. mutans* MT8148, lysozyme at concentrations of 0.3 and 3 mg/ml showed antibacterial effects after one hour, while with 1.0×10^3 CFU/ml of the bacteria, those concentrations showed antibacterial effects after 0.5 hours. However, no antibacterial effect was shown with 0.03 mg/ml of lysozyme.

Conclusion:

Based on these results, it is considered that lysozyme in human breast milk at normal concentrations may contribute to reduce the risk of dental caries in infants.

Keywords:

Streptococcus mutans, Dental caries, Breast milk, Lysozyme, Antibacterial effect

P-022

The Potency of Nitrite-Fluoride Combination in Inhibiting the Growth of *Streptococcus mutans*

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Objective:

Dental caries is one of the major oral diseases, whereas *Streptococcus mutans* (*S.mutans*) plays a role in the caries process, then by inhibiting the growth of *S .mutans* could be a way to prevent dental caries. Recently, research regarding nitrite as an antimicrobial substance has been developed rapidly. On the other hand, fluoride is also known as an antimicrobial substance. These substances may work in different ways, such as nitrite collapse the ATP-proton gradient, while fluoride inhibits the enolase enzyme. Therefore, by combining these two substances may enhance the antimicrobial effect especially in inhibiting the growth of *S. mutans*.

Methods:

S. mutans serotype C strain UA 159 were grown in Mueller Hinton Agar together with paper disk containing aquades, 0.85% KNO2, 1.7% KNO2, 3.4% KNO2, 6.8% KNO2, 0.33% NaF, 0.66% NaF, 0.99% NaF, 1.32% NaF, combination of 1.7% KNO2-0.33% NaF, 3.4% KNO2-0.33% NaF, 1.7% KNO2-0.66% NaF, 3.4% KNO2-0.66% NaF in anaerobic condition (gas pack) at 37˚C for 48 hours. The inhibition zone was measured by calipers and analyzed using Tukey's test.

Results:

Inhibition zones of KNO2, NaF were started from 3.4% (7.68mm; $p<0.01$), 0.66% (6.71mm; $p<0.01$), respectively. Moreover, low concentration of combination 1.7% KNO2-0.33% NaF showed an inhibition zone (7.24mm; $p<0.01$), while without combination showed negative effect. The combination 3.4% KNO2-0.66% NaF showed the highest inhibition zone (12.81mm; $p<0.01$).

Conclusion:

The combination of nitrite-fluoride inhibits the growth of *S. mutans*, and shows better inhibiting impact than nitrite or fluoride only.

Keywords:

Nitrite, Fluoride, *Streptococcus mutans*, Caries, Human & health

P-023

Microbial Changes Before and After Single/multi Appointment Treatments in Patients with Severe Early Childhood Caries

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Objective:

The study aimed to compare the diversity and structure of the dental plaque microbiome in children with severe early childhood caries (S-ECC) before and after general anesthesia and outpatient treatment.

Methods:

Forty children aged 3 to 5 years with S-ECC who had completed whole-mouth dental treatment under general anesthesia (C1) or in outpatient settings (C2) were selected, 20 in each group. The basic information and oral health status of the children were recorded, and the microbial community structure and diversity of dental plaque before treatment, Multiple time points after treatment were analysed by sequencing technology.

Results:

The alpha diversity test showed that the flora richness in the multi appointment group was significantly greater at posttreatment than at pretreatment ($P<0.05$). The core flora existed in both the pre- and post treatment groups, and the proportion of their flora abundance could be altered depending on the caries status of the children in both groups. Leptotrichia abundance was significantly ($P<0.05$) lower at 7 days post treatment in both the single- and multi appointment groups. Corynebacterium and Corynebacterium_matruchotii were significantly more abundant in the C1_1M and C1_3M groups than in the C1 and C1_7D groups ($P<0.05$). Streptococcus, Haemophilus and Haemophilus_parainfluenzae were significantly more abundant in the C1_7D group than in the other groups ($P<0.05$).

Conclusion:

A single session of treatment under general anesthesia can cause dramatic changes in the microbial community structure and composition within 7 days after treatment, whereas treatment over multiple appointments may cause slow changes in oral flora diversity.

Keywords:

Severe early childhood caries, Dental treatment under general anesthesia, Multi appointment treatment, 16S amplicon sequencing, Oral core flora

P-024

Alterations in Oral Microbiota in Early Childhood Caries among Young Children

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Objective:

Early Childhood Caries (ECC) is still one of the most common diseases among children under 6 years of age. While it has been believed that ECC is attributed to mutans streptococci, recent research has suggested the involvement of other bacteria in dental plaque. This study aimed to analyze the changes in oral microbiota in children under 4 years old who had high caries risk.

Methods:

This study was conducted following approval from the Ethics Committee of Tokyo Dental University (approval number 994). Children aged 1 to 3 years were included, and caries levels of the primary anterior teeth were assessed using the ICDAS II criteria. Bacterial and fungal DNA were extracted from dental plaque, and gene sequencing was performed using MiSeq (Illumina) after amplification of the V3-V4 and ITS regions. The Human Oral Microbiome Database and UNITE were used for data analysis to estimate the overall microbial composition. Detection of *Candida* genus was also conducted using conventional PCR. Changes in microbiota were analyzed based on caries levels. Statistical analysis employed t-tests, Dunn's test, and Tukey-Kramer test.

Results:

Candida spp. was not detected on caries-free tooth surfaces but were detected on surfaces with early and developed caries. Even minimal enamel changes exhibited alterations in fungal communities. The composition ratio of *Actinomyces* changed even in the state of early caries.

Conclusion:

The classification of predominant bacterial and fungal species among individual children's microbiota may lead to the development of approaches tailored to reducing caries risk based on their characteristics.

Keywords:

Oral microbiota, Early childhood caries, ICDAS II

P-025

Level of Oral Health and Dental Care Needs in Pediatric Patients with Diagnosis of Hemophilia

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Objective:

To analyse whether oral health conditions in children and adolescents are associated with haemophilia.

Methods:

The search strategy was carried out in the Google Scholar, PubMed, Cochrane, Wiley and Science Direct literature databases where the data obtained in the publication time range from 2014-2024.

Results:

From a total of 278 studies, 8 studies were included. In some studies, it was found that significantly, for the categories of dental care needs, DMFS, DMFT, OHI-S status of the haemophilia group was lower than the control group due to dental services being considered an important part of haematologic visits. There was no significant difference between the number of bleeding events during or after invasive procedures and the severity of haemophilia, which is usually associated with professional treatment, extraction of primary teeth and tooth eruption, gingival bleeding, labial and lingual frenulum, in descending order. In studies involving only haemophilia patients, DMFT and OHI-S indices were found to be directly proportional to age. In some studies, it was also found that, DMFT index, OHI-S, treatment needs in children with haemophilia were significantly higher than the control group, indicating the presence of multiple caries in subjects with haemophilia due to more emergency visits to the dentist than routine visits to the dentist indicating difficult access to the dentist.

Conclusion:

Based on a study with very weak evidence, there is no difference in the oral health conditions of children and adolescents with and without haemophilia.

Keywords:

Haemophilia, Dental health status, Dental treatment need, Children

P-026

Modified Essix Retainer for a Better Smile

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Introduction:

Providing an immediate, aesthetic, retentive and comfortable replacement for missing anterior teeth can be challenging in a limited time frame. Ensuring a replacement is available immediately in an emergency treatment requires planning and liaison with laboratory support. The Essix appliance is an esthetic removable appliance. Its modifications are also emerging as an option for temporary prosthetic rehabilitation of missing teeth.

Case Operation:

A 14-year-old healthy boy was referred from green zone Emergency Department (ED) for management of missing tooth due to trauma allegedly hit on monkey bar at the playground. Post-trauma sustained avulsed tooth 11, intruded tooth 21 with uncomplicated crown fracture and buccal plate fracture. Emergency management was delivered by surgically repositioning tooth 21 and placing splint anchoring adjacent from tooth 12 to 22 for 4 weeks duration. 1-week post- trauma, tooth 21 was pulp extirpated and interim pontic placed over 11 regions attaching to the wire splint for esthetics reason prior permanent replacement. During splint removal visit, the impression was taken and sent to the dental technician for fabrication of Essix retainer with pontic on the same day of issuance. Patient was satisfied with the outcome and went out from the clinic confidently with his new smile.

Summary:

The Essix retainers can serve as an immediate interim prosthesis for maintaining alveolar ridge before placement of permanent prosthesis and enhancing esthetics. It provides better retention without affecting the speech or function in addition to provide self-esteem to the child.

Keywords:

Prosthesis, Esthetics, Trauma

P-027

Space Maintenance for Early Loss of a Second Deciduous Molar Using The Novel W-type Loop

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Introduction:

To ensure healthy dental and occlusal development, a variety of retention devices are used to maintain the gap spaces due to the early loss of deciduous teeth. Before the eruption of the first permanent molar, mandibular second deciduous molar gap spaces are commonly preserved using distal shoe space maintainers (DSSMs). However, DSSMs have several disadvantages, such as the inability to prevent the opposing teeth from overeruption and the need to replace the DSSMs with another retaining device following the eruption of the first permanent molars. In this case report, we described a newly developed W-shaped-loop for space maintenance to overcome the disadvantages of the distal shoe space maintainer DSSMs.

Case Operation:

A young boy, aged 4 years and 10 months, visited our hospital for comprehensive dental caries treatment. Since carious lesions were found on multiple teeth, full-mouth treatment was performed. This consisted of crown restoration and/or root canal treatment, and a W-loop was used to maintain the gap space of the bilateral mandibular second deciduous molars (75 and 85), which were extracted.

Summary:

Space maintenance of the 75,85 using the W-loop prevented mesial shift and inclination of the first permanent molars (16,26,36,46) during eruption, secured space for the second premolars (35,45), and prevented the opposing teeth from overeruption by positioning the wire section parallel to the occlusal plane. The W-loop is manufactured with a band instead of a deciduous crown and does not require replacement after the mandibular first molars (36,46) erupt.

Keywords:

Space maintenance, Early loss of a second primary molar, W-type loop

P-028

Two Cases of Anterior Cross-bite Improved by Surgical Intervention of Lingual Frenectomy for Ankyloglossia

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Introduction:

Dysfunction of tongue movement by ankyloglossia induces wrong tongue position or oral habits and interferes with normal development of oral function. We report two cases of ankyloglossia with anterior cross-bite, and the occlusion improved after performing only lingual frenectomy without any occlusal treatment.

Case Operation:

Case 1: A 3-year-old 9-month-old girl. Ankyloglossia was diagnosed due to performing tongue protrusion with restrictions (raising and clicking) and presenting distortion of the sounds / r /. The lingual frenectomy was performed at the age of 4 years and 1 month. 7 months later, the tongue mobility and sounds distortion were improved, also 6 normal anterior occlusion was acquired spontaneously. Case 2: A 6-year-old 1-month-old boy. Ankyloglossia was diagnosed due to performing tongue protrusion with restrictions (raising and clicking). Hypertrophied palatine tonsils were observed. The lingual frenectomy was performed at the age of 6 years and 1 month. 5 months later, the tongue mobility and sound distortion were improved. More than 7 months later, tonsillectomy was performed, then snoring was also improved. In addition, normal anterior occlusion was acquired spontaneously.

Summary:

According to the treatment history of these two cases which spontaneously improvement of anterior crossbite after frenectomy shows that functional factors including low-positioned tongue or oral breathing caused by ankyloglossia or hypertrophied tonsil/adenoid have a significant contribution of inducing anterior crossbite. It is important to evaluate soft tissue morphology or oral habits before diagnosing and decide to start the treatment.

Keywords:

Anterior cross-bite, Frenectomy of lingual frenulum, Ankyloglossia

P-029

Navigating Dental Challenges in Osteogenesis Imperfecta

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Introduction:

Osteogenesis imperfecta (OI) is a rare genetic disorder caused by mutations in collagen genes, affecting collagen type I metabolism. Though there's no cure, bisphosphonate therapy is used to improve bone density, alleviate pain, and lower fracture risk. However, bisphosphonate treatment may increase the risk of medication-related osteonecrosis of the jaw (MRONJ), following certain dental procedures. This case highlights the dental complexities in treating children with OI, especially those on bisphosphonates.

Case Operation:

An 8-year-old girl with OI and potential dentinogenesis imperfecta (DI) was referred for a dental check-up. The OI type was not identified due to inconclusive genetic testing and the patient had no family history of OI. Child exhibited typical symptoms such as short stature and bowing of femur and tibia, without any history of fractures. Her treatment regimen included monthly intravenous pamidronate disodium and daily vitamin D supplementation. Dental examination revealed generalized grey bands on her primary and permanent teeth indicative of DI. Additionally, she presented with delayed eruption of her first permanent molars, and multiple carious lesions, including an abscessed primary molar that needed immediate attention. Due to her bisphosphonate treatment, managing her dental issues required careful consideration to avoid complications like MRONJ.

Summary:

It is crucial for dentists to understand the effects of bisphosphonates to ensure safe dental care for children with OI given the risk of MRONJ. Effective management and preventive strategies are essential to address the unique dental needs of these patients and minimize potential complications.

Keywords:

Osteogenesis imperfecta, Dental considerations, Medication-related osteonecrosis of the jaw

P-030

Prosthodontic Management of Hypohidrotic Ectodermal Dysplasia in Two Siblings: Two Case Reports

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Introduction:

This study describes the value of early prosthodontic management of hypohidrotic ectodermal dysplasia in two siblings.

Case Operation:

We report two cases within a family, involving two brothers aged 14 and 16, with a significant family history of the condition. Despite familial prevalence, the family has opted to defer treatment decisions until maturity. Consequently, the affected individual has endured years without teeth, lacking the ability to chew, and suffering from diminished self-esteem. Oral rehabilitation in such cases, especially in children, poses considerable challenges. In this report, we present a case study illustrating prosthetic rehabilitation utilizing a flexible and removable denture. However, the process of obtaining impressions and designing the denture involves intricate techniques like piezography impressions. The prosthetic rehabilitation utilizing removable dentures proved to be an effective solution for restoring chewing function and significantly enhanced the patients' quality of life.

Summary:

Early treatment is recommended in cases of hypohidrotic ectodermal dysplasia to address functional and aesthetic concerns promptly. Advanced techniques like piezography impressions optimize prosthetic device design and fitting, improving treatment outcomes.

Keywords:

Hypohidrotic ectodermal dysplasia, Siblings, Prosthodontic management

P-031

Neonatal Ankyloglossia and Feeding Difficulties: Successful Frenotomy Intervention

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Introduction:

Ankyloglossia is a congenital condition where the lingual frenulum is unusually short, tight, impairing tongue movement. In neonates, it can hinder breastfeeding and poor weight gain and potentially impacting speech and oral functions. For mothers, it can result in nipple pain and reduced milk supply. Frenotomy, a quick surgical procedure involving a small cut in the frenulum, is often used to treat ankyloglossia.

Case Operation:

A 15-day-old male infant was presented with breast-feeding difficulties since birth. A thorough oral examination revealed a type-2 ankyloglossia, as classified by Coryllos. The mother reported significant nipple pain, scoring it 6 out of 10 on a numerical scale, and was assessed to have a nipple trauma score (NTS) of 2. Given the severity of symptoms and the impact on feeding, a decision was made to perform a frenotomy.

The procedure was completed with the use of local anesthesia. It involved raising the tongue, placing a sterile clamp on the frenulum, making an incision in the frenulum, and then removing the clamp. Afterwards, the baby was immediately guided to breastfeed, resulting in an immediate improvement in breastfeeding. Subsequently, the infant practiced tongue exercises twice daily. Follow-up at two weeks post-procedure indicated significant improvement in weight gain and the mother reported no further nipple pain.

Summary:

Ankyloglossia can significantly affect breastfeeding and early oral development. Early identification and appropriate management, including procedures like frenotomy when indicated, can improve outcomes and enhance the well-being of affected infants and their families.

Keywords:

Ankyloglossia, tongue-tie, frenulum, Breastfeeding difficulties, Frenotomy

P-032

A Case of Oral management of a Patient with both CPT2-deficiency and Cyclic-neutropenia through Medical-dental Collaboration

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Introduction:

CPT2 deficiency, an exceptionally rare disorder affecting approximately 1 in 260,000 individuals, is designated as an intractable disease in Japan. It hinders the transfer of long-chain fatty acids into mitochondria, leading to compromised fatty acid metabolism and reduced energy production. Prolonged starvation resulting from fever can trigger severe complications, including hypoglycemia, heart failure, and, in neonatal-onset cases, often culminating in sudden death. Due to impaired energy production from fat, patient require frequent carbohydrate intake for daily living, leading to continuous oral exposure to sugar. Cyclic neutropenia, characterized by low count neutrophils crucial for immunity, poses a heightened risk of bacterial and viral infections. Informed and written consent has been obtained from the patient's parents for this presentation.

Case Operation:

The patient, initially referred to our clinic at the age of 3 years, faced recurrent hospitalizations due to infectious diseases and mental retardation. Constant exposure to sugar progressed caries by poor oral hygiene due to oral sensitivity, which made oral management extremely difficult. All teeth except for the mandibular anterior teeth were carious. Her caries treatment was performed under preoperative antimicrobial prophylaxis, scheduled in the morning and approximately 2 hours after eating to mitigate the risk of vomiting. Despite frequent hospital admissions and cancellations of dental appointments, this case underscores the imperative need for dental engagement to maintain or improve systemic conditions.

Summary:

Early oral management is crucial, as the adverse oral environment resulting from dental caries can impact energy intake.

Keywords:

CPT2 deficiency, Cyclic neutropenia, Medical-dental collaboration

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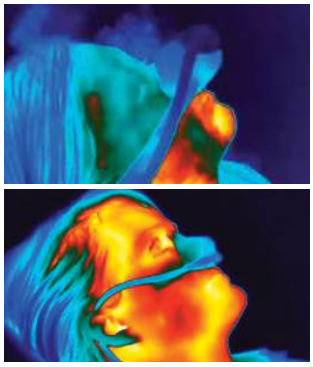

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P-033

Nonpharmacological and Pharmacological Oral Care Management of Children with Autism Spectrum Disorder

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Introduction:

Autism or Autistic Spectrum Disorder (ASD) is a severe developmental disorder with communication, socialization, and repetitive behavior. Children with ASD face high caries risk due to soft-textured food and sweet eating habits. Dental and oral care for ASD children is a significant challenge for pediatric dentists due to the children's behavior and communication difficulties. Therefore, complete non-pharmacological and pharmacological treatment is required.

Case Operation:

A 6-year-old girl with Autism Spectrum Disorder was brought in by her parents for dental treatment. She complained of smelly teeth and cavities, often crying, and being too lazy to eat.

Despite being cooperative, it is difficult to communicate in 2-way. Intraoral examination revealed gingivitis in 54,55,84,85,16,26 and multiple caries. The child's mouth opening was short, and frequent movement made it challenging to maintain in the dental unit.

Laboratory tests, thoracic photographs, panoramic photographs, and consultation with the anesthetist were performed. Under general anesthesia, the patient received a thorough dental restoration. Scaling, root canal treatment of 64,65,74,75, fissure sealant 46,36, and extraction 54,55,84,85 were performed. After 7 days, the patient reported no complaints, and dental restorations were in good condition.

Summary:

General anesthesia is recommended for ASD dental treatment, with close monitoring during the pre-, intra-, and post-operative periods, and non-pharmacological therapy involving parents plays an important role in developing oral hygiene care behaviors.

Keywords:

Autistic spectrum disorder, Dental care, Nonpharmacological, Pharmacological

P-034

Severe Early Childhood Caries Management in Child with Autism Spectrum Disorder under Monitored Anesthesia Care

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Introduction:

Severe Early Childhood Caries (SECC) poses challenges in dental management of children with Autism Spectrum Disorder (ASD) and Special Healthcare Needs (SHCN). Their unique behavioral and communication characteristics require specialized care. This case report highlights successful SECC management in a child with ASD and SHCN using Monitored Anesthesia Care (MAC). The report outlines the treatment approach, challenges faced, and outcomes achieved.

Case Operation:

A 5-year-old non-verbal Chinese boy with growth delay, SHCN and ASD visited the University of Hong Kong's dental clinic due to caries and food trapping. Non-pharmacological and pharmacological behavioral management techniques including tell-show-do, audiovisual distraction, social stories and MAC were used for SECC management. Hall technique was attempted, but due to lack of cooperativeness, prophylaxis and ortho separator placement were unsuccessful. Intraoral bitewing radiographs were successfully obtained with the operator holding the film. Considering the severe condition of caries and expected challenges in improving cooperativeness, restorative treatment for SECC was performed under MAC. Long-term preventive measures were implemented using personalized social stories. Stainless steel crowns were placed on all primary molars, two of which underwent pulpotomy. One composite restoration was performed on a primary canine. Personalized social stories were utilized during subsequent review appointments with improved cooperativeness shown. Patient has been reviewed every 3 months for general oral health. Fissure sealant and regular fluoride varnish applications are planned for ongoing preventive care.

Summary:

This case demonstrates the successful use of both pharmacological and non-pharmacological behavioral techniques for management of SECC in children with ASD and SHCN.

Keywords:

Severe early childhood caries, Monitored anesthesia care, Autism spectrum disorder, Special healthcare needs, Social stories

P-035

An Evaluation of Refined Pre-/post-operative Care for Children Receiving Dental Treatment under General Anesthesia

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Objective:

This study aims to evaluate a refined pre-/post-operative care in oral treatment under general anesthesia.

Methods:

This study included 60 children who underwent general anesthesia for oral treatment at the Children's Dental Clinic of Shenzhen Stomatolgy Hospital from 2021 to 2022. After signing the informed consent form for the clinical research, 60 pediatric patients were randomly divided into two groups. One group received routine oral pre-/post-operative care, including preoperative care knowledge education, postoperative oral care guidelines, and routine follow-up. The other group implemented refined oral pre-/post-operative care, including personalized oral health education, psychological support for the patients and their families, close postoperative care 24 hours after treatment, and personalized postoperative rehabilitation guidance. Record and analyze postoperative satisfaction and incidence of adverse events of the patients.

Results:

The postoperative satisfaction rate of the children and their parents in the routine pre-/post-operative care group was 93%, of which 66.7% were very satisfied; In the refined pre-/post-operative care group, it was 100%, of which 90% were very satisfied. No adverse events occurred in both care groups.

Conclusion:

Care plays an important role in oral treatment under general anesthesia, and is an indispensable means in avoiding adverse events during the treatment. Refined oral pre-/post-operative care can effectively improve the satisfaction and acceptance of the patients and the families with oral treatment under general anesthesia.

Keywords:

Oral treatment, General anesthesia, Routine pre-/post-operative care, Refined pre-/post-operative care.

P-036

Barracuda Fish Scale Nano Paste Effect on TGFβ-1, BMP-2, ALP in Rats with Early Childhood Caries

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Introduction:

Early childhood caries (ECC) are caries in children under 71 months of age. The prevalence of caries in children aged 5 years in Indonesia is 90.2%. Calcium ions can modulate pulp cells to secrete several growth factors including TGFβ-1, BMP-2, and ALP in tertiary dentin formation through molecular and cellular events. Barracuda fish scale (Sphyraena barracuda) containing 11.25% calcium and 7.09% phosphate was processed into a nano paste. This study aimed to prove that barracuda fish scale nano paste can stimulate tertiary dentin formation in caries-induced rats by investigating TGFβ-1, BMP-2, and ALP.

Methods:

This study used an experimental randomized post-test-only control group design, 32 rats were made into caries, 16 rats as the treatment group was treated with Barracuda Fish Scale Nano Paste applied topically twice a day for 30 days, and 16 rats received no treatment as the control group. The rats' teeth were extracted after applying Barracuda Fish Scale Nano Paste. The ELISA technique measured TGFβ-1, BMP-2 and ALP levels. Data were analyzed by independent t-test.

Results:

Independent t-test statistical analysis revealed that the TGFβ-1 of the treatment group was not higher ($p>0.05$). In contrast, BMP-2 of the treatment group was 16.13 pg/300 mg higher ($p<0.05$) and ALP of the treatment group was 1.34 pg/300 mg higher ($p<0.05$) than the control group.

Conclusion:

Barracuda fish scale nano paste can stimulate the formation of tertiary dentin in the teeth of rats with ECC.

Keywords:

ECC, Tertiary dentin, TGFβ-1, BMP-2, ALP

P-037

Profiling Desmosome-related Genes That Associated to Dental Anomalies Using Single Cell RNA-sequence

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Objective:

Genetic abnormalities associated with tooth development cause congenital anomalies in teeth, which significantly impacting oral function in pediatric patients. Recently, we screened important genes involved in tooth development using single-cell RNA sequencing (scRNA-seq) and found that desmosome-related genes are highly expressed in teeth. Desmosome-related genes play important roles in ectodermal development and their mutations result in human inherited diseases. However, the comprehensive analysis of desmosome-related genes during tooth development and the relationship with dental anomalies have not been reported. This study aims to identify desmosome-related genes crucial for tooth development and their involvement in congenital dental anomalies.

Methods:

We performed scRNA-seq using mouse molars. The relationship between desmosome-related genes and dental anomalies was examined using the human inherited disease database, Online Mendelian Inheritance in Man (https://www.omim.org). The gene expression changes during tooth development were further analyzed using mouse tissue samples from various organs, developing tooth germ, and a rat-derived dental epithelial cell line SF2 by qRT-PCR.

Results:

scRNA-seq revealed that desmosome-related genes were highly expressed in stratum intermedium (SI) cells. Furthermore, Gene Ontology analysis of top differentially genes indicated that desmosome plays important role in SI cells. Among desmosome-related genes, Dsc3 showed high expression in SI cluster of scRNA-seq datasets, and DSC3 mutation in human will results in enamel hypoplasia. We further analyzed the expression of Dsc3 and found that it is highly expressed in developing molars.

Conclusion:

Our findings suggest that Dsc3 is important for SI cell differentiation and the disturbance of SI development results in enamel hypoplasia.

Keywords:

Tooth development, Dental anomalies, Desmosome, Single-cell RNA sequence

P-038

Analysis of FBS Components to Identify Factor that Promotes Cell Differentiation in Dental Epithelial Cells

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Objective:

Although FBS is an essential component that must be added to the cell culture medium for cell survival and activity, cellular responsiveness could be different depending on the type of FBS. Therefore, analyzing the FBS components may discover factors that can improve cell differentiation induction methods.

Methods:

FBS was ultracentrifuged at 100,000 x g for 18 h at 4°C to divide into 3 layers. Those were designated as the 1st (Top layer), 2nd (middle layer), and 3rd (bottom layer). The rat dental epithelial cell line HAT-7 cells were cultured with Dulbecco's modified Eagle's medium (DMEM) with 1 % antibiotic-antimycotic mixture and 10% each FBS fraction. Cell proliferation was assessed by the cell counting method for 72 h and a BrdU incorporation assay. Cell differentiation was evaluated by immunostaining with anti-ameloblastin antibody. To find and identify the factor to promote cell differentiation, proteomics analysis was performed.

Results:

Cell proliferation was significantly enhanced with FBS-3rd compared to other fractions and control. Whereas Immunostaining indicated that FBS-1st and the same amount of FBS-1st promote ameloblastin expression compared to other fractions. Mass Spectrometry analysis identified and quantified 300 proteins using the Sequest HT analysis engine.

Conclusion:

We found that the cellular responses to each FBS fraction were quite different. Elucidation of this molecular mechanism will lead to the development of novel methods for the promotion of cell differentiation in dental epithelial cells.

Keywords:

Tooth development, FBS, Cell differentiation

P-039

Nkx2-3 Contribute to Salivary Gland Development via Affecting Acinus Formation

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Objective:

Transcription factor Nkx2-3 is known to be involved in development of many organs. We previously reported that Nkx2-3 highly expressed in developing tooth and salivary gland and adjusted the tooth cusp formation. However, the role of Nkx2-3 in the salivary gland is still unknown. In this study, we aim to investigate the role of Nkx2-3 during salivary gland acinus formation.

Methods:

RT-qPCR and immunostaining were performed using submandibular glands and sublingual glands from E12.5, E13.5, E14.5, E15.5, E16.5 and P0 mice's embryos. E14 sublingual glands was cultured with or without siRNA Nkx2-3 in the organ culture system, then the size of epithelium was measured. Primary salivary gland epithelial cells were dissected and cultured in keratinocyte serum-free medium on matrigel coating dish, and then RT-qPCR was performed. Morphological differences between wild-type and Nkx2-3 knockout mice salivary glands were observed by HE staining.

Results:

Nkx2-3 was highly expressed in budding and branching stages in developing salivary gland and localized in the epithelium dilated region of the terminal branch of salivary gland. In ex vivo organ culture system, loss of Nkx2-3 affected the growth range of salivary gland and bud size. Nkx2-3 knockout mice show that the Nkx2-3 deficient salivary glands acini and terminal ducts were dilated in 8 weeks mice. We also found that siRNA Nkx2-3 increased Egfr expression while Fgfr2b expression was suppressed in primary epithelial cell culture of salivary gland.

Conclusion:

In this study, we revealed that Nkx2-3 regulates the acinus formation in epithelium of the salivary gland by using ex vivo and in vivo assay.

Keywords:

Nkx2-3, Development, Salivary gland, Epithelium, Organ culture

P-040

The Involvement of NMDA-associated Glutamate Signaling in Pg-LPS-induced Neurotoxicity in Vitro

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Objective:

The present study aimed to investigate the underlying mechanism of NMDA-associated glutamate signaling in *Porphyromonas gingivalis* lipopolysaccharide (Pg-LPS)-induced neurotoxicity.

Methods:

Primary astrocytes and neurons were isolated from newborn mouse hippocampus. Glutamate release concentration from astrocytes after exposure to Pg-LPS were measured by glutamate detection kits. The conditioned medium from Pg-LPS-infected astrocytes was obtained and cocultured with neurons. Medium of neurons without treatment was used as negative control. Survival rate of neurons was detected by CCK-8 kits. The expressions of NMDA-associated glutamate signaling pathway including NR2B, NR2A, NR1 and ERK phosphorylation in neurons were detected by western blots. Data were analyzed using ANOVA followed by Tukey's post hoc multiple comparison test, and $P<0.05$ was considered as statistically significant.

Results:

Pg-LPS significantly increased glutamate concentration in astrocytes, and inhibited cell survival rate of neurons in a dose-dependent way ($P < 0.05$). Pg-LPS at concentration of 0.1 and 1.0 μg/mL did not significantly affect the cell survival rate of neurons. However, 1.0 μg/mL Pg-LPS-induced conditioned medium from astrocytes significantly inhibited the cell survival rate of neurons, and upregulated the expression of NR2B, NR2A, NR1, p/t-ERK, which could be reversed by NMDA inhibitor MK801 ($P < 0.05$).

Conclusion:

Our results indicate that Pg-LPS infection could promote glutamate release from astrocytes and induce neurotoxicity. The underlying mechanism probably involve the NMDA-associated glutamate signaling.

Keywords:

Porphyromonas gingivalis lipopolysaccharide, Glutamate, Neurotoxicity

P-041

Effects of Phenytoin on the Gene Expression and Store-operated Ca^{2+} Entry in Gingival Fibroblast

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Objective:

Long-term administration of phenytoin (PHT) is known to cause drug-induced gingival hyperplasia (DIGO). We have shown that PHT increases intracellular Ca^{2+} concentration ($[Ca^{2+}]i$) of human gingival fibroblasts (HGF) by suppressing the Na^{+}-Ca^{2+} exchanger. To clarify the relationship between DIGO and Ca^{2+} response in HGFs, we investigated the effects of PHT on changes in gene expression in the presence or absence of Synta66, an inhibitor of store-operated Ca^{2+} entry.

Methods:

Total RNA was extracted from HGF cultured in the presence or absence of PHT and/or Synta66 for 24 hours, and the changes in mRNA expression were analyzed using a next-generation sequencer (NGS).

Results:

PHT caused an increase in the gene expression of extracellular matrix including collagen, whereas it caused a decrease in the expression of collagen-degrading enzymes, including metallopeptidases, and genes involved in cell proliferation. Sinta66 showed inhibitory effects on the PHT-induced changes in gene expressions.

Conclusion:

Our results suggest that the mechanism of PHT-induced DIGO is primarily the accumulation of connective tissue due to increased synthesis and decreased degradation of collagens. The inhibitory effect of Sinta66 suggests the involvement of $[Ca^{2+}]i$ in these changes in gene expression. In the next step, quantitative analysis of these gene expressions and Ca^{2+} responses will be carried out.

Keywords:

Drug-induced gingival hyperplasia, Phenytoin, Intracellular Ca^{2+} concentration

P-042

Trace Elements Distribution in Dentine of Primary Tooth: Does It Correspond to Human Early Life?

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Objective:

Trace elements, such as Lead (Pb), Strontium (Sr), Fluoride (F), Barium (Ba), Manganese (Mn), Magnesium (Mg) and Zinc (Zn) can be detected within dental hard tissue, both enamel and dentine. They may reveal important information related to dietary changes, migration and environmental exposures. Primary teeth, which develop in the prenatal and postnatal period, may be good candidates for recording early life events. This study aimed to explore the distribution pattern of Mg, Sr, Ba, Mn, Pb, and Zn in primary teeth dentine.

Methods:

Eighteen teeth extracted from children attending the Child Integration Clinic, Teaching Dental Hospital of Universitas Indonesia were collected and analysed. A combination of micro-sampling techniques using Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry (LA-ICP-MS) and age assignment by dental histology were used to analyse Mg, Sr, Ba, Mn, Pb, and Zn distribution in the dentine of deciduous teeth across age-points.

Results:

Using LA-ICP-MS analysis, Mg, Sr, Ba, Mn, Pb, and Zn were distributed differently within primary tooth dentine. Pb and Zn showed a remarkable increase close to the dental pulp, while Mg and Sr tend to be constant. According to the histological analysis, the distribution pattern between elements differed significantly during the prenatal and postnatal periods.

Conclusion:

The differences in distribution patterns among elements observed in dentine may correspond to the history of a child's exposure in early life. Therefore, understanding the mechanism of elements incorporated with the dentine crystal apatites is necessary.

Keywords:

Dentine, Primary tooth, Trace elements, Biomarker, Early life

P-043

Clinical Diagnosis and Treatment of Prolapse Dislocation of Young Permanent Teeth: a Case Report

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Introduction:

This paper reports a treatment of maxillary permanent central incisor dislocation. The use of peptide chain fixation after replantation and the standardized treatment according to the 2012 edition of the International Guidelines for the Treatment of Dental Trauma has achieved a good result.

Case Operation:

Although the extracted teeth were drying preservation before seeking medical attention, they arrived at the local hospital within 20 minutes and were returned to the alveolar fossa before referral to our hospital. Our hospital received the patient 5 hours after the trauma. After an accurate reduction of 11 teeth and 21 teeth, X-ray films were taken to confirm the accuracy of reduction, peptide chains were fixed. Anti-inflammatory drugs were self administered for 1 week, mouthwash was used for 1-2 weeks, and recommended to receive tetanus vaccine. Root canal treatment for 11 teeth and 21 teeth after 1 week. The titanium plate was removed 3 weeks later. Follow ups were made after 1 month, 3 months, 6 months, and 5 years.

Summary:

Standardized diagnosis and treatment still achieve good prognosis in these cases of prolapse dislocation, even if there is a short period of improper treatment in the early stage (the patient drying preservation the extracted tooth after extraction). Standardized operation plays an important role in the prognosis of the affected tooth. The timely and correct treatment methods of local hospitals have bought valuable time for the affected teeth, indicating that the popularization of emergency treatment after dental trauma is crucial.

Keywords:

Dental trauma, Prolapsed dislocation permanent teeth, Peptide chain, Standardized treatment

P-044

Orthodontic Treatment for Failing Replanted Maxillary Central Incisors: a Case Report

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Introduction:

Traumatic dental injuries of permanent teeth especially in maxillary incisors occur frequently in children and young adults resulting in many subsequent consequences. The most common complication of replanted teeth is external root resorption, and 87% of the replacement root resorption comes from tooth avulsion. In addition, 4 to 24% of traumatic teeth will have root canal calcification. Of these cases with root canal calcification, only 7 to 27% will have clinical symptoms such as pulp necrosis and apical lesions. Most of the cases were free of clinical symptoms. In regard to the management of post-extraction space after failing replanted maxillary incisors, space regaining for a fixed or removable prosthesis is routinely considered. However, space closure by mesial movement of the lateral incisor or canine, followed by transformation of the lateral incisor or canine into the central incisor may be another better choice.

Case Operation:

We presented a 12-year-old girl who received orthodontic treatment for failing replanted maxillary central incisors. Because tooth 13 was a mesially transposed canine, we decided to extract tooth 11 and replace it with tooth 13. The extraction space of tooth 11 and 21 was replaced by mesial movement of tooth 13 and 22. Once the transposed teeth were successfully moved into their transposed positions, concomitant reshaping of the lateral incisal and canine into central incisors were completed. The ideal occlusion and esthetics were achieved. After a 6-month follow-up, the occlusion mildly relapsed only on the left side, and no other clinical complications were noted.

Summary:

After follow-up, the occlusion remains stable, and no other clinical complications were noted.

Keywords:

External root resorption, Avulsion

P-045

Multipurpose Flexible Splint for Immature Permanent Teeth with Lateral Luxation and Malposition: a Case Report

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Introduction:

Lateral luxation is a type of tooth trauma in permanent teeth that can lead to necrosis pulp, ankylosis, apical periodontitis, and root resorption. If left untreated, it will result in infections and further end with tooth loss. This case reported the use of a flexible splint for immature permanent teeth.

Case Operation:

A 7-year-old female patient came to Universitas Airlangga Dental Hospital. The patient's upper front teeth were mobile and shifted due to a fall while playing at school 5 days earlier. Extraoral examination revealed crusts on the labial vermillion and excoriation of the nasal area. Intraoral examination found trauma of immature teeth #11 and #12 leading to teeth shifting and mobility. Repositioning and splinting were performed for 4 weeks followed by periodic evaluation at 1, 2, 4, and 8 weeks. Favorable result of repositioning and splinting of impacted teeth using flexible splint was shown by the absence of teeth mobility, good pulp vitality, and periodontal tissue healing.

Summary:

A multipurpose flexible splint is the appropriate tool for immature permanent teeth with lateral luxation and malposition. Long-term periodic evaluation is needed to eliminate ankylosis and changes in tooth vitality, and prevent root resorption due to the force of orthodontic splinting.

Keywords:

Child Well-Being, Fixation, Injuries, Splints, Tooth luxation

P-046

Fully Automated Teeth Detection from Mixed Dentition Panoramic Radiographs Using Deep Learning Object Detection Model

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Objective:

Early diagnosis and appropriate treatment of tooth number abnormalities, such as congenital missing or supernumerary teeth, are crucial. However, interpreting panoramic radiographs during mixed dentition is challenging due to unerupted permanent teeth and individual variations. This study aimed to develop an algorithm using an object detection model, specifically You Only Look Once (YOLO), to identify tooth types in the mixed dentition stage.

Methods:

The study utilized a dataset of 200 panoramic radiographs (including 100 with supernumerary teeth) of patients aged 6 years 0 months to 9 years 6 months. The images were divided into training (140 images) and test (60 images) datasets. Teeth were annotated using LabelImg, and YOLOv8m was trained using pre-trained weights. Average Precision (AP) for each class and mean AP (mAP) were used as evaluation metrics.

Results:

The highest APs were observed for second (0.993) and first (0.992) premolars, while the lowest were for supernumerary teeth (0.647) and deciduous incisors (0.809). The mAP was 0.907.

Conclusion:

The high AP values for premolars may be attributed to the large number of unerupted premolars and their relatively simple morphology in the targeted mixed dentition stage. The results suggest that object detection models can effectively identify tooth types in mixed dentition. Future research will focus on increasing the dataset and developing a more accurate algorithm.

Keywords:

Deep learning, Object detection, Panoramic radiographs, Mixed dentition stage, Supernumerary teeth

P-047

Three-Year Outcomes of Iroot Bp Plus Pulpotomy in Primary Molars: a Retrospective Study

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Objective:

To observe the three-year curative effect of iroot BP plus pulpotomy of primary molars and analyze the influencing factors through the electronic medical record database.

Methods:

In the electronic medical record database of Shenzhen Children's Hospital, the treatment records of iroot BP plus pulpotomy for deep caries of primary molars in the Department of Stomatology from January to December 2018 were retrieved. The patients aged 7 years and below, with a follow-up period of not less than 3 years and complete medical records were collected, and the primary molars following pulpotomy with iroot BP plus for deep caries of the patients were selected as the research objects. According to AAPD clinical and imaging evaluation criteria, the treatment success rate was calculated and the influencing factors were analyzed.

Results:

Fifty-eight teeth were finally included. The 3-year success rate was 87.93%(51/58). There were no significant difference in the success rate among different gender, ages, tooth position, dentition, hemostasis time, and crown restoration method (p>0.05).

Conclusion:

Iroot BP plus has good therapeutic effect in the 3-year follow-up period of pulpotomy of primary molars.

Keywords:

Deciduous molars, Pulpotomy, Bioceramics

P-048

Clinical Performance of Three Treatment Modalities for Molar Incisor Hypomineralisation (MIH) after 3-Year Follow-Up

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Objective:

To investigate the mean survival time and cumulative survival rate of Silver-modified Atraumatic Restorative Technique (SMART) with or without papain-based gel on MIH teeth after 38 months follow up, to analyze the influence of patient- and tooth-related factors on the survival.

Methods:

Between 2019 and 2020, MIH affected molars (n=63) in 38 participants were randomized into treatment groups of ART with high viscosity glass ionomer cement (HVGIC) and SMART with and without papain-based gel using atraumatic restorative treatment approach. Restorations were evaluated using ART index. Clinical performance (restoration survival) was calculated using Kaplan–Meier survival analysis and comparisons between groups were analyzed using the log-rank test. Cox regression analysis was used to test the associations between patient- and tooth-related.

Results:

The mean survival time and 95% CI were 33.4 (27.0 – 39.9) months for the ART group, 34.4 (27.4 – 41.5) months for the SMART without papain-based gel group and 39.6 (36.1 – 43.1) months for the SMART with papain-based gel group with no significant difference between the mean survival time of the groups (p>0.05). The cumulative survival rate after 36 months was highest for SMART with papain-based gel (87.1%), followed by SMART without papain-based gel (73.3%) and lastly ART had the lowest (55.6%). There is no association between patient- and tooth-related factors on the survival of restoration (p>0.05).

Conclusion:

Among the three treatment modalities, SMART with papain-based gel showed higher clinical performance with cumulative survival rate of 87.1% after 36 months and mean survival time of 39.6 months.

Keywords:

Silver diamine fluoride, Molar incisor hypomineralisation, Glass ionomer cement, Papain-based gel, Survival

P-049

Assessing the Accuracy of a Large Language Model in Responding to Dental Trauma Queries

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Objective:

The study evaluated the accuracy of responses provided by the state-of-the-art Large Language Model (LLM) application, ChatGPT-4, to questions related to dental trauma.

Methods:

A total of 100 trauma-related questions were posed to ChatGPT-4 based on the International Association of Dental Traumatology guidelines. These 100 questions were divided into four categories: 25 dichotomous (yes/no) questions, 25 short answer questions, 25 open-ended questions, and 25 clinical vignette questions. The responses were evaluated by three pediatric dental specialists as "completely acceptable," "generally acceptable," and "not acceptable." Statistical analyses were conducted to evaluate the accuracy of the responses.

Results:

The analysis of responses from ChatGPT-4 indicated an overall accuracy rate of 79%. The highest accuracy rate was observed in dichotomous questions, with an 85% accuracy rate. The model demonstrated less accuracy in clinical vignette questions, with an accuracy rate of 50%. For short answer and open-ended questions, the LLM model provided accuracy rates between 75% and 84%.

Conclusion:

ChatGPT-4 generated accurate information based on dental guideline documents as judged by pediatric dental specialists. However, there were limitations in clinical case questions, providing less informative answers. Further research and model development are needed to improve accuracy in this area.

Keywords:

Dental trauma, Large language model, Artificial intelligence, ChatGPT

P-050

Implications of Electrostimulation in Relation to Masticatory Training in Individuals with Down Syndrome

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Objective:

The literature currently lacks evidence regarding this investigation, but the effects of electrostimulation may be beneficial in the rehabilitation of neuromotor cases. For this reason, using surface electromyography (sEMG) to analyze the electrical activity of the anterior temporal and masseter muscles in children with and without down syndrome is required.

Methods:

We conducted a systematic review of randomized controlled trials (RCTs) about effectiveness outcomes balance, muscle strength and masticatory muscles using electrostimulation in the Down Syndrome population. The search was performed between April 2024 and May 2024 using the following databases, Science Direct, Wiley Online Library, dan Europe PMC. The review was performed according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

Results:

The initial search yielded 161 articles. After reading the studies in full, 6 articles were chosen based on the inclusion criteria. The findings indicate that combining electrostimulation with masticatory training can lead to significant improvements in the orofacial musculature as well as the functions of chewing, breathing, and swallowing in individuals with Down syndrome. Results show new possibilities for intervention, associating Functional Electrical Stimulation with conventional orofacial myofunctional therapies.

Conclusion:

Very early motor rehabilitation may contribute to improved development of gross motor movement in children with Down syndrome. Electrostimulation, or electromechanical therapy can improve masticatory muscle movement in children with Down syndrome.

Keywords:

Down syndrome, Electrical, Stimulation, Mastication

P-051

Treatment and Follow-ups of a 3-Year-Old Child with Severe Early Childhood Caries: a Case Report

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Introduction:

Caries is one of the most common chronic diseases affecting preschool children worldwide. At present, pediatric dentists are devoting themselves to protect preschool children from toothache, swelling and problems caused by early childhood caries (ECC).

Case Operation:

A 3-year-old boy with the chief complaint of 2 decayed molar teeth came for help because of his noncooperative behavior in a dental clinic. Intraoral examination revealed carious 65 and 85, filled 74 and 75 and fused 82 and 83. The radiographs proved of deep dentinal carious lesions in 65 and 85. Parental education and anticipatory guidance were rapidly provided for the family. With the absence of toothache and swelling, indirect pulp capping and preformed metal crown (PMC) were planned for 65 and 85. Pit and fissure sealing (PFS) was proposed for 54, 55, 64, 82 and 83 and a future panoramic radiography was part of the plan. The parent refused PMC on 85 after the perfect treatment of 65 for postoperative pain. The high-risk patient was later in surveillance with careful monitoring of caries progression and prevention programs such as frequent dental check-ups and fluoride varnish. Immediate intervention was indicated on early caries of 74, 54 and 64 in follow-up visits during one year. No secondary caries was found. In a latest deal visit, PFS was operated on erupted 26, 36 and 46.

Summary:

Preschool children with severe ECC are at greater risk for subsequent caries development, especially without PMC therapy. Active surveillance must be undertaken for the prevention of caries.

Keywords:

Early childhood caries, Preformed metal crown, Caries development

P-052

Filipino Mothers' Knowledge, Attitude, and Practice Regarding Children's Diet in Relation to Oral Health

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Objective:

In the latest national oral health survey in the Philippines, 97.1% of six-year-old children, and 78.4% of 12-year-old children suffer from dental caries. It has been established that sugar consumption plays a major role in the increasing prevalence of caries. To expound on this, a quantitative analytic descriptive study was conducted to determine the parental knowledge, attitude, and practice regarding their children's diet.

Methods:

A total of 399 Filipino mothers providing direct care to a child aged 1-12, voluntarily participated in the study. Following the approval from the ethics committee, a survey was conducted using a validated 36-item questionnaire. The data collected were statistically analyzed.

Results:

Two hundred and sixty nine (67.4) mothers were aware of the presence of tooth decay in their child. Although there was a high level of knowledge of participants about the role of sugars in the formation of dental caries, only 156 mothers (39.1%) knew the bad effects of improper bottle-feeding on the child's teeth. It was also noted that: 1) There was a delay in the first dental visit of children; 2) There was the early introduction and frequent intake of sodas and artificial fruit juices, as well as sugar-containing foods, and 3) most children have no regular dental visits.

Conclusion:

Preventive strategies must take into consideration the introduction of proper dietary habits and practices to the parents. This must be instituted early on, ideally during the perinatal period, when parental motivation is expected to be high.

Keywords:

Dietary habits, Child's diet, Oral health, Dental caries

P-053

Oral Health of Paediatric Cancer Patients and Impact of Dental Education on their Caregivers

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Objective:

The objectives of this study are to determine the oral health status of paediatric cancer patients undergoing treatment and to compare the level of knowledge, attitude, and practice (KAP) of caregivers towards oral health of the paediatric cancer patients before and after receiving oral health care education.

Methods:

A pre-post non-controlled study was carried out at Hospital Universiti Sains Malaysia, including paediatric cancer patients aged 4 to 17 years and their caregivers. Data were gathered from the clinical examinations of the paediatric cancer patients and by administering an oral health knowledge, attitude, and practice (KAP) questionnaire to the caregivers before and after a three-week interval in which they received oral health care education.

Results:

A total of 19 paediatric cancer patients and their caregivers were recruited for this study. The caries experience of the paediatric cancer patients was measured, with mean dmft score of 3.05 (SD = 3.47) and mean DMFT score of 2.53 (SD = 4.07). The mean plaque score was 1.03 (SD = 0.32), and the mean modified gingival score was 0.44 (SD = 0.30). Repeated measures MANOVA indicated a statistically significant improvement in caregivers' oral health knowledge and attitudes, however, no significant change was observed in the oral health practices of the caregivers.

Conclusion:

While caregivers showed improvement in oral health knowledge and attitude following oral health care education, there was a gap in translating these changes into practice. Strengthening oral health awareness among caregivers is crucial for enhancing oral health of paediatric cancer patients.

Keywords:

Cancer, Children, Oral health, Awareness, Attitude

P-054

The Parenting Stress in Parents of Cleft Lip and Palate Children

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Objective:

Parenting stress is a form of excessive parental anxiety in caring for and raising their children. This condition can be influenced by the age, the level of education, and occupation. Children with cleft lip and palate (CLP) have physical abnormalities and various oral cavity problems, which are factors that cause parenting stress in the early years of raising children.

Methods:

This research used analytical methods with a total sample of 40 subjects, and data was collected using Abidin's Parenting Stress Index Short Form (PSI-SF) questionnaire and Pertiwi's Stress Scale Development Questionnaire Relating to Acceptance of Mothers Who Have Children with Special Needs. The research period was from February to May 2022.

Results:

The prevalence of CLP children with subject characteristics is based on the child's age; the majority were in the 4-7 year age group (65%), with the majority being male (55%). The characteristics of the parents of the patients in this research subject were that the majority were aged between 33-39 years (20%), with the highest level of education being high school or equivalent (50%), and the majority of their occupation was housewife (72.50%). The highest level of parenting stress category was moderate (67.5%), followed by low-stress parenting (30%) and high-stress parenting (2.5%).

Conclusion:

The level of parenting stress among parents of children with cleft lip and palate in YPPCBL Bandung city is in the medium category with a moderate level of parental acceptance.

Keywords:

Parenting stress, Cleft lip and palate, Children

P-055

Effects of Mouth Breathing with the Severity of Caries in Children

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Objective:

To determine the effect of mouth breathing habits on the severity of caries in children.

Methods:

Data were gathered by searching and analyzing literature from the electronic databases Pubmed, Wiley, and Science Direct within the 2017 to 2022 publication period. Using the following keywords to conduct a systematic search of the data: mouth breathing; caries, children.

Results:

Saliva is crucial for oral health in regulating the oral microflora because of its mechanical cleaning and antimicrobial properties. In children who are mouth breathers, the lack of mechanical cleansing of saliva leads to an accumulation of food debris and dental plaque, which promotes an aciduric and acidogenic oral microflora that leads to the development of caries.

Conclusion:

Mouth breathing as a pathological condition in children has drawn the attention of medical professionals. The mouth breathing has an impact on increasing the severity of caries, indicating a compensatory mechanism by salivary dryness and deficient salivary immunoglobulin. The oral health status can be improved through periodic dental examinations, and the provision of mouth breathing prevention techniques.

Keywords:

Mouth breathing, Caries, Children

P-056

Premedication Oral Midazolam Prior to Paediatric Dental General Anaesthesia: the Future Conqueror of Dental Anxiety

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Objective:

To assess the efficacy of premedication oral midazolam (OM) prior dental treatment under general anaesthesia (DGA) on reducing children's dental anxiety.

Methods:

A total of 43 patients aged 3 to 11 years that were scheduled for DGA had participated in this interventional study. They were randomly assigned to Group A (premedication OM) and Group B (no premedication). The premedication OM of 0.5mg/kg bodyweight, was given 30 minutes prior transferred off to operation theatre. Dental anxiety was assessed using Venham Anxiety and Behaviour Rating Scale (VBRS), with score 0 and 1 being cooperative, and score 2 and 3 as uncooperative. The assessment was done at pre-DGA, and post-DGA at week 1, 3 months and 6 months.

Results:

During pre-DGA, Group A and B had median score of 3 (IQR1). At week 1 post-DGA, Group A score was 2 (IQR 2), while Group B remains as score 3 (IQR 1). At both 3 months and 6 months post-DGA, Group A had median score of 1 (IQR2; IQR1), while Group B remained in score 3 (IQR0). Group A showed reduction in dental anxiety pre- and post-DGA compared to those in Group B. There was a significant association between premedication OM and reduction in dental anxiety using two-tailed test (r_p = 0.673; $p<0.05$).

Conclusion:

Premedication OM at 0.5mg/kg dosage showed amnestic effects by reducing dental anxiety post-DGA in preco-operative children. Future study with larger sample size may assist in exploring more relevant findings.

Keywords:

Midazolam, Premedication, Paediatric, General anaesthesia, Dental anxiety

P-057

Potential of Salivary Biomarkers in Attention Deficit Hyperactivity Disorder (ADHD) Children: Systematic Review

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Attention Deficit Hyperactivity Disorder (ADHD), commonly observed in childhood, entails symptoms of inattention, hyperactivity, and impulsivity. Diagnosis currently depends on behavioral assessments according to DSM-5. The pursuit of objective biomarkers in ADHD aims to enhance early detection and intervention. Saliva, with its non-invasive collection and low risk, is promising for bio-marker analysis.

Objective:

This systematic review aimed to thoroughly assess the existing literature concerning the identification of salivary biomarkers for ADHD.

Methods:

A comprehensive exploration of various electronic databases (Scopus, PubMed, Web of Science, and Google Scholar) following PRISMA guidelines. Eligible studies were critically appraised for their methodological quality, participant characteristics, biomarker analysis techniques, and key findings.

Results:

A comprehensive review was conducted on 16 studies investigating salivary biomarkers in ADHD (n = 2,376 children with ADHD and 3,566 healthy children). Nine studies revealed lower basal cortisol levels in children with ADHD compared to the healthy group. Interleukin-6 levels were shown to be significantly higher in seven trials involving ADHD cases. Regardless, TNF-α levels were consistently lower in this group when compared to children in the healthy group. Additionally, several studies reported significantly higher levels of salivary alpha-amylase, immunoglobulins (A, E, G, M), and levels of salivary copper, zinc, and manganese in ADHD children compared to healthy group. However, conducting a meta-analysis was not feasible due to limited, incomplete, and heterogeneous data.

Conclusion:

Salivary biomarkers offer potential for early ADHD detection and monitoring, supported by findings from numerous studies. Hence, further research is imperative to explore the specific capabilities of each biomarker.

Keywords:

ADHD, Salivary biomarker, Children

P-058

Golden Period Management of Avulsed Young Permanent Maxillary Incisors: a Case Report

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Introduction:

Tooth avulsion, the complete displacement of a tooth from its alveolar socket, is a serious traumatic dental injury. Appropriate emergency management and a treatment plan are important for a good prognosis. Replantation of the avulsed tooth is the preferred treatment, aiming to restore function and aesthetic. Factors influencing healing after replantation are storage medium, periodontal tissue damage, extra-alveolar period and intact alveolar socket.

Case Operation:

An 11-year-old male patient presented with two avulsed maxillary central incisors following a fall during a sports activity. The teeth were stored in a container with saliva by the patient's guardian before arriving at the clinic within 30 minutes of the incident. Clinical and radiographic examinations confirmed the avulsion of tooth #11 and #21, followed by the replantation procedure under local anesthesia. Bracket and wire splint were applied for stabilization, and systemic antibiotics were administered to prevent infection. At one-week follow up, there was no complaint from the patient regarding the pain. Radiographic examinations showed no evidence of root resorption. The patient was instructed for regular follow-up appointments to monitor the healing process and identify any potential complications.

Summary:

The importance of immediate treatment and the right procedure of avulsed tooth can affect the success of the treatment. Replantation is the treatment of choice for preserving avulsion of tooth at the earliest.

Keywords:

Avulsion, Dental trauma, Golden period, Tooth replantation

P-059

Sports-Related Dental Injuries in the Pediatric Patient: a Retrospective Study

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Objective:

The purpose of this retrospective study is to analyze the distributions, characteristics, and initial management of dental trauma due to sports in pediatric patients.

Methods:

Pediatric and adolescent patients aged 3 to 18 years old who visited Chosun University Dental Hospital from January 2018 to January 2024 were examined. For statistical analysis, age and gender distribution, cause, date, time and place of trauma and stopovers before getting first aid were collected based on the electronic medical records.

Results:

Over the six-year period, there were 309 sports-related injuries, representing 13% of all trauma cases. The most common related sport was cycling, accounting for 21% of the total. The most common sports for each age group (3-6, 7-12, 13-15, 16-18 years old) were kickboard, cycling, and contact ball sports, respectively. Tooth trauma was the most common type of trauma and among them, uncomplicated fractures and subluxations in the maxillary anterior incisors were the most common. The average number of traumatized teeth was 1.9, most commonly in the anterior maxilla. There was significant difference between the presence of supervisors and the time to initial treatment.

Conclusion:

Sports-related dental trauma is most commonly observed in boys, elementary school age, cycling group, and the maxillary anterior incisors. Proper supervision during sports activities can help reduce the time to treatment. There is a need for awareness of possibletrauma and protective equipment for children participating in sports, their caregivers, and supervisors of sports activities.

Keywords:

Dental injury, Sport injury, Athletic injury, Mouth guards

P-060

Knowledge among Dentists in Guangxi Regarding Treatment of Traumatized Immature Permanent Teeth and Related Factors

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[3]Department of Stomatology, the First People's Hospital of Yulin, the Sixth Affiliated Hospital of Guangxi Medical University, Guangxi, China.

Objective:

Dental practice is based upon dentists' cognition and the foundation of knowledge. Being attained through education and perception, knowledge is essential to clinical practice. Cross-sectional studies uniformly recognized a trend that the treatment of Traumatic Dental Injuries (TDIs) is of sub-optimal quality worldwide, is lack of knowledge a problem? Or some relevant factors of dentists have significant impact on getting TDIs' treatment knowledge? Our purpose was to measure dentists' knowledge of TDIs treatment, and investigate whether some relevant factors have indeed affected their knowledge gain of TDIs treatment.

Methods:

An online-based cross-sectional study design was conducted among 1027 dentists in Guangxi Province using a cluster sampling technique. Descriptive and inferential statistics, including frequency, percentage, t test, ANOVA test and linear analysis, were conducted. The results were interpreted using tables and graphs.

Results:

Studies which had measured dentists' knowledge of TDIs treatment that was valuable, reliable, and had practical implications which could be implemented. A total of 1027 questionnaire receipts from 14 main districts of Guangxi were accepted for measuring the knowledge of local dentists and potential influencing factors using 40 questions on 20 TDIs treatment crucial points.

Conclusion:

Findings from the study revealed that the knowledge among dentists in Guangxi regarding the treatment of traumatized immature permanent teeth is moderate. The findings further indicated that a significant relationship was found between the factors such as gender, education level, professional title, and workplace of dentists and getting higher score in questionnaire ($P<0.001$).

Keywords:

Immature permanent teeth, Dental trauma injuries, Emergency management, Knowledge

P-061

The Application of VR Technology in Children's Stomatology

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Introduction:

Dental caries, or tooth decay, is common in children and requires comprehensive treatment. The difficulty in biting suggests the severity of the caries. Dental anxiety is a challenge in pediatric dentistry. Distraction is a commonly used non-pharmacological pain management technique employed by pediatric dentists to control pain and anxiety. Novel techniques, such as virtual reality (VR) audiovisual systems, utilize audio and video stimulation to divert the patient's attention through exposure to three-dimensional videos. VR technology helps distract and reduce anxiety. By using VR, the dental team aimed to create a more relaxed environment for successful treatment. The objective of this case study was to evaluate the effectiveness of virtual reality glasses as a distraction aid to reduce anxiety in a 7-year-old girl undergoing a dental procedure at a pediatric dentistry office.

Case Operation:

In this case, a 7-year-old girl presented with multiple dental caries and complained of weak biting. She also experienced dental anxiety, which was managed using virtual reality technology.

Summary:

Virtual reality has significant potential in the field of pediatric dentistry, particularly in the treatment of dental treatment phobia. This technology has shown promising results and offers a high potential for complex treatments in the surgical setting, ensuring predictable and safe outcomes. However, future research should focus on establishing technological standards with high-quality data and developing clinically approved applications.

Keywords:

Child behaviour, Virtual reality, Dental anxiety, Paediatric dentistry

P-062

Validation of Dental Anxiety Coping Module: Dental Tour and Expressive Art Therapy

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Dental anxiety poses significant challenges in paediatric dentistry, impacting behavior management. This study proposes a novel approach, the Dental Anxiety Coping Module (DACM), which combines Dental Tour (DT) for environmental familiarization and Expressive Art Therapy (EAT) for emotional expression.

Objective:

This study aims to validate DACM and assess its acceptability among paediatric dental patients with dental anxiety.

Methods:

Employing a qualitative research design with a phenomenological approach, we recruited children aged 7 to 11 from the Paediatric Dental Clinic, Universiti Malaya. Participant recruitment was performed using the Malaysian Abeer Children Dental Anxiety Scale (MY-ACDAS). Content validation was conducted by an expert committee using the content validity index (CVI). Semi-structured interviews were employed to explore participants' perceptions of DACM.

Results:

Experts exhibited substantial agreement on DT, yielding a CVI of 0.8 and an overall scale-level content validity index (S-CVI/Ave) of 0.95. Similarly, for interview items, experts demonstrated unanimous agreement on 12 out of 13 items, resulting in an I-CVI of 0.98. Saturation was reached with 12 participants. Feedback from paediatric dental patients indicated positive acceptance of EAT and DT within DACM.

Conclusion:

Tailored interventions are essential in addressing dental anxiety in children. Integrating DT and EAT within DACM shows promise in enhancing paediatric dental care and alleviating dental anxiety.

Keywords:

Dental anxiety, Dental Tour, Expressive Art Therapy, Dental Anxiety Coping Module, Qualitative study

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P-063

Innovative Approaches to Assess Dental Anxiety in Children: MY-ACDAS and HRV Biofeedback

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Objective:

Dental anxiety presents a significant challenge in paediatric dentistry, impacting children's oral health outcomes and overall well-being. Traditional self-reported scales are commonly used to assess dental anxiety; however, physiological measures such as Heart Rate Variability (HRV) biofeedback offer a novel approach with potential advantages. This study aimed to assess the association of HRV biofeedback with a validated self-reported scale, the Malaysian-Abeer Children Dental Anxiety Scale (MY-ACDAS), in assessing dental anxiety in children age 6 to 9 years.

Methods:

Thirty five participants recorded their baseline HRV, followed by the administration of the MY-ACDAS questionnaires. A relaxation period was implemented between each protocol step to minimise discomfort. The final HRV reading was recorded with visual stimuli related to the dental environment to evoke dental anxiety. The correlation between HRV readings and MY-ACDAS scores was then analysed to determine the degree of correspondence between the 2 measures.

Results:

The study found a significant association between HRV readings and MY-ACDAS scores, indicating that HRV biofeedback is a potential tool for assessing dental anxiety in children. Specifically, children with MY-ACDAS scores > 25 exhibited increased HRV indices corresponding to heightened activation of the sympathetic branch of the autonomic nervous system.

Conclusion:

The association of HRV biofeedback with the MY-ACDAS provides a comprehensive assessment of dental anxiety in children aged 6 to 9. This approach can improve dental anxiety assessments, leading to personalised interventions for better oral health care for paediatric patients

Keywords:

Dental Anxiety, Heart Rate Variability (HRV), MY-ACDAS, HRV Biofeedback

P-064

Stress Relieving Effects of Topical Anesthetic with Aroma in Pediatric Dentistry

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Objective:

In clinical pediatric dentistry, it is essential to reduce patients' pain, anxiety, and stress in order to promote efficient dental procedures.Topical anesthesia is commonly applied to reduce pain during clamp placement for rubber dam isolation in Pediatric Dentistry. In addition, aroma-therapy is known to have a stress-reducing effect. This study investigated the effects of aromas selected by the patients on stress and pain relief during dental procedures.

Methods:

Fifteen children, aged 7 to 12, who underwent fissure sealant under rubber dam isolation of the bilateral same teeth in the same jaw participated in this study. They were divided into two groups; a topical anesthesia with aroma preceding group and non-aroma preceding group, and each group was tested on different day. Four different fragrances were offered to the aroma group to use as topical anesthetic. This study was approved from the Ethics Committee of Tsurumi University School of Dentistry (#1820).

Results:

Pulse rate, salivary α-amylase, and Wong-Baker FACES Pain Rating Scale were measured to assess stress, while State–Trait Anxiety Inventory (STAI) for Children was used to assess anxiety. Topical anesthesia with aroma group resulted in a significantly smaller increase in pulse rate immediately before clamp placement and that during clamp placement operation (Paired t-test, $p<0.05$) compared to the group without aroma. The other parameters revealed no significant difference.

Conclusion:

It was suggested that the use of topical anesthetic with aromas selected by the patient may have the potential to relieve stress.

Keywords:

Topical anesthetics, Aroma, Rubber dam isolation, Stress relief

P-065

Evaluation of Behavior Management Technique for Children with Time Out Method: a Systematic Review

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Objective:

Managing uncooperative children and trying to direct their actions properly should be one of the Dentist's goals in successful paediatric dental treatment. One behaviour modification technique that has not been widely used in the dental literature is "time-out". In the psychological literature, time-out has been shown to reduce unwanted behaviour in pediatric patients. The purpose of this Systematic Review is to evaluate time-out as a behaviour modification technique used in paediatric patients, as it gives potentially cooperative children a chance to calm down and is a relatively passive management method that is easily understood and accepted by parents.

Methods:

This study is a systematic review of the results of the evaluation of behavior management techniques for children with the time-out method. Databases from PubMed, Science Direct, Wiley Online Library, Europe PMC, and Google Scholar were searched from 2019 to 2024. We recruited randomized controlled trials (RCTs) that met the inclusion criteria; there were eleven studies included.

Results:

The success or failure of time-out or the number of time-outs used was related to the child's age, previous dental experience, or gender. There was a trend towards more negative behaviour at admission to the operating room compared to other stages of treatment.

Conclusion:

In appropriate settings, time-out should be considered as a management technique in paediatric dental care. Due to the lack of literature with this method, it is hoped that similar research can be carried out in the future.

Keywords:

Time Out, Behaviour management, Dental, Children

P-066

Digital Technology in Managing Dental Anxiety/Fear and Pain in Children: a Systematic Review

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Objective:

The systemic review aims to investigate the application of digital technologies in pediatric dentistry to reduce dental anxiety/fear and pain.

Methods:

A systematic search of the literature published between 2019 and 2024 that reported digital technology in pediatric dentistry was conducted using online databases accessed through PubMed and Scopus. The PRISMA diagram was used to conduct the systematic review. A total of 160 were identified, of which 11 articles in the form of randomized clinical trials were reviewed.

Results:

Heart rate, behavioral, anxiety, and pain scales were used to assess the effectiveness of studies. Five articles reported the positive result of using digital technology as a distraction method. Four articles showed the benefit of digital technology as a painless method for local anesthesia in children. One article reported that using digital impressions in children was more comfortable than using conventional methods. However, one article that studied intraoral radiology in children could not conclude which was less painful between digital and conventional imaging devices.

Conclusion:

Advanced digital technology in pediatric dentistry is applied to behavior management and dental procedures, effectively reducing dental anxiety/fear and pain perception and making dentistry comfortable for dentists and patients.

Keywords:

Digital technology, Dental anxiety, Dental pain, Child

P-067

Relationship between Underweight and Low Tongue Pressure in Japanese Young Women

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Objective:

Currently, the prevalence of underweight among young women is increasing in Japan, and this has been an urgent issue. However, it is not clear whether underweight is associated with underdevelopment of oral function. The aim of this study was to clarify the association between low tongue pressure and underweight in young women.

Methods:

The study enrolled 68 women aged 15–24 years. Following anthropometry and oral examinations, grip strength, maximum occlusal force, maximum tongue pressure, and masticatory performance were measured in all participants. Based on body mass index (BMI), the participants were divided into normal, underweight, and overweight/obese groups. Low tongue pressure was defined as the maximum tongue pressure in the lowest 20th percentile. After univariate analyses, multivariate binomial logistic regression analysis was used to identify factors associated with low tongue pressure.

Results:

Grip strength, maximum occlusal force and maximum tongue pressure in the underweight group were significantly lower than in the normal group (all $p < 0.05$). BMI, grip strength, maximum occlusal force, and masticatory performance in the low tongue pressure group were significantly lower than in the normal tongue pressure group (all $p < 0.05$). Binomial logistic regression analyses revealed that factors related to low tongue pressure included underweight (Odds ratio [OR] = 12.648, $p = 0.003$, 95% confidence interval [CI] = 2.408–66.446), and grip strength (OR = 0.708, $p = 0.033$, 95% CI = 0.515–0.973).

Conclusion:

Low tongue pressure was closely associated with underweight and lower grip strength among young women.

Keywords:

Tongue pressure, Underweight, Young women

P-068

Synaptic Expression of Glutamate Receptor GluD1 in the Mouse Somatosensory Cortex

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Objective:

Barrel analysis is a suitable model for investigating activity-dependent neural circuit in the oral region. Little is known about characteristics and function of GluD1 in the somatosensory barrel cortex. In this study, we examined the relationship between barrel appearance and GluD1, and investigated that expression of GluD1 mRNA in the somatosensory cortex, and what kind of neuron it was expressed in.

Methods:

Barrel appearance analysis: GluD1 knockout mice and wild-type mice were compared at timing of barrel appearance. We estimated the age when barrels appeared in 50% of mice (DA50). To obtain the optimal DA50 values and their 95% confidence intervals, probit regression analysis was used. GluD1 mRNA expression analysis: GluD1 mRNA was detected by using RNAscope in situ hybridization. To investigate whether GluD1 is expressed in excitatory neurons or inhibitory neurons, the relative fluorescence intensity ratio of each was analyzed using MetaMorph software and their statistical differences were evaluated using a student's t test.

Results:

We disclosed that the barrels in the GluD1 knockout mice appeared 1 day later compared with those in the wild-type mice. GluD1 mRNA in the barrel cortex was expressed more abundantly in excitatory neurons than in inhibitory neurons.

Conclusion:

The barrels are formed by the formation of synapses and their subsequent pruning. It was suggested that GluD1 is one of the factors necessary for synaptic formation and pruning, and GluD1 is related to the construction of the neural circuit between the thalamocortical axon and the somatosensory cortex.

Keywords:

Glutamate receptor, Somatosensory, Barrel

P-069

Role of AmeloD and ODAM in Enamel Formation

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Objective:

Enamel hypoplasia is commonly seen in pediatric dentistry. Therefore, it is important to understand the mechanism of tooth development. Here, we focused on the tooth-specific transcription factor AmeloD.

Methods:

To identify molecules that bind to AmeloD, the yeast two-hybrid method was performed. In order to investigate whether the identified molecules and AmeloD bind within cells, we used immunoprecipitation to analyze them. For the molecules that were confirmed to bind to AmeloD, immunostaining was performed to evaluate the intracellular localization in cultured cells and mouse tooth germ.

Results:

We found 167 clones that bind to AmeloD. Eight of them matched the molecular sequence of ODAM. As a result of transfecting AmeloD and ODAM expression vectors into Cos7 cells, it was confirmed by immunoprecipitation that AmeloD and ODAM were directly bound. AmeloD and ODAM were strongly expressed on postnatal day 1(P1), and AmeloD decreased at P3, but ODAM continued its expression. When rat dental epithelial cell line SF2 were stimulated with TGF-β1 to differentiate into ameloblasts, the expression of AmeloD and ODAM increased in a dose-dependent manner. Immunostaining confirmed that AmeloD and ODAM were expressed in the inner enamel epithelium.

Conclusion:

AmeloD is a tooth-specific transcription factor, and mice lacking the gene exhibit enamel hypoplasia. Since AmeloD is directly bound to ODAM, which is one of the enamel matrices, the intermolecular interaction between AmeloD and ODAM plays an important role in enamel formation. The interaction between AmeloD and ODAM may be useful for enamel regeneration.

Keywords:

Enamel, Tooth development, Transcription factor

P-070

Behavioral Improvement after Treatment of Pediatric SDB with Upper Airway Surgery and Palatal Expansion

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Objective:

Pediatric sleep-disordered breathing (SDB) is a prevalent condition with disturbances during sleep characterized by mouth breathing, snoring, nocturia, airway obstruction, restless sleep, bruxism, and sleep apnea. This study examines the association between pediatric SDB behavioral symptoms with upper airway surgery and transpalatal arch development in children before and after ENT and dental treatment.

Methods:

A retrospective review of children with SDB (n = 105 patients; age range: 6-14years) was undertaken between August 2020–December 2022. Symptoms of SDB, airway and dental and transpalatal arch assessments were undertaken. Outcome measures include parental reports of SDB symptoms, Connors ASQ Questionnaire, digital dental scans and orthopantomography.

Results:

One hundred and five subjects were included in the study. Behavioral issues were noted in 83.8% (n=83) of the subjects. Transpalatal arch measurement of less than 37mm were noted in 77.1% (n=81). For the pre-treatment SDB group (n=33), 75.7% (n=25) had a significant Connors ASQ score (range = 16 - 29, mean score = 22.5). For the post-surgery group and the post-surgery with transpalatal arch expansion group (n=33), 63.6% (n = 21) reported improvement in the Connors ASQ scores (normal <15).

Conclusion:

Pediatric SDB is associated with a high prevalence of emotional and social behavioral problems. We suggest that combined ENT and Pediatric Dental care be considered for SDB at-risk children. Further investigation is necessary to determine the optimal treatment suitable for children with SDB and the long term benefits of upper airway surgery and/or palatal expansion.

Keywords:

Sleep Disordered breathing, Airway, Early intervention, Expansion, ADHD

P-071

Generalized Aggressive Periodontitis Stage III Grade C in a Preschool Girl: 3-year Follow-up

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Introduction:

The objective of this report is to describe an approach to the diagnosis and treatment of diffuse destructive periodontitis in pediatric patient with comorbid systemic disease.

Case Operation:

A 4.5-year-old female patient came to the clinic with symptoms of loose baby teeth, lots of tartar plaque, and x-rays showing severe bone loss throughout the jaw. No one in her family has got the similar condition. The patient has a history of pityriasis psoriasis follicularis. Treatment included controlling tartar plaque, curetting of gum pockets, smoothing the root surface, extracting extremely loose teeth and making a removable denture to support chewing function and pronunciation as well as enhancing esthetics. Combined with systemic and local antibiotic therapy with the goal of controlling treatment to prevent the disease from progressing more seriously, maintaining the stability of the remaining baby teeth and preventing infection from spreading to the permanent tooth germs. The patient was examined periodically around the teeth and followed up for more than 2 years, showing very positive and stable treatment results.

Summary:

This case report illustrated clearly that the early diagnosis, controlling plaque well and a well-cooperation between patient and dentist are the crucial factors of success in treatment of prepubertal periodontitis.

Keywords:

Aggressive periodontitis, Early-onset periodontitis, Prepubertal periodontitis, Primary teeth

P-072

Dental Complications in Pediatric Cancer Survivors

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Introduction:

Advances in multimodality therapies improve childhood cancer survival rates, focusing on long-term quality of life. Research reveals systemic complications affecting growth, development, and various bodily systems later in life. Monitoring and managing oral health in survivors are crucial, considering late oral effects, including worsened dental decay and cranio-dental development issues.

Case Operation:

An 8-year-old Malay girl presented to our clinic for a dental check-up. Medical history revealed that the child was diagnosed with Medulloblastoma at 4 years and 8 months old. Following a gross total resection, she underwent daily radiotherapy to her head and neck region under oral sedation for 6 weeks and completed 8 cycles of chemotherapy. Due to her treatment history and as a part of routine investigations, a dental panoramic radiograph (DPT) was taken. The DPT revealed shortened, thin, tapered roots and small pulp chambers in several teeth (11, 12, 32, 31, 41, 42), cervical constrictions of premolar tooth germs and impeded root growth of teeth 16 and 26. Additionally, congenital absence of tooth 23 was incidentally detected.

Summary:

Understanding the patient's complete medical history is crucial for anticipating dental complications post-oncology treatment. This knowledge aids in formulating treatment plans and preventive measures effectively.

Keywords:

Chemotherapy, Radiotherapy, Paediatric cancer survivors, Dental sequelae

P-073

Comprehensive Analysis of Gene Expression in Related Organs with IgA Nephropathy

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Objective:

Cariogenic *Streptococcus mutans* bacteria possess collagen-binding protein (Cnm) on their cell surface, and the pathogenesis of IgA nephropathy has been reported to be related to Cnm-positive *S. mutans*. The present study was conducted to investigate changes in gene expressions in the kidneys, small intestine, and spleen, where IgA is primarily produced, in a rate model with Cnm administration via the jugular vein.

Methods:

Specific pathogen-free Sprague-Dawley rats (male, 4 weeks old) were administered phosphate-buffered saline (PBS) or recombinant Cnm (rCnm) via jugular vein under general anesthesia. Euthanasia was performed 45 days after administration, then the kidneys, small intestine, and spleen were extracted. IgA in the kidneys were evaluated by immunofluorescence staining with anti-IgA antibodies. Furthermore, RNA was extracted from each organ, and RNA sequencing and gene ontology (GO) analysis were performed.

Results:

Following immunofluorescence staining, significantly greater IgA deposition in the mesangial region of renal glomeruli was noted in the rCnm group as compared to that in the PBS group. RNA sequencing and GO analysis showed increased expression of genes associated with the chemokine signal pathway including *ccl3* and *ccl4*, as inflammatory markers in the kidney. In addition, the expression levels of metabolism-related genes in the small intestine, such as *rbp1*, and G protein-coupled receptor signal pathway-related genes in the spleen such as *gpr153*, were also increased.

Conclusion:

Cnm is an important factor for development of IgA nephropathy, which occurs following alterations of metabolic processes and signaling pathways in affected organs.

Keywords:

Streptococcus mutans, Cnm, Rat model, RNA sequencing, Gene ontology

P-074

Interaction of *Streptococcus mutans* Collagen-binding Protein Cnm with Human Immunoglobulin

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Objective:

Streptococcus mutans, a major cariogenic bacterium, produces surface proteins, such as glucosyltransferases (GTFs), glucan-binding proteins (Gbps), and collagen-binding protein (Cnm). We previously reported that Cnm-positive *S. mutans* is related to the pathogenesis of IgA nephropathy (IgAN), though details regarding development of IgA remains to be elucidated. The present study was conducted to examine the interaction between Cnm and IgA in order to clarify the IgA development mechanism.

Methods:

A Cnm-positive *S. mutans* SN74 as a parental strain isolated from saliva of a severe IgAN patient was used as the parental strain, while a Cnm-defective isogenic mutant strain (CND), and its complementation strain (Comp) were also used. Each strain was stained with SYTO9® green fluorescent nucleic acid and labeled with human IgA1 using an Alexa Fluor Antibody Labeling Kit®. The strains were placed on the glass slides and reacted with labeled IgA for three hours, then viewed under a fluorescence microscope. In addition, binding to IgA was examined using an enzyme-linked immunosorbent assay (ELISA) with recombinant Cnm (rCnm), rGTFB, and rGbpC.

Results:

Observations with fluorescence microscopy showed labeled IgA localized prominently localized around the SN74 and Comp strains, whereas there was only slight localization of labeled IgA noted around the CND strain. In addition, ELISA findings indicated that only rCnm had an ability to bind to IgA.

Conclusion:

The present results suggest that Cnm binds to IgA and forms a complex, leading to deposition of IgA in the renal glomeruli.

Keywords:

Streptococcus mutans, Collagen-binding protein, IgA nephropathy, Recombinant Cnm

P-075

Improving Oral Health Outcomes in Adolescents with Amelogenesis Imperfecta: a Case Report and Preventive Strategies

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Introduction:

Children, young people, and their families can be adversely affected by Amelogenesis Imperfecta (AI), with significant reduction in oral health-related quality of life (OHRQoL). Most issues relate to aesthetic and hyper-sensitivity concerns, with children reporting bullying and difficulties eating due to pain. The American Academy of Paediatric Dentistry guidelines advise that 'clinicians treating children and adolescents with AI must address the clinical and emotional demands of these disorders. Amelogenesis Imperfecta presents multiple challenges including access to affordable treatment and loss of continuity of dental treatment into adulthood clear pathways for the patients to reach specialist services in a timely way, continued attendance over many years, and appropriate transfer of children to adult services.

Case Operation:

A 14-year-old girl with mild learning disability was referred for the management of crowded dentition. She presented with generalized hypoplastic enamel with notable break-down of the first permanent molars. She also experienced severe hypersensitivity which further compromised oral hygiene measures, resulting in generalized inflamed gingiva. A comprehensive treatment plan which included rigorous preventive measures, followed by a restorative treatment and subsequent orthodontic intervention was formulated. The importance of behaviour shaping and family involvement is emphasized in this case report.

Summary:

Parents and family involvement play a part along the preventive strategies. Multidisciplinary involvement including orthodontic and future restorative care were consulted to ensure better treatment outcomes.

Keywords:

Amelogenesis Imperfecta, Oral Health-Related Quality of Life, Multidisciplinary treatment

P-076

Minimally Invasive Approach for Molar Incisor Hypomineralisation (MIH) Lesions: a Case Report

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Introduction:

Severe types of Molar-Incisor Hypomineralization (MIH) had seriously affected the aesthetics and mastication of patients. Dental professionals may face significant hurdles in treating MIH lesions while maintaining aesthetics since traditional techniques using drills would result in an excessive amount of hard tissue loss. In the era of contemporary dental innovation and integration, using minimally invasive treatment is essential to ensure optimal restoration in terms of aesthetic and masticatory function.

Case Operation:

A 16-year-old female patient demonstrated an MIH lesion with white spots on the buccal surface of tooth 36 and an atypical filling with recurrent caries on the occlusal surface of tooth 46 along with MIH lesions in the anterior teeth including 11, 13, 21 and 23. We applied minimally invasive treatment sequentially including at-home whitening, remineralisation, microabrasion, resin infiltration, and composite restorations. The treatment outcome was positive, which restored natural function and aesthetics while preserving maximum healthy tooth structure.

Summary:

The minimally invasive approach helps maximize the protection of healthy tooth structures while ensuring feasible aesthetic restoration, especially in young patients. This technique needs to be more generally accepted to improve the long-term oral health of people in Vietnam and worldwide.

Keywords:

MIH, Minimally invasive approach, Resin infiltration.

TASK

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P-077

Lower Lip Mucocele Surgical Excision in Pediatric Patients: a Case Series

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Introduction:

Mucocele is most common on the mucosa of the lower lip. It is often found in children who have a bad habit of biting their lips, have trauma or changes in the ducts of the minor salivary glands. Although mucoceles are asymptomatic, the mass is uncomfortable and interferes with oral function. The treatment that can be done to remove mucocele is conventional surgical excision.

Case Operation:

Three pediatric patients aged 6-13 years had mucoceles on the mucosa of the lower lip with various shapes and sizes. Excision of the mucocele under local anesthesia was started by making an elliptical incision, then removed using forceps and scissors. After the mucocele was completely removed, suturing was performed. Patients were given analgesics and antibiotics to support healing. All three patients experienced good healing of their lower lip mucosa after one week postoperatively.

Summary:

Conventional surgical excision is still the treatment of choice due to its low recurrence rate and cost effectiveness. However, this technique requires high precision and in-depth knowledge of the anatomical structure of the mucocele. The disadvantage of this technique is postoperative pain which is anticipated with the administration of analgesics.

Keywords:

Mucocele, Surgical excision, Lower lip mucosa, Pediatric patient

P-078

Dental Manifestations in Patient with Hypophosphatemic Rickets

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Introduction:

Hypophosphatemic rickets is a hereditary or acquired disorder of bone mineralisation caused by defects in the renal handling of phosphorus. Oral findings in these patients include anomalies of enamel and dentine, huge pulp chambers, high pulp horns, and periapical abscesses associated with non-carious teeth.

Case Operation:

This case report details the visit of a 4-year-old Chinese boy with hereditary hypophosphatemic rickets, who was referred to our clinic for routine dental check-up. He presented with mild bowed legs and was on oral calcitriol and phosphate supplements. Intraoral examination showed three missing deciduous primary incisors which had been mobile and were removed by his grandmother 3 weeks prior to his appointment. On his first visit, superficial caries on the occlusal surface of the upper right posterior molar was discovered and restored. However, patient returned two months' later with dental abscess of the restored tooth. Subsequently, within the next two years, he experienced multiple episodes of spontaneous toothaches and abscesses of non-carious primary molars and canines. Radiographs showed enlargement of pulp chambers and elongation of pulp horns, extending up to the dento-enamel junction. Teeth with dental abscesses were treated with pulpectomies and stainless-steel crowns or composite restorations, and remain symptomless.

Summary:

Greater awareness among dentists about the oral presentations of children with hypophosphatemic rickets will ensure they receive routine preventive care and any necessary early intervention. This is to prevent toothache and dental or orofacial infections that may affect the quality of life of this group of children.

Keywords:

Hyphosphathemic rickets, Large pulp chamber, Dental abscess, High pulp horns, Thin dentine

P-079

Premature Eruption of the Succedaneous Tooth Due to Apical Periodontitis of the Deciduous Tooth

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Introduction:

It is well known that apical periodontitis in primary teeth can have a negative impact on succeeding permanent teeth. Here, we report an attempt to preserve a succeeding permanent tooth that was suspected to have erupted immaturely due to an infection caused by apical periodontitis of a preceding primary tooth.

Case Operation:

A 6-year 1 month old boy was referred to our clinic due to unusual eruption of the maxillary left first premolar. The premolar showed enamel hypoplasia, buccally inclined eruption, and Miller's Grade III mobility. X-ray examination revealed no root formation and a radiolucency in the alveolar bone of the root-equivalent area. Furthermore, around the crown of a maxillary left primary molar presented with gingival erythema and swelling due to residual roots remaining of the preceding primary tooth. All remaining roots of the deciduous teeth were extracted, and a removable appliance was placed to improve masticatory function, esthetics and to stabilize the maxillary left first premolar. The maxillary left first premolar showed root development 6 months after using the appliance. The root apex was closed after 3 years and 5 months, but palatal centrum's lateral root wall was missing. Despite the effort, the tooth was extracted after 8 years and 1 month due to apical periodontitis.

Summary:

We present a case of the prematurely erupted maxillary left primary molar caused by severe caries in the preceding primary teeth. Given the high viability of immature permanent teeth, it was beneficial to track the development of the roots.

Keywords:

Immature permanent tooth, Apical periodontitis in primary tooth, Premature eruption

P-080

Long-term Oral Management of a Girl with Linear Sebaceous Nevus Syndrome

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Introduction:

Linear sebaceous nevus syndrome is a rare nevus syndrome characterized by the association of sebaceous nevi with abnormalities affecting multiple organs. We report a case of this syndrome in which the nevus is also found in the oral cavity.

Case Operation:

Patient: 10-year-9-months old girl

History: A biopsy at birth revealed the syndrome. Linear nevus was observed from the frontal area to the dorsal nasal area, the intergluteal cleft, and in the vagina. She has epilepsy, intellectual disability, cerebral palsy, and full ADL assistance.

Oral findings and dental course: A verrucous linear nevus are present on the palate and in the center of the lower lip. A gingival fissure is present as an extension of the nevus in the anterior region of the mandible. From the first visit until 18 years and 11 months, she had been treated regularly for caries and gingivitis. Epileptic seizures were observed each time during treatment. Although sebaceous nevi is considered to be at risk for malignant transformation, especially after puberty, there has been no significant change in the oral nevi to date. As an adult, the patient was referred to the Department of Special Care Dentistry of our hospital.

Summary:

The patient had difficulty finding a family dentist because of her syndrome, and continued to visit our hospital from a different prefecture across the sea. By paying close attention to epileptic seizures, we were able to provide the necessary dental treatment and manage the patient's oral condition for the long term.

Keywords:

Linear sebaceous nevus syndrome, Epilepsy, Long-term management

P-081

Measurement of Pulpal Circulation After Traction of Inversely Impacted Maxillary Young Permanent Incisors Using TLP

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Introduction:

This case report describes two cases in which pulpal blood flow was measured to diagnose pulp vitality by Transmitted-light plethysmography (TLP) after traction of the inversely impacted maxillary central incisors along with Cone-beam CT examination. This is the first report of pulpal blood flow measurement after the traction of inversely impacted teeth.

Case Operation:

Case 1: A 5-year-old boy with an inversely impacted maxillary left central incisor (#21). Cone-beam CT showed that #21 was oriented 110 degrees upward compared to the contralateral tooth (#11). Root formation was in the initial stage, and root curvature was suspected. After 16 months of traction, severe root curvature was noted. Although the amplitude of the tooth plethysmogram was smaller than that of a contralateral normal tooth, pulpal blood flow was observed. Case 2: A 7-year-old boy with an inversely impacted maxillary right central incisor (#11). Cone-beam CT showed that #11 was oriented 104 degrees upward compared to the contralateral tooth (#21). Moorrees' root formation stage was R1/4 with root curvature. After 12 months of traction, pulpal blood flow was observed. In both cases, tractioned teeth responded to the electric pulp test.

Summary:

Although root curvature was observed in both cases, TLP detected pulpal blood flow after traction. The difference in TLP amplitude between the two cases was presumably due to the position of root apex and degree of root curvature. TLP is useful to follow up tractioned teeth with abnormal root morphology to reevaluate the traction method and the timing of its initiation.

Keywords:

Transmitted-light plethysmography, Pulpal circulation, Traction of incisor, Young permanent teeth

P-082

Endodontic Retreatment in Underfilled Root Canal of Mandibular First Molar: a Case Report

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Introduction:

Endodontic treatment failure is commonly caused by errors in pre-treatment, treatment and post-treatment endodontic care. Inadequate post-endodontic treatment final restorations will impact the success of treatment. Loose restorations are an example of restoration failure caused by inadequate retention leading to saliva penetration along the root canal. This can dissolve the luting cement and cause micro-leaks to constantly reach the periradicular area. if ignored, this situation will result in periradicular lesions. Endodontic re-treatment is performed to address failed restorations. Restorations fail due to inadequate retention. Endodontic failure can be addressed by endodontic re-treatment, apical surgery or extraction. During endodontic re-treatment, endodontic instruments are used to remove root canal filling material and repeat the endodontic treatment steps to achieve apical patency.

Case Operation:

A 13-year-old boy presented with a complaint that his lower left tooth, which had been filled a year ago, had eroded and was painful to chew food. The treatment plan was endodontic retreatment with balance force preparation and single cone obturation techniques. The final restoration chosen was a composite filling. After evaluation the patient has no complaints either during clinical, objective, or radiographic examination.

Summary:

Endodontic re-treatment is an appropriate treatment option to overcome the failure of previous endodontic treatment accompanied by periapical lesions and to maintain its function in the stomatognathic system.

Keywords:

Endodontic re-treatment, Endodontic failure, Periapical lesions

P-083

Developmental Problems of Permanent Successor Resulted from Periapical Lesion and Pulp Therapy of Primary Teeth

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Introduction:

Primary dentition and its successors have direct relation as interdependent units. They can be affected and altered due to mechanical traumas, or infections due to several reasons such as dental caries. It has been reported that periapical lesions of primary teeth may cause injuries to its successors. In order to treat such periapical inflammations, Vitapex® is widely selected. However, in rare cases, Vitapex worsen the complications related to the periapical inflammation. In this case report, with upper primary central incisors had persistent periapical inflammation, and treated by applying Vitapex®, shows dental developmental alterations of an upper permanent central incisors.

Case Operation:

A 1-year-old female child visited our clinic with chief complaint of early childhood caries of teeth #51, #61. The teeth received pulpectomy with Vitapex® and accidental overfilling that penetrated the successor teeth germ number #11, and #21 occurred. After 1 year and 10 months of follow-ups, tooth #11 has erupted with enamel hypomineralization, and #21 failed to erupt due to interruption in the dental development. At 7 years of age with 2 years of follow ups, tooth #21 has been surgically extracted under general anesthesia.

Summary:

This case report presents Vitapex® may affect dental development of permanent successors and aggravate complications related to periapical infections. Hence, careful application of Vitapex® material must be considered to avoid such complications.

Keywords:

Vitapex, Canal filling material

P-084

Management of Submandibular Abscess with Odontogenic Cutaneous Fistula in Children using RCT Approach: a Case Report

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Introduction:

A submandibular abscess is an inflammation with pus in the submandibular region. Abscess is a collection of pus caused by an infection process by bacteria, parasite, etc. It's a defence mechanism, aims to prevent infectious agents from spreading to other parts. Delay to treat the affected tooth during the early inflammatory stage will cause further complications such as Odontogenic Cutaneous Fistula (OCF) which is defined as an abnormal communication between face and oral cavity.

Case Operation:

A 10-year-old girl came with complaints of cavities in her lower right tooth, pain since 1 month ago, swelling and pus coming out of her lower right cheek. Extraoral examination showed the right cheek was asymmetrical. On intraoral examination, deep caries and periapical abscess were found on 46. Radiological examination showed a radiolucent area at the apex of 46. Based on the anamnesis, clinical examination and radiography, the treatment carried out was root canal treatment (RCT) on the infected tooth.

Summary:

OCF is caused by chronic dental infections. The chronic process will develop through the cancellous alveolar bone, then penetrate the mandibular cortical plate, spread to the surrounding soft tissue and will appear on skin. Characterized by the presence of fistula with pus and surrounded by granulation tissue in the alveolar bone of the affected tooth. Accurate diagnosis, appropriate management, and elimination of the source of infection are essential to achieve success in treatment. RCT proved effective in this case report.

Keywords:

Submandibular abscess, Odontogenic cutaneous fistula, Root canal treatment

P-085

Survival Analysis of Pulpotomy versus Pulpectomy in Primary Molars with Carious Pulp Exposure

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Objective:

This study compared the clinical and radiographic survival time of iRoot BP Plus pulpotomy and Vitapex pulpectomy for treating extremely deep caries with carious pulp exposure in primary molars under general anesthesia in order to explore the more suitable therapy method for endodontic treatment of deciduous molars with extremely deep caries and carious pulp exposure.

Methods:

The 876 medical records of primary molars diagnosed with extremely deep caries in patients aged 3 to 6 years old were divided into Group A (iRoot BP Plus pulpotomy) and Group B (Vitapex pulpectomy) based on treatment methods. The Kaplan-Meier survival curves were used to compare the survival rates and time between the groups. The Cox proportional hazards model was used to evaluate the factors associated with success ($P<0.05$).

Results:

A total of 876 primary molars were collected, including Group A (504) and Group B (372). The clinical and radiographic survival time in Group A (54.394±1.388 (months) and 48.978±1.413 (months)) were significantly higher than that in Group B (47.867±0.956 (months) and 38.834±0.981 (months)) ($P<0.05$). The clinical and radiographic survival rates of Group A at 48 months were 77.0% and 69.5%, respectively. The clinical and radiographic survival rates of Group B at 48 months were 53.1% and 29.1%. Younger age and treatment with iRoot BP Plus pulpotomy might predict higher success rates ($P<0.05$).

Conclusion:

The long-term prognosis of iRoot BP Plus pulpotomy for treating extremely deep caries with carious pulp exposure in primary molars under general anesthesia was better than Vitapex pulpectomy.

Keywords:

Primary molars, Extremely deep caries, Carious pulp exposure, Pulpotomy, Pulpectomy

P-086

Success Rates of Mineral Trioxide Aggregate, Ferric Sulfate, and Sodium Hypochlorite Pulpotomies

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Objective:

Several medicaments have been used as alternatives to formocresol (FC) for pulpotomy in primary molars with deep carious lesions. However, no prospective study has observed and compared the outcomes of different medicaments. The aim of this prospective study was to compare 12- and 24-month success rates among sodium hypochlorite (NaOCl), ferric sulfate (FS), and mineral trioxide aggregate (MTA) pulpotomies performed in primary molars.

Methods:

A total of 108 primary molars in 27 children (18 boys and 9 girls) were selected. All subjects exhibited a primary molar indicated for indirect pulp therapy (IPT; control group) and 3 carious primary molars indicated for pulpotomy with 5% NaOCl, 15.5% FS, and MTA. Clinical and radiographic assessments for determining success rates were performed using established criteria before and at 12 and 24 months after treatment. All data were analyzed using the chi-square test.

Results:

Clinical treatment success was observed for all teeth during the first 12 months. At 24 months, the clinical and radiographic success rates were both 100% in the control and MTA groups, both 92.6% in the NaOCl group, and 92.6% and 88.9%, respectively, in the FS group. There were no significant differences in the clinical ($p=0.328$) and radiographic ($p= 0.164$) success rates among the 4 groups.

Conclusion:

NaOCl is easily available and less expensive than MTA, and our results suggest that the outcomes of NaOCl pulpotomy and MTA pulpotomy are similar. Therefore, NaOCl may be a practical alternative to FC for pulpotomy in primary molars.

Keywords:

Ferric sulfate, Mineral trioxide aggregate, Pulpotomy, Sodium hypochlorite

P-087

Comparative Clinical Success of Biodentine and MTA in Apexification for Immature Permanent Teeth: Systematic Review

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Apexification is a technique used to continue the apical growth of a root in teeth with necrotic pulps. Mineral Trioxide Aggregate (MTA) is a tricalcium silicate-based cement material that has excellent biocompatibility and sealing properties, also became the first material for apexification. BiodentineTM (BD), which has similar properties to MTA, overcomes the major drawbacks of MTA and has great potential to revolutionise the different treatment modalities in paediatric dentistry.

Objective:

The aim of this study was to compare the clinical success of BD and MTA as a material choice for treating nonvital immature permanent teeth.

Methods:

A systematic literature review was conducted on Scopus, ScienceDirect, Dimensions, SpringerLink up to May 2024, ClinicalKey databases using predifened search keywords. Based on inclusion criteria, such as children up to 18 years old, nonvital immature permanent teeth and research conducted on humans, the article were selected following the PRISMA guidelines. The quality of the studies was evaluated utilizing the JBI's critical appraisal tools.

Results:

A total of 572 studies were identified and 4 studies met the inclusion criteria. There were no significant differences for both materials, BD had similar results in apical lesion healing and clinical recovery compared to MTA. A tooth discoloration was observed with MTA. Radiographically, the success rate of biodentine is better than MTA.

Conclusion:

Based on its outcomes, BD could be a suitable substitute as an apical plug material for immature permanent teeth apexification treatment.

Keywords:

Biodentine, MTA, Apexification, Immature permanent teeth

P-088

Management of Facial Asymmetry Caused by Occlusal Interference in Pediatric Patients: Case Reports

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Introduction:

Occlusal interference can be caused by variable factors, especially due to the maxillomandibular transverse discrepancies and irregular dentition. Occlusal interferences are difficult to correct spontaneously. If children with CR-CO discrepancies grow up without appropriate treatment, they might develop midline displacement, unilateral mastication, and facial asymmetry. In this report, two cases of growing children with posterior crossbite were timely treated with orthopedic and orthodontic interventions, resulting in improved functional and esthetic outcomes.

Case Operation:

In the first case, a 9-year-old boy had chin deviation on centric occlusion and right posterior crossbite due to the limitation of maxillary transverse growth. Therefore, maxillary transverse expansion and mandibular posterior teeth uprighting were achieved with MARPE and schwarz appliance for proper maxillomandibular transverse relationship. After 5 months, the occlusion was stabilized, and the intraoral appliances were exchanged to a myofunctional appliance to maintain the occlusion and eliminate neuromuscular disharmony. The second case, a 10-year-old girl with a complaint of an anterior crossbite, also exhibited a left posterior crossbite due to upper and lower arch form disharmony. The labioversion of the lower incisors was corrected using a posterior bite block and elastics, while the upper arch was aligned with a fixed orthodontic appliance.

Summary:

The CR-CO discrepancy caused by anterior occlusal interference was resolved through tooth alignment, leading to functional and esthetic improvements. Clear aligners were used to finally stabilize the occlusion considering the patient's ability to maintain oral hygiene. This report presents the importance of early intervention in growing children with posterior crossbite.

Keywords:

Crossbite, Facial asymmetry, Orthopedic

P-089

Precision Surgical Management of Compound Odontoma Adjacent to Impacted Incisor in a 13-Year-Old Male

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Introduction:

A compound odontoma, an odontogenic tumor of ectomesenchymal origin containing tooth-like structures, is a benign tumor. Even though odontomas are usually not associated with painful symptoms, their presence may trigger major occlusal, phonetic, and aesthetic disorders.

Case Operation:

We report a case of a 13-year-old male patient with a compound odontoma (size ±21,1 x 15 mm) based on clinical presentation, a panoramic radiograph, and a Cone beam computed tomography (CBCT) examination. The odontoma is found in the left anterior maxilla, located very close (about less than 1 mm) to the impacted upper left central incisor. The sagittal view of CBCT revealed labial cortical plate thinning, minimally expansive, without any discontinuity. The tumor is the cause of an impacted incisor, diagnosed in radiographic exams during the investigation of the cause of unerupted teeth. A surgical excision with a trapezoid flap design under local anesthesia was performed to remove the compound odontoma. The surgical procedures must be carried out with great care and precision so as not to damage the impacted upper left central incisor, because the tooth is planned to be exposed and retracted using a button chain to achieve great functional aesthetic teeth. Bone reduction should be done very slowly and without pressure to keep the unerupted tooth.

Summary:

The surgical procedure was successful and was followed by orthodontic traction for the unerupted tooth.

Keywords:

Compound odontoma, CBCT, Impacted incisor, Surgical excision

P-090

A Case of Root Cyst of a Primary Tooth Caused Malposition of the Permanent Tooth

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Introduction:

Root cysts are the most frequent of the various cystic diseases of the jawbone, but most occur in permanent teeth and are extremely rare in primary teeth. The lesions are caused by caries-induced chronic apical periodontitis, but it has also been reported that the intracanal medicament used in root canal treatment produce antigenic and necrotic products in periapical lesion, causing antigenic stimulation of the periapical area and resulting in root cysts. This study reports a case in which a root cyst on a deciduous tooth caused malposition of the permanent tooth.

Case Operation:

The patient is 8 years old visited the pediatric dental clinic of Tokyo Dental College Hospital for gingival swelling and pain of the primary mandibular left second molar. 75 had been previously treated by pulpectomy and filled with agents containing calcium hydroxide. Dental panoramic tomography revealed a well-defined radiolucent area measuring about 1 × 1 cm, influencing on the tooth bud of 35, which has shifted to a below-distal position. Affected tooth were extracted, the cyst was removed, and the wound was open free method for decompression. Sterile gauze impregnated with acromycin ointment was placed in the cyst cavity and changed weekly. The lesion was closed 40 days after removal. Subsequently, dental panoramic tomography showed return to original position spontaneously of the mandibular left second molar.

Summary:

Radicular cysts are probably triggered by an apical periodontitis and inadequate root treatment, it is important to follow the progress of a pulp-treated deciduous tooth until it fall out.

Keywords:

Radicular cysts, Pulpectomy, Dental trauma

DURAPHAT

High Fluoride Mouthwash
859 ppm

เหมาะสำหรับ

- บุคคลทั่วไป และเด็กอายุตั้งแต่ 6 ปี ขึ้นไป ที่มีความเสี่ยงต่อการเกิดฟันผุ
- คนที่มีภาวะปากแห้ง น้ำลายน้อย
- คนไข้ที่ฉายรังสี บริเวณใบหน้าและลำคอ
- ผู้สูงอายุ

Direction for use

Neutral sodium Fluoride mouthwash at-home use

P-091

Surgical Exposure and Orthodontic Treatment of an Impacted Dilacerated Maxillary Incisor: a Case Report

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Introduction:

This case report describes the treatment of a 7-year-old patient who denied any systemic disease with the chief complaint of primary incisor retained. Clinical and radiography examination revealed that the upper right central incisor was dilacerated impacted. To restore the functionality and esthetics, we used closed eruption technique to pull the tooth out and aligned it.

Case Operation:

The surgical exposure procedure was done under general anesthesia. Subsequently, closed eruption technique with orthodontic traction forces were applied to align the upper right central incisor into its proper position. After 21 months orthodontic treatment, the impacted dilacerated upper right central incisor was successfully aligned to the appropriate position, maintaining stable periodontal and occlusal conditions; the patient came for follow-up every 3 months.

Summary:

The importance of the upper right central incisor in terms of aesthetics, functionality, and pronunciation is unquestionable. Timely surgical intervention, coupled with orthodontic treatment, can effectively align the impacted tooth into the correct position without compromising adjacent tooth roots or traumatic surgery. A favorable prognosis can be anticipated, and it can also enhance the patient's confidence throughout the growth process.

Keywords:

Dilaceration, Impaction, Closed eruption, Orthodontic treatment

P-092

Vital Pulp Therapy for Apical Periodontitis Caused by Pre-eruptive Intracoronal Radiolucency: a Case Report

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Introduction:

Hidden caries is a dentinal lesion beneath the dentinoenamel junction, visible on radiographs. It is also known as pre-eruptive intracoronal radiolucency (PEIR). The prevalence of PEIR in permanent dentition is 2 to 6%. The vital pulp therapy (VPT) techniques are means of preserving the vitality and function of the dental pulp. This report described a case on VPT for apical periodontitis caused by PEIR of a young permanent tooth.

Case Operation:

A 7-year-old boy was referred to the Department of Pediatric Dentistry with a chief complaint of pain and gingival swelling on the right side of the mandible for the last 1 month. On inspection, his mandibular right first molar (46) had an intact outer surface of enamel. Radiographic and computed tomography scan examination showed a periapical lesion with buccal plate resorption and radiolucency beneath the enamel on the mesial part of tooth 46. PEIR and periapical periodontitis were diagnosed, and VPT was planned. The coronal pulp tissue was removed. The pulp chamber was rinsed with 1% sodium hypochlorite and placed with calcium hydroxide. Six weeks later, The pulp chamber was again rinsed and filled with iRoot BP Plus. Three-month follow-up examination showed soft tissue healing. Six months later, the patient remained asymptomatic. The computed tomography scan examination showed a clear dentinal bridge and resolution of periapical radiolucency.

Summary:

The present report demonstrates the effectiveness of VPT for managing severe cases of PEIR. However, further research with larger samples and long follow-up is necessary.

Keywords:

Pre-eruptive intracoronal radiolucency (PEIR), Vital pulp therapy (VPT), Apical periodontitis, Young permanent tooth

P-093

Spontaneous Eruption of an Impacted Mandibular First Molar at Nolla Stage 9 after Odontoma Removal

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Introduction:

Impaction of mandibular first permanent molar is rare with a prevalence of 0.01%. The etiology may be mechanical obstructions, such as supernumerary teeth or odontomas, inadequate space in the dental arch, disruptions to eruption mechanism itself, or idiopathic causes. Various treatment options are available in clinical scenarios, including observation, surgical exposure with orthodontic traction, or extraction.

Case Operation:

This case presents a 10-year-old Chinese girl patient with an impacted left mandibular first permanent molar underneath a large odontoma, as well as right first molar crossbite. The impacted molar was positioned near the lower border of mandible, exhibiting a distally curved and shortened root, with root development at Nolla stage 9. A two-step surgery was performed due to the size of odontoma, as a single removal procedure could potentially result in complications such as mandibular fracture. Inter-arch elastic traction was applied between right upper and lower first molars to correct crossbite, and a Trans-Palatal Arch (TPA) was used to prevent extrusion of left maxillary first molar following crossbite correction. The impacted molar subsequently underwent spontaneous eruption and achieved normal occlusion without orthodontic traction after surgical removal of odontoma. Additionally, root length of the impacted molar demonstrated gradual increase and reached approximately to the contralateral molar.

Summary:

If the impacted tooth is enclosed by a dental follicle and in correct direction, despite having a curved root and being at Nolla stage 9 of root development, observation to wait for spontaneous eruption after removal of any obstructions may be an optimal treatment option.

Keywords:

Impacted first permanent molar, Spontaneous eruption, Odontoma, Surgical removal

P-094

Combined Surgical Exposure and Orthodontic Treatment on Labially Impacted Maxillary Incisor – a Case Report

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Introduction:

Impaction of the maxillary central incisor is an uncommon condition that happens in the mixed dentition phase. Complete tooth eruption will affect function and aesthetics. Failure of eruption of maxillary incisors can occur due to obstruction or ectopic position of the tooth bud. Impaction of the maxillary central incisor is an uncommon condition that happens in the mixed dentition phase. Complete tooth eruption will affect function and aesthetics. Failure of eruption of maxillary incisors can occur due to obstruction or ectopic position of the tooth bud.

Case Operation:

A 12-year-old female patient came with her parents to the Department of Pediatric Dentistry, Universitas Airlangga Dental Hospital. The chief complaint is the unerupted maxillary left incisor, while her other incisor had already erupted. An intraoral examination showed multiple diastemas in the maxillary region, bulged was palpated in labial gingiva, radiograph examination showed delayed eruptions of #13 (disturbed by the angulation of impacted teeth) and #21 (no presence of disturbances). This case report emphasized the importance of early diagnosis and explored the surgical exposure procedure for #21 teeth, started by making a trapezoid flap on the #21 teeth region and followed by orthodontic treatment (button insertion) in order to tract the impacted tooth until it is leveled and aligned with adjacent teeth. Eruption of tooth 21 (still in process of treatment) and remaining to be leveled and aligned.

Summary:

Surgical exposure and orthodontic treatment can be a treatment of choice due to correction of an impacted maxillary incisor.

Keywords:

Impacted, Surgical exposure, Orthodontic treatment

P-095

Orthodontic Treatment of Maxillary Anterior Incisal Transposition Caused by Impacted Mesiodens

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Introduction:

On the early mixed dentition, it is common for mesiodens to change the position of the permanent incisors or disturb tooth eruption. The proper positioning of the anterior teeth in the mixed dentition is a crucial part of guiding the proper growth of the jaw bone, so early diagnosis and treatment of mesiodens is especially important. In this report, a case of a child with two mesiodentes that resulted in the transposition of maxillary central and lateral incisors, was treated with orthodontic intervention.

Case Operation:

A 6-year-old boy was referred from a private dental clinic with the complaint that the eruption of permanent incisors were blocked due to mesiodentes. Panoramic radiographs showed two mesiodentes in the maxillary right anterior site, with the central incisor displaced disto-superiorly, overlapped to the lateral incisor. One erupted mesiodens was extracted on the date of first visit, and the other mesiodens was surgically extracted 9 months later. The boy was evaluated having skeletal class II malocclusion with mandibular retrognathism and crowding.

Summary:

Both maxillary primary canines were extracted to create eruption space, and upper right lateral incisor was tractioned disto-palatally for the labially displaced central incisor to shift mesially. A fixed orthodontic appliance was placed to intentionally incline the root of central incisor mesially and the root of the lateral incisor distally, promoting root parallelism during teeth alignment. For an aesthetic profile, comprehensive orthodontic treatment was performed with upper premolar extraction and a non-extraction strategy for the lower teeth, resulting in both Class II molar relationships.

Keywords:

Mesiodens, Transposition, Class II malocclusion, Orthodontic treatment in the mixed dentition

P-096

The Study of Early Orthodontic Screening and Referral Practices by Dental Therapists in Malaysia

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[2]Klinik Pergigian Segamat, Johor, Malaysia

Objective:

To determine the prevalence of dental therapists' involvement in early orthodontic screening and referral practices among primary school children in Malaysia.

Methods:

A total of 360 dental therapists across the nation were included in this cross-sectional study, using a stratified random sampling technique. The following determinants were queried with an online self-administered questionnaire: the socio-demographic profile, orthodontic screening practices, orthodontic referral practices, training of dental therapists, and views on orthodontic treatment. Descriptive analysis was conducted on the collected data. Cross Tabulation analysis, Fisher's Exact Test and Spearman correlation evaluated associations between the referral practice and the training of dental therapists.

Results:

Of the participants, 38.6% reported they performed orthodontic screening on patients with obvious malocclusion, 22.7% reported that they screened all primary school children, 6% reported that they screened patients between certain age, and 32.7% reported that they did not routinely do orthodontic screening. About 65.6% of them referred less than five patients per month while 24.1% reported they did not refer any patients.

Conclusion:

The early orthodontic screening rate in Malaysia is suboptimal. Variation in referral documents is identified.

Keywords:

Interceptive orthodontic, Early orthodontic screening, Early orthodontic referral, Dental therapist, School dental service

P-097

Survival Rate of Second Primary Molars after Treatment with Halterman Appliance: a Retrospective Study

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Objective:

This study aims to evaluate the survival rate of second primary molars following orthodontic treatment with the Halterman appliance by considering various factors.

Methods:

Patients aged 5 to 9 who visited the Department of Pediatric Dentistry, Chosun University Hospital from 2017 to 2021 and underwent treatment using the Halterman appliance were selected. Using electronic medical records and panoramic radiographs, patients' age, degree of root resorption in second primary molars, mesial angulation of first permanent molars, and gingival emergence of first permanent molars were investigated.

Results:

A total of 127 teeth were analyzed. The overall survival rate was 70.1%, and the average survival time was approximately 20 months. As a result of the survival analysis according to the degree of root resorption in second primary molars, the survival rate was 90.7% in grades 1 and 2, 70% in grade 3, and 33.3% in grade 4. As the degree of root resorption became more severe, the survival rate and mean survival time significantly decreased. There was no difference in survival rate according to patients' age, mesial angulation of the permanent first molars, or gingival emergence of the permanent first molars.

Conclusion:

Within the limits of this study, the degree of root resorption in second primary molars was the factor that most influenced the survival rate of second primary molars after treatment with the Halterman appliance.

Keywords:

Ectopic eruption, The maxillary permanent first molar, The maxillary second primary molar, Halterman appliance

P-098

Comparison of Genetic and Dental Findings between Non-odonto- and Odonto-type Hypophosphatasia Patients in Japan

Haruna Natsue[1], Tamami Kadota[1], Marin Ochiai[1], Rena Okawa[1], Kazuhiko Nakano[1]

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Objective:

Hypophosphatasia (HPP) is a skeletal disorder caused by an *ALPL* gene mutation. In Japan, the number of individuals diagnosed with HPP and seeking dental consultation has increased in recent years. Reported here are results of a nationwide survey regarding genetic and dental manifestations in HPP patients.

Methods:

Six hundred ten dental clinics at general hospitals with dentistry departments throughout Japan were sent questionnaires regarding numbers of HPP cases encountered from 2018 to 2023. A second questionnaire regarding related clinical records was then sent to those that had examined HPP cases. Additionally, clinical records of 40 HPP patients who came to our clinic were collected. Significant differences for the examined factors between odonto- and non-odonto-type cases were determined using Fisher's extracted test, with $P < 0.05$ considered to indicate statistical significance.

Results:

Clinical records of 102 HPP patients were obtained, with information regarding mutations noted for 76. A homozygous c.1559delT mutatiqon, which leads to severe-type HPP, was detected in 10 cases (13.2%) and a compound heterozygous mutation was detected in 24 (31.6%), while a compound heterozygous Phe310Leu mutation, which leads to mild-type HPP, was detected 9 (11.8%). The rate of homozygous or compound heterozygous mutations in non-odonto-type patients was significantly higher, while a significantly higher ($P<0.01$) rate of heterozygous mutation was found in odonto-type. Additionally, non-odonto-type showed a significantly higher enamel hypomineralization rate and odonto-type had a significantly higher rate of early primary tooth exfoliation ($P < 0.01$).

Conclusion:

Both genetic and dental manifestations differ between non-odonto- and odonto-type HPP cases.

Keywords:

Hypophosphatasia, ALPL gene mutation, Dental mutation

P-099

Heart, Gingiva and Teeth: a Harmony Interdigit?

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Objective:

The objective of this study is to assess the presence of caries and gingivitis in a group of Malaysian children with and without congenital heart disease (CHD) treated in University Malaya as well as to determine the difference in the DMFT and GIS score between these two groups.

Methods:

This is a cross-sectional study involving 134 children aged 3-12 years old with and without CHD treated in University Malaya Medical Centre and Faculty of Dentistry University Malaya. It involves 67 participants in each group for both CHD and control group. After consent is obtained from the parents, dental examination performed and DMFT and Lobene Modified Gingival Index (GIS score) recorded.

Results:

Children with underlying CHD has poorer oral health as compared to the control group. Children with CHD reported to have higher DMFT and GIS score as compared to the control group.

Conclusion:

The findings clearly showed that this group of Malaysian children with CHD are more affected with gingivitis and caries than the control group without CHD. These results are cause for concern in children at risk of developing systemic infections such as Infective Endocarditis and serious complications related to poor oral health.

Keywords:

Congenital heart diseases (CHD), DMFT, GIS, Infective Endocarditis (I.E.)

P-100

Presence of *Streptococcus mutans* in Liver and Adipose Tissue Associated with Non-alcoholic Steatohepatitis Development

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Objective:

Non-alcoholic steatohepatitis (NASH) is a type of fatty hepatitis associated with inflammation. Our previous studies using animal models showed that *Streptococcus mutans* strains that produce both the collagen-binding protein Cnm and protein antigens (PA) on their cell surface can invade the bloodstream, leading to NASH aggravation. For this study, detection of *S. mutans* organisms in livers and adipose tissues of model mice was performed, and the association with disease development analyzed.

Methods:

Six-week old C57BL/6J mice were fed a high-fat diet for four weeks, then Cnm- and PA-positive (Cnm+/PA+) KT3, (Cnm-/PA+) KT4, and (Cnm+/PA-) KT2 S. mutans strains isolated from a severe NASH patient were intravenously administered. Following euthanasia at 12 weeks after administration, conventional clinical evaluations of NASH and histopathological evaluations of liver tissues were performed. One to three hours after test strain administration, liver, visceral, and subcutaneous fat samples were extracted, and inoculated into Mitis-salivarius agar plates containing bacitracin, then bacterial colonies were counted.

Results:

Liver weight and ALT, AST, TC, and LDL levels in serum were significantly higher in the KT3 than the phosphate-buffered saline (PBS) group ($p<0.05$). Histopathologic findings of KT3 group livers showed prominent lipid accumulation with inflammatory cell infiltration and fibrosis. Furthermore, the number of bacteria was significantly higher in liver specimens obtained at one hour after administration of the KT3 strain ($p<0.01$) as compared to the other specimens.

Conclusion:

These findings suggest that following blood invasion (Cnm+/PA+) *S. mutans* can reach the liver and adipose tissue, and become involved with NASH development.

Keywords:

Non-alcoholic steatohepatitis, *Streptococcus mutans*, Collagen-binding protein, Protein antigen

P-101

Nicotine Destructs Dental Stem Cell-Based Periodontal Tissue Regeneration

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Objective:

Nicotine is a widely known addictive and toxic substance in cigarette that exacerbates periodontitis. However, its deleterious effects on dental stem cells and subsequent implications in tissue regeneration still remain unclear. This study aimed to explore the effects of nicotine on the regenerative capacity of human periodontal ligament stem cells (hPDLSCs) based on transcriptomics and proteomics, and determined possible targeted genes associated with smoking-related periodontitis.

Methods:

hPDLSCs were treated with different concentrations of nicotine ranging from 10-3 to 10-8 M. Transcriptomics and proteomics were performed and confirmed employing western blot, 5-Ethynyl-2'- deoxyuridine (EdU), and alkaline phosphatase (ALP) staining. A ligature-induced periodontitis mouse model was established and administrated with nicotine (16.2 μg/10 μL) via gingival sulcus. The bone resorption was assessed by micro-computed tomography and histological staining. Key genes were identified using multi-omics analysis with verifications in hPDLSCs and human periodontal tissues.

Results:

Based on enrichments analysis, nicotine-treated hPDLSCs exhibited decreased proliferation and differentiation abilities. Local administration of nicotine in the mouse model significantly aggravated bone resorption and undermined periodontal tissue regeneration by inhibiting the endogenous dental stem cells regenerative ability. HMGCS1, GPNMB, and CHRNA7 were hub-genes according to the network analysis and correlated with proliferation and differentiation capabilities, which were also verified in both cells and tissues.

Conclusion:

Our study investigated the destructive effects of nicotine on the regeneration of periodontal tissues from aspects of in vitro and in vivo with the supporting information from both transcriptome and proteome, providing novel targets into the molecular mechanisms of smoking-related periodontitis.

Keywords:

Human periodontal ligament stem cells (hPDLSCs), Smoking, Periodontitis, Periodontal tissue regeneration, Bone remodeling/resorption

P-102

Are Children with Vitamin D Deficiency More Susceptible to Dental Caries?: a Systematic Review

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Objective:

This systematic review evaluates the susceptibility of vitamin D deficiency to dental caries in children.

Methods:

The search strategy comprised of three databases (PubMed, Wiley Online Library and Cochrane) from January 2014 to April 2024. The screening process, guided by the PRISMA guidelines, resulted in the inclusion of four studies conducted in different regions of the world.

Results:

The analysis found that several trials showed that adequate vitamin D intake was associated with a lower risk of dental caries. Some found no association between dental caries and vitamin D. Variations in study quality, methodology, and geographic setting underscore the challenges of drawing universal conclusions.

Conclusion:

Despite these limitations, improving vitamin D status may be a beneficial component of preventive strategies against dental caries in children, and further research is needed to clarify the clinical significance of our findings.

Keywords:

Vitamin D, Deficiency, Dental caries, Children

P-103

Effect of *Lactobacillus Reuteri* on Salivary pH and Orthodontic Plaque Index in Pediatric Orthodontic Treatment

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Objective:

Placement of orthodontic appliances in children can be a problem in terms of oral hygiene, increasing plaque accumulation so that it disrupts the balance of normal oral flora, so additional actions and therapies are needed for oral hygiene, one of which is by giving probiotic *Lactobacillus reuteri*.

Methods:

Knowing the effect of *L. reuteri* in regulating the oral microbiome and salivary pH and the value of orthodontic plaque index (OPI) in pediatric orthodontic treatment.

Results:

Orthodontic treatment is a risk factor for the development of oral diseases related to difficulty in cleaning the oral cavity, increasing plaque accumulation, affecting the oral microbiota and the presence of *Streptococcus mutans* found in plaque can reduce salivary pH. OPI to measure plaque levels during orthodontic treatment. Orthodontic patients need additional oral hygiene measures with the consumption of probiotic *L. reuteri* which is a lactic acid-producing bacterium, producing reuterin and reuterisin which are active against gram-positive and negative bacteria and other pathogenic bacteria. *L. reuteri* produces bacteriocin compounds to reduce bacterial biofilms, prevent colonization of pathogenic bacteria, aggregation and coaggregation of bacteria occur, resulting in microbial and biofilm balance.

Conclusion:

The use of *L. reuteri* during orthodontic treatment in children to reduce the number of *S. mutans* so that the pH remains normal. Changes in OPI scoring scores before and after intervention as an indicator of estimating patient needs for prophylaxis to minimize the risk of demineralization and gingivitis.

Keywords:

Lactobacillus Reuteri, Salivary pH, Orthodontic Plaque Index, Probiotics, Orthodontics Pediatric

P-104

Class III Malocclusion in Mixed Dentition with Severe Caries and Impacted Supernumerary Teeth

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Introduction:

A 8-year-old girl with severe anterior crossbite and deciduous caries. All the deciduous molars showing pulp involvement or the whole tooth grossly destructed, even 75 have been prematurely missing. Slightly tooth germ ectopia of 25, 34 and 44, meanwhile early eruption of 24. The panoramic radiograph revealed two unexpected supernumerary tooth. The family history showed no abnormalities; neither parent had phenotypic dental structure anomalies. Cephalometrically, this patient's maxilla was underdeveloped relative to the cranium, with an ANB° of -1.9. Mandibular incisors were retroclined relative to the palatal and mandibular planes. All those indicated skeletal class III malocclusion.

Case Operation:

1. Treatment for caries, supernumerary teeth and space maintenance 2. Maxilla forward with facemask therapy. 3. Constant oral health management for development of a stable and functional permanent dentition. The patient is still being observed, and some additional information could be added before the meeting.

Summary:

1. Deciduous caries should be given attention and treated in a timely manner to avoid severe consequences. 2. Routine oral examinations helps us detect abnormalities in development without delay, such as supernumerary teeth or congenital missing teeth. 3. Early successful interceptive treatment of developing malocclusions can have both short-term and long-term benefits while achieving the goal of occlusal harmony, function, and dental facial esthetics. And the same time, it also simplifies the treatment process. It should be the goal of every pediatric dentist providing constant oral health care for children to the development of a permanent dentition that is in a stable, functional, and esthetically acceptable occlusion.

Keywords:

Class III malocclusion, Dental caries, Mixed dentition, Oral health management, Supernumerary teeth


DENTISTE'
PLUS WHITE
AGE 2-6 YEARS
AGE 6+ YEARS
KID'S
ไม่มีฟอง บ้วนน้ำน้อย
เคลือบฟลูออไรด์ให้ฟันแข็งแรง
LABORATORY TESTED
DENTIST RECOMMENDED
FOOD GRADE
"SPIT DON'T RINSE" FOR BETTER ORAL HEALTH
• 1000 PPM Fluoride

P-105

Treatment of Embedded Supernumerary Teeth in Maxilla Anterior Region

Xinpeng Chen[1]

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Objective:

A three-year case

Methods:

First visit at September 30, 2020. Panoramic radiograph on September 24, 2021. (46 Preeruption caries and Embedded Supernumerary Teeth in Maxilla Anterior Region. Local anesthesia extracted teeth (61 and Embedded Supernumerary Teeth) on September 24, 2021. 46 Pre eruption caries make the filling treatment (glass ionomer cement and light cured composite resin on September 29, 2021. 21 eruption gap was not enough on November 28, 2021. Tooth-borne rapid maxillary expansion on December 09, 2023.

Results:

Tooth 46 had a timely treatment. Tooth 21 successfully eruped into alignment with pulpal vitality, and no post-operative complications were found.

Conclusion:

Preeruption caries are easy to escape diagnosis. X-ray examination is required for identification. Embedded Supernumerary Teeth had a timely treatment. Early orthodontic treatment provide 21 enough eruption gap.

Keywords:

Pre-eruption caries, Embedded supernumerary teeth, Early orthodontics

P-106

Special Needs, Special Smiles: Managing Early Childhood Caries in a Down Syndrome Child

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Introduction:

Down's syndrome (DS) is a common autosomal disorder causing mild to moderate intellectual impairment and various body system effects. Patients with DS require glucose-containing medications, leading to high caries incidence. Early dental treatment and daily oral care at home significantly improve the quality of life for Down Syndrome children. The objective of this case report was to describe the preoperative preparation, intraoperative and postoperative management of a child with Down syndrome undergoing surgery under general anesthesia.

Case Operation:

A 3-year-old boy with Down syndrome was diagnosed with cavities and swollen gums at UNHAS RSGMP. His mother helped him clean his teeth daily. An extraoral examination revealed no abnormalities in the TMJ, and the patient's lip tone, face, and lymph nodes were normal. The intraoral examination revealed the patient was still in the primary dentition stage. Media caries, irreversible pulpitis, necrosis pulp, and gangrene radix were present. The patient underwent a comprehensive dental restoration under general anesthesia, including a pulpectomy, GIC restoration, dental root extraction, and topical fluoride application. The procedure was performed by an experienced pediatric dentist, dental surgeon and anesthesiologist, with close monitoring of the child's vital signs. After a week, the patient returned for a follow-up and reported no symptoms, eating, or drinking issues.

Summary:

Managing ECC in a Down syndrome child under GA requires meticulous planning, coordination, and close observation. This instance emphasizes the significance of a multidisciplinary approach, involving pediatric dentists, dental surgeon, anesthesiologists, and other healthcare providers, in ensuring the best outcomes for these children.

Keywords:

Down syndrome, Early childhood caries, General anesthesia

P-107

Management Oral Health in a Child with Global Developmental Delay Syndrome

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Introduction:

Global developmental delay (GDD) is defined as the failure to achieve developmental milestones within the expected age range. Objectively, it refers to significant delay in two or more developmental domains in children 5 years of age or younger. This case report aims to provide information on the importance of dental treatment in mild GDD children under general anaesthesia.

Case Operation:

A 4-year-old boy came to the Paediatric Dentistry dental klinik of RSGMP UNHAS with complaints of many cavities, 2 days ago the child complained of pain in the left and right teeth of the mandible. History diagnosed with Global Developmental Delayed (GDD) by a Paediatrician for 4 years ago, currently the child is undergoing physiotherapy, occupational therapy and speech therapy in the medical rehabilitation department. Physical, extraoral, thoracic radiography and laboratory examination showed no significant abnormalities. Intraoral examination revealed reversible pulpitis on teeth 53, 54, 55, 64, 65, 71, 72, 74, 81, 82, 84. Irreversible pulpitis in tooth 75, pulp necrosis in tooth 85. Radix necrosis in teeth 51, 52, 61, 62, 63. The treatment carried out was extraction of radix necrosis of teeth 51, 52, 61, 62, 63 accompanied by socket suturing, pulp capping on teeth 53,54,64,65,84 Glass ionomer restorations on teeth 55, 71,72,74,81,82, root canal treatment of teeth 75, 85 under general anaesthesia and the patient responded well to the treatment carried out

Summary:

Dental health care in children with GDD can be performed according to the severity of GDD, but in uncooperative children, general anaesthesia is one of the options for performing dental treatment.

Keywords:

Intellectual disability, Global developmental delay, General anaesthesia, Genetic

P-108

Management of Multiple Caries and Hyperplasia Gingiva Induced Drug in a Child with Epilepsy: a Case Report

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Introduction:

Epilepsy is one of the chronic diseases with high incidence especially in developing countries. Children with epileptic status have more plaque on permanent teeth and increased gingival inflammation. Both the epilepsy condition itself and anticonvulsant drugs can worsen oral health. Therefore, monitoring oral health for prevention and early intervention is essential for the wellbeing of people with epilepsy.

Case Operation:

A 9-year-old boy came to the paediatric dental clinic of RSGMP UNHAS with complaints of many cavities and the anterior gums of the mandible were always red, bleeding easily and enlarged on the upper and lower anterior teeth. The patient has a history of active epilepsy and is currently on outpatient care by taking anti-seizure drugs and regular treatment by a paediatrician and a sub-specialist growth and development doctor. The patient was diagnosed with epilepsy at the age of 2 months. Intraoral examination found that the gingiva in the anterior of the mandible was hyperemic and bleeding. There was a slight enlargement of the gingiva. Patient also had tongue macroglossia. Following diagnosis were made: 53, 11, 21, 63, 65, 36, 46 reversible pulpitis, 24 deep fissure and 55 irreversible pulpitis. Teeth 12, 14, 15, 34, 35, 44, 45 have not erupted yet. Treatment included maxillary and mandibular scaling. Pulpectomy treatment on tooth 55, compomer restorations on teeth 53, 11, 21, 63, 24, 65, 36, 46. Oral prophylaxis and control of chronic marginal gingivitis.

Summary:

Patients with epilepsy can be safely treated in a dental practice. A thorough history should be taken and updated at each visit. An understanding of the seizure disorder and seizure history should be recognized when planning dental treatment.

Keywords:

Epilepsy, Multiple caries, Hyperplasia gingiva induced drug, Children

P-109

Mouth Preparation in Down Syndrome Children with General Anesthesia: a Case Report

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Introduction:

Down Syndrome is a collection of symptoms due to chromosomal abnormalities. The development of Down Syndrome children is slower than normal children, one of which is in the form of motor ability barriers that cause impaired growth, so that Down Syndrome children are slower in learning, walking and speaking. This developmental delay makes Down Syndrome children unable to maintain their own health, including health in maintaining oral hygiene.

Case Operation:

A 3-year-old girl came with her mother to Unhas Dental Hospital, with complaints of many cavities and frequent pain. ± 1 week ago, the lower left back tooth was swollen to the cheek. There is no history of allergies and systemic diseases. The patient was diagnosed with Down Syndrome shortly after birth by DSA. The patient has a paternal uncle with the same condition. Extraoral examination showed a symmetrical face with normal mouth opening. On intraoral examination, there were no soft tissue abnormalities, narrow and deep palate, with multiple caries. 55, 75, 72, 71, 81, 82: media caries; 54, 52, 51, 61, 62, 64, 74, 84, 85: profunda caries. Because the patient was unable to cooperate, treatment was carried out under general anesthesia in the form of preparation 53, 46, 83; root canal treatment of tooth 53, followed by tooth restoration 53, 46 and 83. Then tooth preparation and restoration 63,73,36. Tooth extraction and hecting 54, 51, 61, 62, 64, 74, 84.

Summary:

The case report shows that dental treatment should be performed in patients with Down Syndrome in a comprehensive manner.

Keywords:

Down syndrome, General anesthesia, Mouth preparation, Children

P-110

Barriers in Utilization and Access of Dental Services for SHCN in Pampanga

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Objective:

Determine the perceived barriers and factors affecting the parents, guardians and caregivers of special health care needs patients in the proper utilization and access to dental services. Analyze the relationship between the demographic profiles of the respondents and their perceived barriers and factors affecting the proper utilization and access.

Methods:

A cross-sectional study carried out between May 2023 to June 2023. The survey questions were to be distributed using the Google form, directly answering on the said databased collection. And a Voluntary Response sample was mainly based on ease of access.

Results:

Respondents agreed that there were 7 factors to consider as patient factor in considering the access of dental service. While there were 4 factors and barriers to consider in the utilization of dental services such as, lack of physical facility and equipment. There were 3 factors agreed upon to consider for accessibility to properly utilize dental services. And 2 for availability and 1 each for affordability and dentist factor was perceived in accessing dental services for special needs patient.

Conclusion:

Perceived some difficulties accessing dental care services for individuals with special healthcare needs. Specially in term of Dental Specialist Availability and Dental Center Catering for Special Health Care Needs Patients in the area.

Keywords:

Dental services, Access, Special Health Care Needs Dentistry, Special Education Department (SPED)

P-111

Respiratory Sound Analysis for Development of Monitoring System in Dental Sedation

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Objective:

Monitoring is a crucial factor for safe dental sedation, as it enables practitioners to be constantly aware of vital information. However, the most commonly used monitoring devices have a limitation of time delay. In this study, respiratory data was collected in pediatric patients, with the eventual aim of developing a machine learning-based risk-detecting monitoring system.

Methods:

Data were collected from 140 pediatric patients aged 7 to 18 years who visited Kyung Hee University Dental Hospital in Seoul, Korea. Participants were asked to breathe normally (BN), swallowing water (SW), soft diet (SD), hard diet (HD) in supine position and respiratory sounds were collected with a digital stethoscope. The respiration data were processed, transformed and analyzed using fast Fourier transform, short-time Fourier transform, and wavelet transform. From this data, the average respiratory cycle, dominant frequency, and average respiratory power were obtained.

Results:

The average age of the participants was 12.3 years. The average respiratory cycle shows no significant difference among the various conditions. Dominant frequency of BN showed a statistically significant difference from the SW, SD, HD groups ($p < 0.001$). The dominant frequency had statistical significance depending on age and showed a decreasing trend as age increased ($p < 0.001$). The average respiratory power appeared in the order of HD, SD, SW, BN.

Conclusion:

Respiratory sounds present distinct characteristics regarding the dominant frequency range and duration. Our study intends to widen the scope, establishing abnormal breathing sounds under various circumstances.

Keywords:

Sedation, Respiratory sound, Monitoring system

P-112

A 10-year Analysis of Children Receiving Dental Treatment under General Anesthesia at Selayang Hospital, Malaysia

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Objective:

This study aims to evaluate a refined pre-/post-operative care in oral treatment under general anesthesia.

Methods:

This study included 60 children who underwent general anesthesia for oral treatment at the Children's Dental Clinic of Shenzhen Stomatolgy Hospital from 2021 to 2022. After signing the informed consent form for the clinical research, 60 pediatric patients were randomly divided into two groups. One group received routine oral pre-/post-operative care, including preoperative care knowledge education, postoperative oral care guidelines, and routine follow-up. The other group implemented refined oral pre-/post-operative care, including personalized oral health education, psychological support for the patients and their families, close postoperative care 24 hours after treatment, and personalized postoperative rehabilitation guidance. Record and analyze postoperative satisfaction and incidence of adverse events of the patients.

Results:

The postoperative satisfaction rate of the children and their parents in the routine pre-/post-operative care group was 93%, of which 66.7% were very satisfied; In the refined pre-/post-operative care group, it was 100%, of which 90% were very satisfied. No adverse events occurred in both care groups.

Conclusion:

Care plays an important role in oral treatment under general anesthesia, and is an indispensable means in avoiding adverse events during the treatment. Refined oral pre-/post-operative care can effectively improve the satisfaction and acceptance of the patients and the families with oral treatment under general anesthesia.

Keywords:

Oral treatment, General anesthesia, Routine pre-/post-operative care, Refine pre-/post-operative care

P-113

Use of PECS in Dental Health Education for Autistic Children: What does the Data Say?

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Objective:

Early prevention and maintenance of oral hygiene in children with Autism Spectrum Disorders (ASD) poses a significant challenge for pediatrics due to impairments in interpersonal communication and motor coordination. This study aimed to compare the effectiveness of using a Picture Exchange Communication System (PECS) with conventional methods in dental health education for children with ASD.

Methods:

This systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. The data search was carried out from 1st – 5th April 2024 in the Medline (PubMed), Science Direct, and Wiley Online Library databases using the keywords (((*picture exchange communication system*) AND (*autism*)) OR (*autistic*)) AND (*dental care*) with study range year 2014 until 2024.

Results:

Out of the 1034 articles found, 934 unrelated articles were excluded during the initial screening. The full papers of the remaining 35 were retrieved and only 8 articles were eligible to be reviewed by three categories depending on the variables evaluated: (1) Improving oral health status in patients; (2) improving cooperation of patients during dental procedures; and (3) decreased level of anxiety in patients. In addition, it was also found that other methods such as the use of apps and videos were effective in education management.

Conclusion:

The use of PECS has been shown to help communication between dentists and children with ASD, especially in preventive procedures and improving the quality of oral health.

Keywords:

Autism spectrum disorders, Picture exchange communication system, Dental health education, Dental care

P-114

A Button Battery Found in a Kid's Nostril Canal

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Introduction:

A careful study and interpretation of the dental panoramic radiography is very essential as unexpected discoveries may be faced unexpectedly.

Case Operation:

A case of a four-year-old boy was brought into our clinic for dental caries treatment. During the treatment, the doctor found a high-density image in the right nasal cavity after taking a panoramic radiography. Immediately, he suggested that the parents take their children to the ENT consultation. After examination, the ENT doctor diagnosed that it was a foreign body in the nasal cavity. The object was taken out, through general anesthesia, and it turned out to be a button battery, which had already shown the initial stage of corrosion and turned black in color. Button battery insertion in nasal canal could lead to a medical emergency. In addition, button battery inserted in the nasal cavity requires urgent removal as it can cause caustic burn injury, due to a leaking battery, to its surrounding tissues in as little as 15 minutes.

Summary:

So, doctors must examine the X-ray images thoroughly and carefully, not missing a single detail. Also, the parents need to keep an eye on anything such as button battery, or similar objects to prevent them from accessing your kids. You have probably already known that kids are innocent and can accurately insert foreign objects into their bodies.

Keywords:

Button battery insertion, Panoramic radiography, ENT consultation

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P-115

Smile Transformation: Minimally Invasive Resin Infiltration in Pediatric Dentistry

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Introduction:

Molar Incisor Hypomineralization (MIH) was initially defined in 2001 as developmental defects in enamel quality, affecting at least one first permanent molar and potentially incisors. Recent reviews indicate a global MIH prevalence of 13%, impacting 878 million individuals, with 4.8 million cases annually requiring invasive treatments. A promising minimally invasive approach involves infiltrative treatment with resin (Icon-DMG, Hamburg, Germany). This technique involves the infiltration of high-viscosity resin into hypomineralized enamel, altering its optical properties and providing a masking effect on MIH lesions without cavities.

Case Operation:

A 9-year-old female patient was dissatisfied with a white spot on her upper right central incisor, so a minimally invasive ICON treatment was recommended. Given the depth of the defect, the procedure commenced with microabrasion using OPALUSTRE, followed by resin infiltration and composite restoration with Filtek SUPREME Enamel A1 and Filtek SUPREME Transparent to address the microabrasion-induced defect. The patient expressed great satisfaction with the results immediately after the appointment, and the stability of the outcomes was evident at the 3-month and one-year follow-ups. The patient reported no memory of the once troublesome white spot, showcasing the success and lasting impact of the intervention.

Summary:

Molar Incisor Hypomineralization (MIH) presents aesthetic, functional, and psychological challenges, especially in young patients. The minimally invasive resin infiltration (Icon) can mask MIH lesions, showing significant improvement in tooth appearance. This method enhances aesthetics and quality of life by alleviating the psychological impact of MIH.

Keywords:

Resin Infiltration, Minimal Invasive Dentistry, Molar Incisor Hypomineralization, Aesthetics

P-116

A Case of Multiple Permanent Teeth Eruption Disorder

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Case operation:

A 10-year-old male came to our hospital in January 2020, complaining of food impaction in the upper left posterior tooth for several days. He denies a history of systemic diseases, his father has multiple unerupted permanent teeth, and his parents deny consanguineous marriage. The patients' mandibular permanent front teeth have erupted. None of the maxillary deciduous front teeth have been replaced, there is no looseness, no percussion pain, there are no abnormalities in the gums, and there are no signs of eruption of the permanent front teeth. The panoramic radiograph found that the root development of the anterior teeth was Nolla 9. The molar is in stage Nolla 8, and the root of the deciduous molar has not been significantly resorbed. The patient's father has chronic periodontitis and more than 1/2 of the alveolar bone has been absorbed. The panoramic radiograph shows: Both sides of the maxilla 3 and the left side of the mandible 4 and 5 are buried in the alveolar bone. The remainder of the family history is unknown. The patient was diagnosed with a delayed eruption of permanent teeth. The bone age was normal, and thyroid hormone, parathyroid hormone, and growth hormone were all normal. Early corrective intervention is initiated. The upper jaw is expanded and incision is performed to facilitate eruption. The maxillary incisors and lateral incisors are now fully erupted. Removal of posterior crossbite. Further early corrective treatment is in progress.

Keywords:

Eruption disorder, Unerupted permanent teeth, Early orthodontic treatment of teeth

P-117

Surgical-Orthodontic Treatment of Inverted Impacted Maxillary Central Incisor with a Supernumerary Tooth in Mixed Dentition

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Introduction:

The presence of supernumerary teeth in the anterior maxilla frequently leads to the impaction of maxillary central incisors, necessitating prompt detection and early intervention to prevent increased complexity and difficulty in treatment. This study reported the effect of surgical-orthodontic intervention for the management of an inverted impacted maxillary central incisor resulting from a supernumerary tooth in the mixed dentition.

Case Operation:

An 8-year-old boy who complained of delayed eruption of the maxillary left primary central incisor came for dental care. Tooth 61 remained in place without any mobility. Radiographs revealed an inverted impacted maxillary left central incisor situated at a high level in the arch and a supernumerary tooth positioned on the top of the maxillary left central incisor and was closed to the nasal floor. Based on clinical and radiological examination, the patient was diagnosed as impacted tooth, supernumerary tooth, and retained primary tooth. A surgical-orthodontic approach was planned, including the surgical removal of the supernumerary tooth and retained primary tooth, and space creation and orthodontic traction of the impacted tooth through fixed orthodontic appliances. After 20 months of treatment, the impacted incisor was successfully guided into proper occlusion and smile aesthetics was restored.

Summary:

This case report provided evidence of the necessity and effectiveness of surgical-orthodontic treatment for addressing inverted impacted maxillary central incisor caused by supernumerary teeth. Besides, it emphasizes the importance of regular radiographic examination in the mixed dentition for early diagnosis and treatment of supernumerary.

Keywords:

Impacted maxillary incisor, Supernumerary teeth, Surgical-orthodontic treatment, Mixed dentition

P-118

Comparison of Glass Ionomer and Resin-based Sealant for Caries Prevention in Children

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Objective:

To compare glass ionomer materials and resin-based sealants in caries prevention in children

Methods:

Data were collected through electronic searches. Sources of data searches carried out include Google Scholar, PubMed, Cochrane, Wiley, Pro Quest and Science Direct where the data obtained spans the publication time period from 2017-2022.

Results:

The use of glass ionomer and resin-based sealants did not have a statistically significant difference in caries prevention in children. Both materials are able to prevent caries as long as the child's teeth are still intact. In terms of retention, resin-based sealants have higher retention than glass ionomers. Glass ionomer requires less time to apply and is less sensitive to moisture than resin-based sealants. Glass ionomer has anticaries properties due to the release of fluoride. The ability of the clinician and the availability of basic infrastructure with the right tools and materials based on the standard procedure also affect the durability of the sealant material on the teeth. Regular control after sealant application is important to prevent the teeth from caries.

Conclusion:

The use of glass ionomer and resin-based sealants as fissure sealants is effective in preventing caries in children. Considerations regarding the nature and method of application are the matter that must be considered by the clinician before choosing the fissure sealant material.

Keywords:

Glass ionomer, Resin-based sealant, Caries prevention, Children

P-119

Comprehensive Evaluation of Relationship between Breastfeeding and Early Childhood Caries in Low-birth-weight Infants

Yusuke Mikasa[1], Maika Fujisaki[1], Masatoshi Otsugu[1], Kazuhiko Nakano[1]

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Objective:

It is generally recommended to stop breastfeeding before 12 months of age to avoid caries, though low-birthweight (LBW) children should continue until at least 6 months old for health benefits. To promote health in LBW children, pediatric dentists must provide appropriate oral health instructions. Comprehensive evaluation findings of breastfeeding at 18 months as a risk factor for caries at 42 months in LBW infants are presented.

Methods:

The Ethics Committee of Osaka University approved this study (approval R2-E25). Enrolled were 4286 children in Japan with birth weight records and complete sets of municipal health examination data at 18 months available. They were divided into normal weight (NW) and LBW groups, then caries development risk associated with breastfeeding at 18 months was evaluated along with other factors using multivariate logistic regression.

Results:

There was no significant difference for caries prevalence between the groups. A significantly greater (33.1%) number in the LBW group had 12 or fewer erupted teeth at 18 months. Breastfeeding was significantly associated with caries in the NW group, along with other factors such as cariogenic bacteria and snacking. In the LBW group, breastfeeding showed no significant association with caries, whereas snacking was significantly associated.

Conclusion:

For LBW children, breastfeeding at 18 months may not increase the risk of caries at 42 months as compared to NW children due to differences in distribution of number of erupted teeth. Nevertheless, lifestyle factors such as snacking may increase that risk in the early childhood stage of oral development.

Keywords:

Epidemiology, Infant oral health, Early childhood caries, Public health

P-120

Caregivers' Concerns of Their Child Eating Behaviors at a Dental Examination in a Japanese City

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Objective:

In recent years, the incidence of dental caries in children in Japan has decreased, while problems with feeding behavior have increased. With this background of oral problems shifting from morphological to functional aspects, we surveyed what concerns caregivers have with their own child's eating behaviors during dental examinations.

Methods:

The subjects were children aged 1, 1.6, 2, and 3 years and their caregivers who came to an dental examination conducted in 2022 in an urban area in Japan. The survey asked whether there were any concerns about their child's eating and the details of these concerns: not chewing, having likes and dislikes, taking a long time to eat, and hoarding into their mouth.

Results:

A total of 5,506 children were surveyed, of which 4,197 caregivers had concerns about their child's eating, and the percentage was 76.2%. The most common concern at age 1 was "not chewing," which gradually decreased with increasing age. The most common concern at age 3 was "having likes and dislikes," which increased as the children aged from 1 to 3 years old. There was no significant difference in the percentage of children who reported "taking a long time to eat" and "hoarding into their mouth" among the ages surveyed.

Conclusion:

In this way, the concerns of caregivers about their own child's eating changes depending on the age of the child. This survey suggests that children need to be provided with appropriate support according to their age.

Keywords:

Children, Eating behaviors, Dental examination

P-121

Results of Early Childhood Caries Control of Silver Diamine Fluoride Combined with Potassium Iodide

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Objective:

To evaluate the effectiveness of Silver diamine fluoride with potassium iodide (SDF+KI) in controlling early childhood caries and the change in color of caries lesions after applying SDF+KI.

Methods:

Controlled clinical trial. Choose children 4-6 years old with at least 2 caries lesions of baby teeth with similar characteristics. Damage on the right side of the jaw is treated with SDF+KI. Damage on the left side of the jaw is treated with SDF. Assessing the level of caries damage according to ICCMS, activity status, and color at times immediately after intervention, 1 week, 1 month, 3 months, 6 months

Results:

Eighty-seven children with 248 teeth received intervention. One-hundred-and-twenty-four caries lesions on the right side were applied with SDF+ KI; 124 caries lesions on the left side of the jaw were applied with SDF. The caries control rate after 6 months in the SDF +KI group was 87.9%, lower than in the SDF group (96%); The SDF+KI group had 53.5% of their teeth turn black; This rate is 87.8% in the SDF group. The possibility of caries lesions turning black in the group intervention with SDF combined with KI lower than the group intervention with SDF.

Conclusion:

SDF and SDF + KI effectively control tooth decay. SDF controls caries better than SDF + KI, especially with ICCMS 3 lesions and molar caries lesions. After 6 months, SDF permanently stains tooth cavities black. In the case of SDF + KI, the color is brown and black, but less dark.

Keywords:

Silver diamine fluoride, Potassium iodide, Discoloration, Early childhood caries

P-122

Effect of Nano Silver Fluoride Application on the Microtensile Bonding of Composite in Primary Teeth

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Objective:

Nano Silver Fluoride (NSF) is a novel anti-caries material formulated to combat the drawbacks of Silver Fluoride Diamine (SDF), offering improved anticariogenic and antibacterial properties. The purpose of this pilot study was to investigate the effect of NSF on the microtensile bonding strength of resin composite to the dentin of primary molars.

Methods:

Six primary molars were prepared for the test and were randomly assigned to either the control group or the NSF group, and microtensile bonding strength (mTBS) was measured. The surface morphology was evaluated by visual inspection and scanning electron microscopy (SEM) imaging.

Results:

The median value of mTBS in the control and NSF groups was 47.26 and 46.74 respectively (P=1.37). SEM images showed that in both groups, the majority of the fractures occurred at the adhesive-dentin conjunction.

Conclusion:

Pretreating dentin with NSF does not affect the bonding strength of composite resin to the dentin of primary teeth. The fracture patterns observed suggest that there is no difference in fracture patterns between two groups. Thus, we suggest that NSF can be used as a dentin pretreatment before resin restoration, potentially contributing to secondary caries prevention in primary teeth and an alternative to SDF as anti-caries agent.

Keywords:

Nanosilver, Fluoride, SDF, Dental material

P-123

Space Regaining with Screw in Space Management in Pediatric Congenital Heart disease: a Case Report

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Introduction:

Children with severe congenital heart disease (CHD) exhibited significantly poorer dental health practices compared to the healthy group. This is particularly concerning, as premature loss of primary molars can lead to a lack of space for permanent dentition. Orthodontic treatment is permissible in patients with controlled conditions; however, there is currently insufficient information available regarding interceptive orthodontic interventions for individuals with CHD.

Case Operation:

We present a case involving an 11-year-old girl diagnosed with CHD, characterized by Patent Ductus Arteriosus (PDA) occlusion and the presence of a right aortic arch. The oral examination revealed premature exfoliation of the upper right second primary molar, attributed to inadequate space for the eruption of its successor. A model analysis revealed 6-mm space discrepancy. A removable appliance with distal screw was given for creating a space for the second premolar. The patient was instructed to activate the appliance twice a week and was scheduled to see the dentist every month. After 7 months of treatment, the space was created 6 mm which is enough for the right permanent second premolar fully eruption. The associated teeth and surrounding tissues remained healthy, with no reported complications.

Summary:

Management of space problems in the mixed dentition plays an important role in pediatric dental practice. Space regaining with screw are effective and noninvasive techniques and helps in interception of malocclusion. The case report not only highlights the successful orthodontic management of a patient with CHD but also emphasizes the maintenance of optimal health condition in such patients.

Keywords:

Space regaining, Space management, Congenital heart disease

P-124

A Short Term Analysis of Plaque Microbial Change before and after Treatment in S-ECC Children

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Objective:

To explore microorganisms changes in plaque microbial community of children with severe early childhood caries (S-ECC) before and 3 months after dental treatment.

Methods:

Twenty children aged 3 to 5 years with S-ECC who had completed dental treatment under general anesthesia and twenty caries-free children (CF) were collected. Plaque from caries-free dental surfaces before treatment (caries, C) and at the postoperative follow-up review time points of 7 days (C-7D), 1 month (C-1 M), and 3 months (C-3 M) were analyzed by sequencing.

Results:

Species clustering analysis showed that the compositions of the microbial communities of the S-ECC and CF groups were highly similar. *Leptotrichia* spp. and *Aggregatibacter* spp. decreased after treatment compared with before treatment ($P<0.05$). *Streptococcus sanguinis* in the C-7D group increased compared with that in the C group and gradually decreased within 3 months. *Veillonella* spp., *Actinomyces* spp., *Allprevotella* spp., *Capnocytophaga* spp., and *Streptococcus mutans* differed between the C and CF groups ($P<0.05$), Streptococcus mutans showed an increase in C-3 M compared with the CF group ($P<0.01$).

Conclusion:

The rapid change in the structure of the flora of children with S-ECC after treatment. The plaque microbial community structure in a caries-free state gradually starts to be established 1-3 months after treatment. There is a "core microbiota" in the oral plaque community that jointly maintains microecological stability. *Veillonella* spp., *Allprevotella* spp. and *Streptococcus mutans* have potential as possible microbial markers.

Keywords:

Severe early childhood caries, Dental general anesthesia, Oral microecology, Plaque microbial community, Microbiome diversity

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