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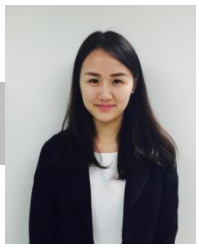

OR-01

Management of Complicated Crown Fracture with Subluxation in Young Permanent Incisor

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

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

Keywords: Partial pulpotomy

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OR-02

Dental Treatment for Tooth Dislocation Due to Injury

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

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

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

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

Keywords: Dental treatment, Injury, Tooth dislocation

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EXPERIENCE
2010-Now Inoue Hideto Dental Clinic

JOB TITLE
2012 The director of one hospital in Inoue Hideto dental clinic
2015 Japan Association of Dental Traumatology
2015 Specialist in Ministry of Health, Labour and Welfare authorized clinical medic instruction

EDUCATION
2009 Matsumoto Dental University
2010 Kyushu Dental University Hospital Clinical training completion
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OR-03

Management of Lateral Luxation and Subluxation in Primary Teeth

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

The clinical examination found 51 had 3rd degree mobility, displaced labially. Tooth 61 showed enamel-dentin fracture with 3rd degree mobility and 52 had 2nd degree mobility without displacement. The diagnosis of 51 was lateral luxation, 52 and 61 were subluxation. The repositioning on 51 using suture splint was performed. After 8 weeks follow-up, 51 and 61 had 1st degree mobility, normal wound healing without any symptoms. Radiographic examination found continued root formation of 51, 61 without pathological lesion. Tooth 52 was nearly completed root formation without pathological lesion.

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

Keywords: Lateral luxation, Subluxation

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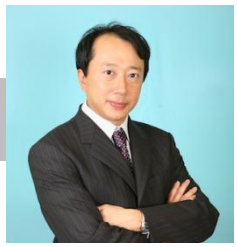

OR-04

Clinical Investigation on Adhesion of Juvenile Permanent Teeth

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

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

Keywords: Incomplete root formation, Root fracture, Tooth trauma

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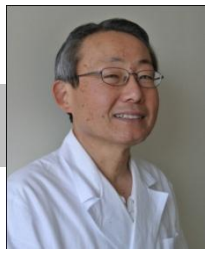

OR-05

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

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

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

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

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

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Position and Employment

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2001-2007:	Assistant professor, Department of Biomaterials, Okayama University Graduate School of Medicine and Dentistry
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OR-06

Root Resorption: The Inevitable Complication

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

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

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

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

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

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OR-07

Reattachment of the Crown Fragment

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

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

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

Keywords: Crown fracture, Reattachment

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OR-08

Intraoperative CBCT for Diagnosing A Traumatized Tooth: A Case Report

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

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

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

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

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

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JSMOS (Japanese Society of Oral and Maxillofacial Surgeons)
Completion of Major (Maxillofacial Surgery) – Graduate School of Dentistry, Aichi Gakuin University
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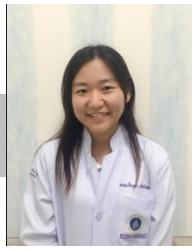

OR-09

Management of Complicated Crown Fracture: Case Report

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

Keywords: Case report, Complicated crown fracture

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OR-10

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

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

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

Personal information

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1988-present	The director of the Tsuji Dental Office

OR-11

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

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

Keywords: Avulsed tooth management

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OR-12

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

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Department of Oral and Maxillofacial Surgery, Shimane University, Japan

<Examination>
Patient: A 4-year-2-month-old female
First visit: April 2011
Present history: Her right deciduous central incisor fell out in an accident in her house and she lost the tooth. One week later, surprisingly her dog found out the tooth in the room.

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

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

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

Personal information

EXPERIENCE :

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OR-14

Study on The Oral Health Education at Elementary School in Japan

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

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

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

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

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

Personal information

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Japanese Association of Dental Traumatology (member of the executive board)
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Child Oral Health Association of Kitakyushu City (member of the executive board)
Japanese Association of School Health
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Education
1975 B.Ed. in Kumamoto University (Japan)
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Professional Experience
1997 - 2008, Lecturer, Faculty of Health Sciences and Welfare, Seinan Jo Gakuin University (Japan)
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OR-16

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

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OBJECTIVE

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

METHOD

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

RESULTS

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

CONCLUSION

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

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

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

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Education

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OR-17

Low Level Fluoride Stimulates Epithelial-Mesenchymal Interaction in Oral Mucosa

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

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

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

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

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

Personal Information

Educational Background

1987-1993	Dhaka Dental College, Bangladesh (DDS)
1997-2001	Hiroshima University Graduate School of Dentistry, Japan (Ph.D. from Hiroshima University)

Professional experience

2004-2006	Research Fellow, Department of Biochemistry, Hiroshima University School of Dentistry, Japan
2006-present	Researcher, Department of Molecular Pathology, Nara Medical University, Japan
2006-2011	Research Fellow, Kanagawa Dental University, Japan
2011-present	Visiting Lecturer, Kanagawa Dental University, Japan
2011-present	Assistant Professor, Department of Biochemistry and Molecular Biology, Nihon University School of Dentistry at Matsudo, Japan
2008-2017	Associate Professor, Faculty of Health Sciences and Welfare, Seinan Jo Gakuin University (Japan)

POSTER PRESENTATION

The 8th Conference of Asian International Association of Dental Traumatology

POSTER PRESENTATION

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P-01

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

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

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

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Educational Background
- Bachelor Program of Faculty of Dentistry, Universitas Indonesia
- Residency Program in Pediatric Dentistry, Universitas Indonesia
- Doctoral Program in Pediatric Dentistry, Universitas Indonesia
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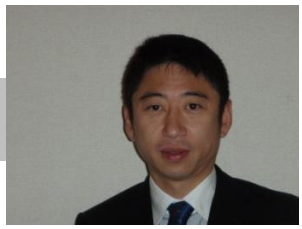
Organization and Committee
Chairman of Ikatan Dokter Gigi Anak Indonesia Jakarta Raya (Indonesian Pediatric Dentistry Association)



P-02

A Case of 4 Complete Dislocation of Permanent Maxillary Incisors

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【Background】
In some cases, fracture of teeth might occur by an unexpected contact or accident. I will report a very rare case of complete dislocation of 4 permanent maxillary incisors. A follow up result after 4 years and 4 months will also be summarized.

【Case】
A 9-year-old boy, born in 2002, came to see me after fall down from a ride in playground at school on February 10, 2012. He had facial swelling with avulsion of 4 maxillary incisors. Unfortunately, one of them lost. I then replanted the remaining teeth with periodontal membrane cell stimulation as a key of convalescence of luxated teeth. Good results without wound infection have been derived even though the start of treatment was delay for 80 minutes after accident. Prosthetic treatments are planned when the patient is at age of 18.

【Discussion】
Dental traumatization often occurs as a result of accident and sport injury. Due to the anatomical location and hard tissue projection of the face, which is easy to encounter the external forces, injury always affects 4 maxillary incisors. At school, storage solutions for avulsed teeth are necessary for the success of replantation with good prognosis. Follow-up after treatment is also important.

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

Personal information

Experience

1993	D.D.S., Osaka Dental University
Present	Director of Yoshida Dental Clinic, Private office in Sakai-city, Osaka, Japan
	Ph.D., Kyushu Dental University

Society
Japan Association of Dental Traumatology (Authorized Dentist and Instructor)
Japanese Society of Oral Implantology (specialist)
International Congress of Oral Implantologists (Authorized Dentist)

P-03

Management of Traumatized Primary Teeth with Root Fracture

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

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

Personal information

Education and Academic Qualifications
2011 D.D.S., Mahidol University

Positions and Employment
2011 General dentist, Suwannakuha hospital, Nongboalamphu province
2016 Residency training in general dentistry, Mahidol University

P-04

Management of Subluxation Tooth: Case Report

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

Keywords: Subluxation

Personal information
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Education
Mahidol University (2008-2013); DDS.

P-05

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

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

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

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

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

Personal information

Dr. Satoko Kakino received the D.D.S degree from Tokyo Medical and Dental University (TMDU), Japan, in 2004 and the Ph.D. degree in pediatric dentistry from TMDU in 2008. She is currently an assistant professor of the pediatric dentistry, graduate school of TMDU. Her research interests include non-invasive diagnosis of the tooth viability in relation to circulation of the dental pulp by optical methods.

P-06

Clinical Correspondence of Pediatric Dental Patients due to Trauma

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

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

Keywords: Pediatric patient, Trauma

Personal information

Education Experience
1984 Graduated from Fukuoka Dental College
1994 Dentistry PhD degree
2000 Director of Japan Association of Dental Traumatology
2004 Director of Asia Association of Dental Traumatology
2004 Vice-president Kitakyushu Society of Pediatric Oral Health

P-07

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

Kumiko Nozaka
Aoba Dental and Pediatric Dental Clinic, Japan

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

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

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

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

Personal information

Education Experience
1966 DDS, Tokyo Dental College
1979 PhD, Tokyo Dental College

Position and Employment
1979-2001: Associate Professor, Department of Pediatric Dentistry, School of Dentistry, Iwate Medical University
2001-2002: Department of Pediatric Dentistry, Morioka Children's Hospital
2002-present: Dental Office (Aoba Dental and Pediatric Dental Clinic)

P-08

Incomplete Tooth Dislocation and Mandibular Alveolar Fracture

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〈Examination〉
Patient: A16-year-old male, first visit on October 1st, 2013.
History of the present complaint: When playing football in club activities, the ball strikes the mouth LR1.LR2.LL1 alveolar bone fracture and UR1 tooth complete dislocation.

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

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

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

Personal information

Experience:
1993 D.D.S., Osaka Dental University
2004 Vice Director of Noda Dental Clinic, Private office in Komatsu city, Ishikawa, Japan
2016 Internship, Kyushu Dental University

Society:
Japan Association of Dental Traumatology
Japanese Society of Oral Implantology
Japanese Society of Oral and Maxillofacial Surgeons

P-09

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

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

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

Keywords: Complications, Fracture, Upper jaw

Personal information

Education Experience
2009: DDS. Degree from Kagoshima University, School of dentistry
2015-present: Yamaguchi University, Faculty of Medicine and Health Sciences

Position and Employment
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2010: Department of Oral Maxillofacial Surgery, Ijinkai Takeda General Hospital, Kyoto, Japan
2011-2013: Department of Oral Maxillofacial Surgery, Japanese Red Cross Society Wakayama Medical Center, Wakayama, Japan
2013-2015: Department of Oral Maxillofacial Surgery, Shizuoka General Hospital, Shizuoka, Japan

P-10

Surgical Approaches and Management of Panfacial Fracture: A Case Report

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

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

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

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

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

Keywords: Panfacial fracture

Personal information

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Education :
(2008-2014) Bachelor of doctor of dental surgery, Faculty of dentistry, Mahidol university
(2016-Present) Residency training in oral and maxillofacial surgery program, Faculty of dentistry, Mahidol university

P-11

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

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

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

Keywords: Community health, Maxillofacial injury, Miyako island

Personal information

Position	Oral Surgeon
Institute	Okinawa Nanbu Medical Center & children's Medical Center

Education

2008/04/01-2009/03/31	Division of Research and Treatment for Oral and Maxillofacial Congenital Anomalies, School of Dentistry, Aichi Gakuin University
2009/04/01-2010/03/31	Department of Oral and Maxillofacial Surgery, Faculty of Medicine, University of Ryukyus

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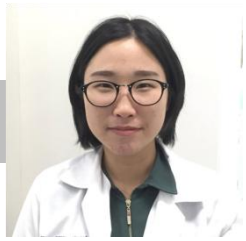
Academic Society

Japanese society of oral and maxillofacial surgery
Japanese Cleft Palate Association
Japanese society for Disability and Oral Health
Japan Association of Dental Traumatology
Japanese society Pediatric oral and maxillofacial surgery



P-12

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

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

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

Keywords: Dentoalveolar injury, Motorcycle accident, Multiple facial trauma

Personal Information

Resident
Department of Oral and Maxillofacial Surgery
Mahidol University
Bangkok, Thailand

P-13

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

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

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

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

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

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

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

Personal Information

1978 DDS (Hon.), Mahidol U.
1982 Graduate Diploma in Endodontics, Mahidol U.
1992 PhD (Dental Science), Tokyo Medical and Dental University
Current Position Associate Professor,
Chairman, Department of Operative Dentistry and Endodontics,
Faculty of Dentistry, Mahidol University, Bangkok, Thailand

P-14

Traumatological Information: Bonding Ability to Enamel Substrate of Deciduous Tooth

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

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

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

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

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

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

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

Personal information

1988	Graduated Yamaguchi University
2004	Graduated Kyushu Dental University
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Dental Traumatological Information: Delayed Polishing Minimized Class I Gap-formation in Various Glass-ionomer Restorations

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

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

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

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

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

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

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

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

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

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Imaging Findings of Gubernaculum Tracts on CT and Panoramic Radiographs

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

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

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

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

Keywords: Computed tomography, Gubernaculum tract, Panoramic radiograph

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

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

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

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Epidermoid Cyst Clinically Presented as Nasopalatine Duct Cyst

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

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

Keywords: Epidermoid cyst, Nasopalatine cyst

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Bilateral Temporomandibular Joint Ankylosis: A Case Report

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

Keywords: Ankylosis, Bilateral, CT scan, Temporomandibular joint

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