



The 10th Conference of Asian International Association of Dental Traumatology

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Organizing Chairman : Dr Masao Irie
Organizing Vice-Chairman : Dr Norihiro Sono
Organizing Secretary : Dr Hiroaki Taketa



Message from the President of JADT and AADT

There are three Academic Societies in the field of dental traumatology: International Association of Dental Traumatology (IADT) recognized in the world, Japan Association of Dental Traumatology (JADT) in Japan, and Asian Association of Dental Traumatology (AADT) in Asian. They respectively expand clinical assessment based on the basic and clinical sciences from education, research work and clinical performance. The specialized fields in each university and dental service organization play key roles to continue developing toward the medical forefront.

The 10th AADT was had been scheduled to be held in India on November 1 and 2 last year but was cancelled due to COVID-19, and it was suddenly forced to be held in Okayama on February 5, this year on our website.

From the situation of stomatology, it is very important for healthy life expectancy to preserve as many as a tooth. It is further important to restore traumatic occlusion based on the fracture and the dislocation characteristics, as a base oral cavity medicine. In these societies of traumatology, therefore, it needless to say on what Pedodontics, Endodontics, Operative Dentistry, Biomaterials, Dental Radiology, Oral Surgery, Oral Pathology, Neuropathology, and Clinical Pathology should be deeply related.

Finally, I want to do "SCIENCE" of Dental Traumatology by discussing through the proceeding in the program as you can look at in this booklet.

I hope we will see you again in WEB (Okayama, Japan).

Prof. Mitsutaka Kimura, DDS, PhD

President, Asian International Association of Dental Traumatology
President, Japan Association of Dental Traumatology



Greeting from Okayama

The 10th AADT was scheduled to be held in India on November 1 and 2 last year, but was cancelled due to COVID-19, so it was suddenly decided to hold it in Okayama on February 5 on our website. Despite the short notice, we were pleased to receive as many as about 20 abstracts.

The purpose of this AADT has been to promote the advancement and development of oral trauma care, and to improve the knowledge of our members through the promotion of medical care and research. Recently, academic activity in COVID-19 has been stagnant, and COVID-19 shows no signs of slowing down yet. I hope that this conference will help our members to make a leap forward in their medical practices for tomorrow.

I know that it is a great psychological burden for our members to be in the midst of infection by COVID-19, but we are holding this conference in the hope that it will provide them with as much information as possible on trauma dentistry.

Finally, I would like to express my deepest gratitude to the members of the preparatory committee.

Dr. Masao Irie, DDS, PhD

The president of 10th AADT

Contents

Message from the President, AADT, Mitsutaka Kimura, DDS, PhD

Message from the Organizing Chairman Masao Irie, DDS, PhD

List of Abstracts

1. Dr. Michiyo Miyashin (Japan)
2. Dr. Pornpoj Fuangtharnthip (Thailand)
3. Dr. Yoshihiko Sugita (Japan)
4. Dr. Kumiko Nozaka (Japan)
5. Dr. Atsuko Baba (Japan)
6. Dr. Yuta Inoue (Japan)
7. Dr. Masao Irie (Japan)
8. Dr. Junya Ono (Japan)
9. Dr. Makoto Saito (Japan)
10. Dr. Daishi Saito (Japan)
11. Dr. Yasutaka Yawaka (Japan)
12. Dr. Takehiro Hattori (Japan)
13. Dr. Takahiro Totani (Japan)
14. Dr. Yoko Inoue (Japan)
15. Dr. Katsuyuki Yamanaka (Japan)
16. Dr. Tadashi Yoshida (Japan)
17. Dr. Mitesh Tewari (India)
18. Dr. Kuniomi Nakamura (Japan)
19. Dr. Sho Odawara (Japan)



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Idiopathic Resorption in Primary dentition: Review of the literature

Abstract : The primary teeth may fall out early or collapse despite the absence of dental trauma. Other than pre-juvenile periodontitis, pathological root resorptions occurring earlier than biological resorption are the causes of early loss of primary tooth. Among these resorptions, idiopathic resorption(IR) is the pathological resorption for which the cause cannot be determined, resulting in simultaneous resorption or continual resorption in multiple teeth. The information about IR is essential for dental traumatology. The purpose of this lecture is to describe the review of previous case reports from a literature on IR of primary teeth.

Materials & Method : The literature search was conducted for English and Japanese-language articles using Pub Med and Central Journal of Medicine as of October 2022 with the search keywords idiopathic, root resorption, internal resorption, and primary teeth.

Results : The total number of the reports of IR was 23 cases of 176 teeth and the number of teeth with IR was 3-17 per case. The chief complaint in the IR cases were discoloration and high mobility, collapse or crown fracture and loss of primary teeth. In the X-ray examination, internal resorption was observed in all cases, and perforation was seen in 26 teeth. In follow-up process, pulp canal obliteration and calcification of pulp can be predictors of IR. Clinical follow-up of the IR cases showed intact successor permanent teeth.

Conclusion : It is recommended that treatment of a non-perforating IR should be pulp extirpation promptly with electrical apical locator. In root canal treatment, calcium hydroxide-water paste halted the IR, and root canal filling with ZnO₂-Eugenol paste prevented premature loss of primary teeth. Once IR is indicated, short-term follow-up should be performed to preserve the teeth and long-term follow-up should be conducted to examine evidence of the success of treatments performed.

Key words : Idiopathic resorption , pulp canal obliteration , Pink tooth,
Root canal treatment for primary tooth

Brief CV

Education and Academic Qualifications

1981 D.D.S., Tokyo Medical and Dental University (TMDU)

1981 Pedodontics Course, Department of Pediatric Dentistry, TMDU

1991 Ph.D., TMDU

Positions and Employment

1981 Clinical Fellow, Dental Hospital, Faculty of Dentistry, TMDU

1990 Assistant Professor, Department of Pediatric Dentistry, TMDU

2014 Associate professor (Head), Department of Pediatric Dentistry, Graduate school of Medical and Dental Sciences, TMDU

2020 Clinical Professor, Dental Hospital, Faculty of Dentistry, TMDU

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Readiness for Emergency Dental Trauma in Secondary Schools in Bangkok

The young population spends most of their time at school participating in a lot of activities that are risky for dental trauma.

Objective: Our study aimed to find out the readiness in emergency dental trauma management among secondary schools in Bangkok.

Materials & Method: Structured interviews and data collection were conducted with the in-charge nurses from 15 secondary schools about school policy, health stations or nurse rooms, health personnel, and documentation on the management of traumatic dental injuries. This study included 7 public schools and 8 private schools.

Results: The results showed that all of the schools provide general accident insurance with 66.67% dental treatment coverage. None of the surveyed schools provide seminars on dental emergency management for staff and nurses. The mean (SD) number of health stations in the schools is 1.53 (± 0.92) and the mean (SD) number of nurses per 1000 students is 1.27 (± 0.57). Only 1 out of 15 in-charge nurses had ever attended a seminar on dental trauma management. All of the surveyed schools (66.67%) have a recording system for dental trauma incidents: 66.67% use manual recording with further computerized input, 26.67% only manual, and 6.67% with computer-based recording systems first-hand. Among the surveyed schools, only 13.33% have a formatted referral/reporting form, whereas all schools seem to perform informal follow-ups.

Conclusion: Our study indicates that not all schools in Bangkok provide general accident insurance with dental treatment coverage. However, most of them have prepared a health care system with limited health personnel, and manual recording of incidents with informal referral and follow-up systems, when dealing with dental trauma at school.

Key words: Dental trauma, emergency management, secondary school, readiness

Brief CV

Educational Background:

1986-1994 Doctor of Dental Surgery (DDS) Mahidol University, Faculty of Dentistry, Thailand

1995-2000 Certificate of Training in Pediatric Dentistry,

Ph.D. (Dental Science), Tokyo Medical and Dental University.

Professional Experience:

1994-2004 Lecturer, Department of Advanced General Dentistry, Mahidol University,
Faculty of Dentistry.

2005-present Assistant Professor, Department of Advanced General Dentistry, Mahidol
University, Faculty of Dentistry.

2011-2012 Vice-chair, Thai Society of Pediatric Dentistry

2016-present Adjunct Lecturer, Faculty of Dentistry, Tokyo Medical and Dental University.

2019-present Chair of Department of Advanced General Dentistry, Mahidol University,
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LLLI promote proliferation and differentiation of chondrocytes in the cultured rat mandibular condyle

Objects: Recently, the efficacy of low reactive level laser irradiation (LLLI) has been reported to be effective treating osteoarthritis-related pain and disorders. In this study, we investigated the effects of LLLI on the mandibular condyle in organ culture.

Materials and Methods: The mandibular condyles were removed from Sprague Dawley (SD) rats were used in this experiment. The mandibular condyle used for the histological search was divided into the following 4 groups: Control group, organ culture only; F+L- group, with basic fibroblast growth factor (bFGF) added to the medium; F-L+ group, LLLI; and F+L+ group, with bFGF added to the medium and LLLI. The culture was performed using BGJb mediums containing bFGF (100 ng/mL) and no bFGF. LLLI (wavelength 633 nm) was performed on the cultured mandibular condyle under the following conditions: irradiation power 250 mW, time 30 seconds, and distance 10 mm. LLLI started at culture (day-0) and was performed 5 times in total up to the 4th day at 24-hour intervals. After organ culture, tissue was sectioned and stained with H-E stain for histological observation.

Results: In the F+L+ group, the mandibular condyle was larger than that in the control group, the differentiated and hypertrophied layers were large, and the cell number was increased. The size of the mandibular condyle increased the most in the control group, followed by the F+L- group, F-L+ group, and F+L+ group. In addition, in the F+L- and F-L+ groups, intermediate histological findings were observed between the control and F+L+ groups.

Conclusions: The results of this study showed that LLLI promote cell proliferation in the mandibular condyle as much as the addition of bFGF. Therefore, it is suggested that LLLI (633 nm) may promote proliferation and differentiation of chondrocytes in the mandibular condyle.

Key words: LLLI , rat, mandibular condyle , organ culture , bFGF

Brief CV

Educational Background:

1998 DDS, Aichi Gakuin University

2002 PhD, Aichi Gakuin University

Position and Employment

2003-2008 Assistant professor, Department of Oral Pathology, School of Dentistry, Aichi Gakuin University

2008-2013 Associate professor/lecturer, Department of Oral Pathology, School of Dentistry, Aichi Gakuin University.

2009-2010 Visiting Scholar, Advanced Prosthodontics and Weintraub Center for Reconstructive Biotechnology, UCLA School of Dentistry.

2013-present Associate professor, Department of Oral Pathology, School of Dentistry, Aichi Gakuin University.



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Clinical consideration of central cusp fracture

Objects: Central cusp has a pulp cavity in the cusp, unlike interstitial cusp or other abnormal cusps. Thus, occasionally, pulp exposure occurs due to attrition or fracture. This can result in pulp infection leading to pulp death, or even complications such as apical periodontitis.

Materials & Methods: There were nine teeth of six patients (youngest: nine years and six months, oldest: 24 years, others: 11 to 15 years) who experienced various complications after the fracture or attrition of the central cusp. Eight of nine teeth were mandibular, and the first and second premolars were four and five, respectively. Six out of nine teeth were in the process of root formation.

Results: Five out of six patients visited our office complaining of occlusal pain and swelling. Three teeth were treated with pulpectomy, and six required root canal therapy for infected root canals.

Conclusion: Central cusp fracture occurs due to strong masticatory force at the occlusal contact of teeth in the buccal segment. Therefore, it is advisable to conduct reinforcement to prevent central cusp fracture or take a preventive measure such as pulpotomy. Although endodontic treatment may be needed in the near future, fracture should be avoided until the root formation is nearing completion.

Key words: Clinical consideration of central cusp fracture

Brief CV

Education and Academic Qualifications

1966 DDS, Tokyo Dental College

1979 PhD, Tokyo Dental College

Positions 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 Private Dental Office (Aoba Dental and Pediatric Dental Clinic)



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A Case of Multiple Tooth Fractures Caused by High-Energy Trauma

Purpose: I report on our experience of dental treatment of a child who jumped from the third floor of a junior high school building after treatment for high-energy trauma. Written consent for this presentation has been obtained from the parents.

Case: 15-year-old girl, **Chief complaint:** dental treatment

Present Medical History: She jumped from the third floor of her school building and was transported to a nearby emergency hospital by ambulance. About 6 months after systemic treatment, she was referred to our hospital for treatment of a fractured crown of multiple teeth.

History: #1: after suicide attempt by jumping #2: ADHD #3: ASD #4: postoperative left pelvic fracture (both column fractures), left distal radius fracture, left ankle tricarp fracture, multiple mandibular fractures, laceration and suture on left lower lip and mastoid area #5: multiple tooth fractures.

Oral Findings: Hellman's dental age stage IVA, normal occlusion, $\overline{6}$ | $\overline{125}$ $\overline{65}$ | $\overline{6}$ showed dentin fracture without pulp exposure, $\underline{4}$ | loss.

Treatment and Progress: $\overline{125}$ $\overline{65}$ | $\overline{6}$ was restored with composite resin, and $\overline{6}$ | was restored with a preformed metal crown. $\underline{4}$ | was fitted with a temporary denture after extraction of the remaining root. $\overline{6}$ | became non-vital 7 months after treatment, and root canal treatment was started and is currently under treatment.

Discussion: Looking at trauma cases in Japan by injury mechanism, traffic accidents, falls, and crashes/falls are common. In the present case, the patient's foot landing caused high vertical energy to be applied to the lower limb and pelvis, followed by a hard blow to the mandible and mandibular body by a bent knee or the ground, resulting in a mandibular fracture, crown fracture, and root fracture of the upper and lower molars. I will carefully continue to treat the patient and her family, not forgetting to provide psychiatric follow-up.

Key words: High-energy trauma, Suicide attempt, Mandible fracture, Crown fracture.

Brief CV

Education and Academic Qualifications

1990 DDS, Fukuoka Dental College

1994 PhD, Fukuoka Dental College

Positions and Employment

1994 Hospital doctor, Fukuoka Dental College Hospital (Pediatric Dentistry)

1994-2005 Assistant, Fukuoka Dental College, Department of oral growth and development division of Pediatric Dentistry

2005-2022 Lecturer, Fukuoka Dental College, Department of oral growth and development division of Pediatric Dentistry

2022-present Associate professor, Fukuoka Dental College, Department of oral growth and development division of Pediatric Dentistry



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One case of dental treatment for occlusal trauma

Abstract: The patient is a 67-year-old female. She chewed her front teeth more frequently, and was absorbed by a mating trauma that was thought to have taken more force than necessary, making it difficult to preserve and extract her teeth.

The treatment plan was to implant treatment. Orthodontic treatment was not hoped.

In May 2015, Pulled of lower right central and side incisor. At the same time one implant was placed at the portion in the space lower right central and side incisor. The implant used are BIOHORAIZONS[®] Tapered Internal $\phi 3.8 \times 15$ mm. An initial torque value of 35Ncm. The implant was covered with covering screw after placement, and Geistlich Bio-Oss[®] was applied to the tooth extraction cavity and the periphery of the implant, and is closed by covering with a bioabsorbent membrane EpiGuide[®].

Three months later, in August, the second operation was performed. On the same day, set temporary crown.

In October 2015, chose a threaded prosthesis for the final prosthetic.

Because I thought it was easy to clean. After the second operation, when I was using my existing abutment, 3inOne abutment, I saw a lot of stuff stuck.

The prognosis has been favorable without any trouble for about 7 years up to date.

The patient is satisfied functionally aesthetically.

It is recommended that you check the occlusion during maintenance and use a mouse guard.

Key words : occlusal trauma, implant treatments, bone graft

Brief CV

2009 Matsumoto Dental University graduation
2009-2010 Kyushu Dental University Hospital
2010-2022 Inoue Hideto Dental Implant Clinic



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Highly-viscous glass-ionomer cement for filling: Interfacial Gap-formation in Class I restoration and Mechanical properties

Objects: 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).

Materials and Methods: Cavity preparation was made in occlusal surface of premolar teeth. Five HV-GICs were studied (Ketac Universal Aplicap, Ketac Molar Aplicap: 3M, Fuji IX GP, Fuji IX EXTRA, EQUIA Forte: GC, and two conventional glass-ionomer cements (C-GICs, Ketac Silver Aplicap: 3M, 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 x 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.

Result: 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.

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

Key words: Highly-viscous glass-ionomer cement, Filling, Interfacial Gap-formation, Class I restoration, Mechanical properties.

Brief CV

1976-1982 Instructor, Department of Dental Material, Josai Dental University
1982-2007 Assistant Professor, Department of Dental Materials, Okayama University.
1984-1985 Visiting Researcher, Department of Dental Technology, The Royal Dental College Copenhagen
2007-2016 Assistant professor, Department of Biomaterials, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Science.
2016- Visiting Researcher, Department of Biomaterials, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Science.



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Clinicopathological studies of the vertical root fracture of molar

Objects: To elucidate the disease conditions of the fractured and non-fractured roots in vertical root fracture of molar, we examined the clinical characteristics and histopathological findings of the fractured teeth and surrounding tissues.

Materials and Methods: From the vertical root fracture of molar cases archived at our department, the recent 20 cases were selected for this study. We examined and compared the results of H-E staining, clinical data, and radionuclide imaging findings.

Result: The majority aged in the seventies; who were considered to reflect the population aging and the current number of teeth in Japan. Vertical root fracture occurred in mandibular molar in 18 cases and in maxillary molar in 2 cases. The fractured root in mandibular molar was the mesial root in 10 cases, distal root in 6 cases, both mesial and distal roots in 1 case, and fused root in 1 case. Prior treatments including root canal filling and metal core were observed in 13 cases, and were considered to be the cause of fracture. On the root fracture surface, bacterial contaminants were observed in 14 cases, microfractures in 13 cases, and fibrous connective tissue in 4 cases. Around the fractured root, radicular cysts were observed in 11 cases. In a patient with a history of taking oral bisphosphonates for the treatment of osteoporosis, no odontoclasts were observed in the resorption craters on the fractured surface. In the non-fractured roots, radial fissures centered on the root canal were observed in 4 cases, and radicular cysts were found in 1 case. Since the mandibular molar is multi-rooted tooth, even if fracture exists in one root, there are few subjective symptoms due to the presence of non-fractured root. Hence, patients seek dental consultation only after the symptoms have progressed, and this poses a challenge for early diagnosis.

Key words: Vertical root fracture, molar, clinicopathological characteristics

Brief CV

Education Experience

2011 DDS, The Nippon Dental University School of Life Dentistry at Niigata

2016 PhD, The Nippon Dental University Graduate School of Life Dentistry at Niigata

Position and Employment

2016-present Assistant Professor, Department of Pathology, The Nippon Dental University
School of Life Dentistry at Niigata

2018-2019 Resident, Department of Pathology, The University of Tokyo

2020-present Guest researcher, Histopathology Core Facility, Faculty of Medicine, Niigata
University



Makoto Saito

Saito Dental Clinic

A case of dental implant treatment for a traumatic root fracture in ten years old on nine years later

Background: A 10-year-old man. Initial visit: December 2012. Present history: In November 2012, He fell of tooth #11 and fractured crown and root of tooth #21 during an exercise of the soccer. The dentist who belonged to the hospital departments of emergency treated #11 by tooth replantation on the day. One month later, He was referred from the hospital department of oral & maxillofacial surgery and presented to our clinic. He and his parents requested the aesthetic restoration for his front teeth.

Treatment outcome: The tooth #21 had plural root-fracture-line in dental x-ray view. Thus, the tooth was adaptation of the tooth extraction. The dental implant treatment is not at 10 years old in the guidelines. When he became 19 years old, we extracted the tooth #21 and operated on the dental implant just after that. The dental implant was finally restored with a Zirconia crown. The quantity of eruption of the tooth #11 was short, because the tooth root and the alveolar bone caused ankylosis. We gave a form ideal for the tooth #11 in laminate veneer. He and his parents were satisfied with these aesthetic treatment.

Discussion: We stored the root fracture tooth for nine years. In this way, we were able to maintain a bone mass necessary for implant treatment.

Key words : root fracture, dental implant , replantation, ankylosis, laminate veneer

Brief CV

EXPERIENCE

Apr.1985-Present Director of Saito Dental Clinic, Private office in Izumo-shi

Apr.1982-Mar.1985 Medical doctor of Shimane Medical University Department of Oral and Maxillofacial Surgery

EDUCATION

Mar.1982 Graduate / D.D.S., Aichi Gakuin University School of Dentistry,Japan

SOCIETY

Japan Association of Dental Traumatology (Authorized Dentist and Instructor)

Japan Academy of Esthetic Dentistry (Authorized Dentist)

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Daishi Saito

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Experimental study of the diagnosis of pulp exposure by electronic apical locator OSADA APIT

Objective: The diagnosis of pulp exposure by measuring impedance has been utilized for more than 70 years, and we have previously reported that pulp exposure can be diagnosed by electronic apical locator OSADA APIT

15 (OA). This time, the experiment using the model was carried out with the purpose of clarifying the effect of the existence of the minute hole in the cavity on the OA value.

Materials & Method: An insulated coated dimple of GUTTA PERCHA GAUGE floated on saline was used as a simulated cavity, and the minute hole (0.15mm in diameter) in the center of dimple was considered as the foramen of pulp exposure (Experimental group1). The OA value in the cavity was measured by the OA probe (0.4mm in diameter) with tooth paste. And, the amount of tooth paste applied to the probe was 8-fold and measured in Experimental group2. We also created and similarly measured the dimple without hole (Control group), and performed t-tests for differences in the means of OA value of each group.

Results:The means of OA value in the experimental groups were statistically significantly higher than in control group ($p \leq 0.05$). But, there were no significant differences between the mean of the Experimental groups.

Conclusion: The morphology of the minute hole in dimple produced a constant OA value. On the other hand, the amount of tooth paste applied to the probe made no significant differences in the mean of the measured values. These results indicated that the existence of the minute hole in cavity make uniform OA value in the diagnosis of pulp exposure by OA.

Key words : pulp exposure, impedance of tooth, electronic apex locator, OSADA APIT15, tooth paste

Brief CV

Education Experience

2017 DDS, School of Dental Medicine, Tsurumi University
2017 -2018 Resident, Dental Hospital, Tsurumi University
2018 -2022 Research student, Graduate School, Tokyo Medical and Dental University
Position and Employment
2022-present Hanako Pediatric Dental Clinic



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Avulsion of two upper primary incisors in early childhood : a case report

Background: Many cases of tooth avulsion with trauma in early childhood are different to take care of the injured part immediately. The reasons are as follows. Primary dentition is before completion. Behavior control of early childhood is very difficult. Situation changes significantly along with growth. Therefore, we must manage the patient oral condition in the long term with considering the patient growth.

Case Report: Patient was an eleven-month-old Japanese boy with avulsion of upper left central and lateral primary incisors by falling down. Erupted teeth were upper right and lower left and right primary central incisors. I explained the necessity of a long term oral management and the approach of space maintainer at the completion of primary dentition to his mother, and I got the informed consent. When he became 3 years and 8 months old, his primary dentition completed. I made his removable space maintainer (R.S.M.) and he used it. Since he was very active, R.S.M. was damaged several times. I repaired it each time. And R.S.M. was remade as he grew up. However, he used it firmly. Therefore, it brought the space maintain of upper left incisor part, the functional recovery on mastication and pronunciation, and the esthetic recovery to him.

Key words: primary dentition, primary incisor, avulsion, removable space maintainer, functional recovery

Brief CV

Educational background

1986 DDS, Hokkaido University

1993 PhD, Hokkaido University

Professional experience

1990 – 2003 Assistant Professor, Pediatric Dentistry, Hokkaido University Dental Hospital

2003 – 2005 Lecture, Oral Rehabilitation, Hokkaido University Hospital

2005 – present Professor, Dentistry for Children and Disabled Persons, Department of Dental Functional Science, Faculty of Dental Medicine, Hokkaido University



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Basic study of effects of irradiation with low-level LED blue light on osteoblast-like cells derived from rat bone marrow

Recently, low level laser therapy (LLLT) has been reported to promote wound healing of fractures and tooth extraction wounds and bone-dental implants osseointegration. In this study, we investigated the effects of LLLT on the proliferation, differentiation, and calcification of rat bone marrow-derived osteoblast-like cells using blue LED light irradiation.

Bone marrow cells from 8-week-old male Sprague-Dawley rats were used in this experiment. The irradiation conditions were as follows; LED with a wavelength of 455 nm, measured value in the irradiated field: 100 mW/cm², distance: 20.8 mm, and energy of 5.6 J/cm² for 14-second irradiation every 1.5 hours for up to 4.5 hours. The experimental groups were divided into 4 groups; control group, LED group, FGF (culture medium contains FGF 10 ng/ml) group and LED•FGF group (n=3).

The cell proliferation ability was determined immediately after the first LED irradiation, after 1.5, 3.0, 4.5, and 12 hours by the Cell Counting Kit-8 method. The differentiation ability was searched by measuring ALP assay kit values after 3 and 7 days after first irradiation. And the ALP staining was also performed after 7 days, and the positivity rate was determined from the staining area ratio. The calcification ability was determined by Alizarin Red staining after 14 and 28 days, and the positivity rate was determined from the staining area ratio.

In all the searched results, both the cell proliferation and differentiation abilities were highest in the LED group. The calcification ability tended to be slightly higher in the FGF group than in the LED group.

In conclusion, LED blue light irradiation of cultured osteoblast-like cells was found to promote cell proliferation and differentiation compared to the addition of FGF to the culture medium.

Key words : Low level laser therapy (LLLT) , LED light irradiation , Blue light therapy, Bone healing , Osteoblast

Brief CV

WORK EXPERIENCE

Aichi Gakuin University Dental Hospital (April 2018 – March 2019)

EDUCATION

Doctor of Dentistry, AICHI GAKUIN UNIVERSITY, Nagoya (Diploma expected 2023)
Bachelor of Dentistry, AICHI GAKUIN UNIVERSITY, Nagoya (2018)



**Takahiro Totani¹⁾, Keiichi Aragak²⁾,
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Correlation between oral health condition and Activity of Daily Living in elderly people requiring long-term care

Abstract; The chewing function not only fractures food but also stimulates the brain by the feedback function and has a role of activating cranial nerves. Although it is known that there is a deep link between health in the oral cavity and general health, there are still few studies that gave clear evidence. Therefore, we investigated oral function assessment and ADL in patients in our hospital, and investigated the relationship between patient's oral function and QOL. As a result, there was a correlation between the number of remaining teeth of the teeth and the degree of autonomy of the meal, the autonomy degree of the rising, the gait function, the occlusal force, and the mastication function. When the number of remaining teeth of teeth became less than 20, functional deterioration occurred in each item. In addition, there was correlation between chewing function and dietary independence degree, getting up, walking function, sitting position retention, memory ability. Interestingly, there was a marked correlation between chewing efficiency and memory ability. The onset of dementia reduced the condition of oral cavity cleaning and the occlusal force decreased. These results suggested that chewing ability influences activity of brain activity.

Key words : chewing function, number of remaining teeth, general health, Activity of Daily Living, memory ability, dementia

Brief CV

- 1992 Graduated from Nagasaki University of Dentistry
- 1999 Medical Corporation Seishinkai Mita Clinic Supervising Physician
- 2000 Established Totani Dental Clinic
- 2003 Established Medical Corporation Kouyoukai
- 2011- Belongs to Department of Bacteriology, Faculty of Medicine, Osaka City University
- 2012- Belongs to Department of Oral Reconstruction and Rehabilitation, Kyushu Dental University
- 2015 Established Nagaokakyo Azalea Dental Clinic in Kyoto Prefecture
- 2020 Established White Smile Dental Clinic in Osaka

Qualification

M.D. (Bacteriology, Faculty of Medicine, Osaka City University)

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A Case of Facial wounds Caused by Dog bites

Purpose: We report a case of facial laceration during an intervention of a fight between two domesticated dogs. **Case:** 63-year-old male **Chief complaint:** Lacerations of upper and lower lip due to dog bites **Present Medical History:** The patient was bitten on the face while arbitrating a fight between two dogs at home, and visited other hospital emergency room. He was deemed difficult to deal with, and the hospital doctor contacted our hospital. I requested to confirm previous immunization against tetanus toxoid. After the vaccination, he visited our hospital. **History: #1:** Laceration with left upper lip and middle lower lip with defect **Oral Findings:** Oral Findings: The wound was a contused wound and contaminated. Wounds with laceration with defect, involving lower and upper lip and skin. **Treatment and Progress:** The surgical procedure was performed under local anesthesia of 1% lidocaine with adrenaline, cleaning of the surgical area and irrigation with saline solution, and debrided. Part of the lower lip was partially deficient, but was sutured with a two-layer suture. Postoperative antibiotics were administered for 3 days, and no postoperative infection was observed. The stitches were removed at 1 week postoperatively. Three months after treatment, there were observed with good cosmetic and functional results. **Discussion:** Animal bites can cause tetanus. In Japan, tetanus vaccination was started in 1968, and since the patient's age indicated that he may not have been vaccinated, so visited our clinic after vaccination. In addition, animal bites are characterized by wound contamination and tissue loss. In the present case, the defect was slight and could be treated with sutures. After suturing, a dead space may form, and postoperative infection may occur. To prevent postoperative infection, Prophylactic administration of antibiotics, selection of suture methods that do not create a dead space, and appropriate follow-up are considered important.

Key words: Dog bite , Tetanus vaccine , Antibiotic prophylaxis , Suturing

Brief CV

Education Experience

2000 DDS, Fukuoka Dental College
2001 Post-graduate clinical resident
2005 PhD, Fukuoka Dental College

Position and Employment

2005-2008 Hospital doctor, Fukuoka Dental College Hospital (Orthodontic)
2008-2011 Assistant, Fukuoka Dental College, Department of Oral growth and development division of Orthodontics
2011-2016 Physician in private practice
2016-2020 Hospital doctor, Fukuoka Dental College Hospital (Oral Surgery)
2020-2022 Assistant, Fukuoka Dental College, Department of Oral and Maxillofacial Surgery division of Oral Surgery
2022-present Lecturer, Fukuoka College of Health Sciences, Department of Dental Hygiene



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Bone formation ability of Carbonate apatite bone graft material in different Granule sizes

Objects: Traumatic injuries due to sports or traffic accidents to maxillofacial tissues require immediate and appropriate treatment. Although alveolar ridge preservation for subsequent esthetic and healing purposes is necessary, there is a demand for off-the-shelf bone graft material with high osteoconductivity.

By focusing on composition of native bone, we have developed a carbonate apatite bone graft substitute (CO3Ap) (Cytrans® Granules, GC Corporation), which currently is on the market with different granule sizes.

In this study, we investigated the rate of new bone formation between different granule sizes of CO3Ap in an animal model for alveolar ridge preservation.

Materials and Methods: Twelve-month-old male beagle mandibular premolars P2, P3, and P4 were extracted. CO3Ap in different granule sizes (S (300-600 μm), M (600-1000 μm), and L (1000-2000 μm)) were allocated to each tooth and filled up to the mesiodistal surface of the extraction socket (n=3). The flap was closed at the alveolar crest using nylon suture.

After 12 weeks of implantation, test site was removed and fixed in 10% formalin, followed by EDTA demineralization. Paraffin-embedded sliced (mesiodistal section of root central part) and HE stained specimens were prepared and histologically evaluated for bone formation.

Result: Histological evaluation indicated remaining granules, however, new bone formation was observed around the granules in a unified shape. The outer layer of the granules was resorbed and replaced by new bone.

Granules of all sizes showed good healing results and were filled with new bone up to the upper margin of the extraction socket. There was no significant difference in the bone formation rate due to the difference in granule size.

Conclusions: New bone formation was confirmed in all granule sizes of CO3Ap. There was no difference in bone formation speed and amount between different granule sizes and new bone was satisfactory and equal.

Key words : Alveolar ridge preservation , Carbonate apatite , Bone substitute, Osteoconductivity , New bone formation.

Brief CV

Education Experience

- 1998 Bachelor of Science in Chemistry., Kanazawa University
2000 Master of Science in Chemistry., Osaka University

Positions and Employment

- 2000-2002 Researcher: Research and Development Department, GC Corporation.
2003-2004 Visiting scientist: Department of Dental and Medical Biochemistry, Graduate School of Biomedical Sciences, Hiroshima University
2005-2010 Researcher: Research and Development Department, GC Corporation.
2011-2013 Senior Scientist: Research and Development Department, GC Corporation.
2014-2018 Senior Assistant Manager: Research and Development Department, GC Corporation.
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Examine the illness in the injury tooth; importance of the cooperation

Background:In the school spot, I rack my brains about an accident and the correspondence of the injury tooth taking place by quarrels very much. The irreversible illness including a tooth crown and the root fracture in the permanent tooth. In addition, the radicular hesitation case in the deciduous dentition period may bring about amelogenesis imperfection and the eruption imperfection of succedaneous permanent teeth, and more careful correspondence is required. It becomes the big problem with hospital oral surgery, the medical institution which is available for injury tooth treatment afterwards by emergency conveyance from a school continuation measures and to follow up.

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

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

Key words: Injury tooth, Complete dislocation tooth, Long-term observation

Brief CV

Experience

1993 D.D.S., Osaka Dental University

1990 Present Director of Yoshida Dental Clinic, Private office in Sakai-city, Osaka, Japan

2016 Ph.D., Kyushu Dental University

Society

Japan Association of Dental Traumatology (Authorized Dentist and Instructor)

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Can trauma to primary teeth result in development of dentigerous cyst? A systematic review of case reports.

Abstract:

Introduction:

Traumatic injuries of primary teeth are associated with long-term adverse consequences affecting the succedaneous teeth. They range from yellow enamel discoloration to odontoma like malformation or sequestration of entire tooth germ. In addition to these, there have been reports of development of dentigerous cyst, secondary to primary tooth injury. Hence, the aim of this systematic review of literature was to explore this phenomenon and evaluate the risk factors associated with it.

Methods:

The protocol of systematic review was prepared as per the best practices of evidence-based medicine and was registered in PROSPERO. Search strategy was formulated and conducted in 6 databases and grey literature sources. The search results were scrutinized at two levels and data was extracted for analysis. Risk of bias was assessed by using Joanna Briggs Institute's critical appraisal checklist.

Results:

The 11 included articles were case reports/series and had been published in past three decades from five countries. Complete records of injury to primary dentition were available in five and partial in four cases. The type of injury was luxation in seven cases. Age at which trauma occurred was ≤ 4 years in majority of the cases ($n=7$). There were eight cases where the cyst had affected the tooth number 11 at ages ≥ 7 years. The histopathological features were reported in nine cases in a varied manner but resembled that of dentigerous cysts.

Conclusion:

Injuries of primary maxillary tooth can lead to development of odontogenic cysts associated with permanent teeth. This can be more common in luxation injuries in children younger than four years and effect permanent maxillary incisors causing their dilaceration and displacement as well. Though this should only be regarded as preliminary evidence due to case reports with variability being source and ROB being moderate.

Key words : Traumatic dental injury, Dentigerous cyst, Primary teeth, Long term sequelae, systematic review

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Dr Nitesh Tewari graduated and post graduated from prestigious King George's Medical University, Lucknow. He is a clinician par excellence and an academician to the core. His academic life has been studied with a number of recognitions and awards, with post graduate teaching experience of over twelve years. Dr Tewari is an avid researcher with keen interest in the field of Dental Traumatology, Stem Cell Research and special care dentistry. He has 93 publications in reputed national and international journals and six text book contributions to his credit till date. He has been invited as a guest speaker in over 85 events in national and international platforms. He was awarded with best original research award in world congress of dental traumatology, San Diego, USA (2018), Outstanding Pedodontist Award by Craniofacial and Research Foundation in Sri Lanka (2018), Jens Ove Andreasen Award twice at 27th and 28th Conferences of International Association of Pediatric Dentistry (2019, 2021) and the global first-prize in original research competition in the 12th IFEA World Endodontics Congress 2021. He is a fellow of Academy of Dentistry International (USA), Japan Dental Association, International Association of Dental Traumatology (USA), International College of Dentists (USA) and Faculty of Dental Surgery Royal College of Physicians and Surgeons (Glasgow). Presently he is working as Additional Professor in Centre for Dental Education and Research, All India Institute of Medical Sciences, New Delhi, serving as the Director of International Association of Dental Traumatology and General Secretary of Indian Society of Dental Traumatology.



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Experimental root fractures by improved rat molar luxation device

Objects: Analyzing root fractures made by applying equal loads to the bilateral maxillary first molars in a rat using an improved rat molar luxation device.

Materials and Methods: Nineteen 5-week old male wistar rats were used. Sixteen rats were used for experimental group and others saved as control. All rats were anesthetized via intraperitoneal injection of chloral hydrate. After the injection, the rats in the experimental group (n=16) were immobilized on the improved rat molar luxation device. The rats were secured on the table, then the bilateral maxillary first molars were dislocated horizontally within 20s toward the palate with modified Hoe's pliers weighted with 960g at rotate angle of the movable handle 3°. The control animals (n=3) were subjected to the same procedure except for the luxation of the maxillary molars. All the rats were killed at postoperative 2 weeks and the maxillae were dissected from the rats and fixed in 4% Paraformaldehyde/Phosphate Buffer Solution. The maxillae were scanned using 3D X-ray μ CT and the presence of root fractures were determined.

Result: In several individuals, root fractures appeared. These fractures are from middle to furcation in the mesial root. The length is about 1mm.

Conclusions: It was suggested that the improved rat molar luxation device could produce root fractures in the molars of both sides in the same rat.

Key words : Root fracture, Traumatic injury, X-ray μ CT

Brief CV

2018-present Assistant Professor, Department of Pediatric Dentistry School of Dentistry,
Kanagawa Dental University



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Near-infrared optical image imaging for analyzing microcracks caused by traumatic teeth

Objects: The most common dental trauma is dislocation in deciduous teeth, while fracture is more frequent in permanent teeth. However, it is difficult to diagnose microcracks by visual examination, palpation, percussion, mobility testing, thermal examination, and radiographic examination, and there are many cases in which pulp necrosis or other problems occur during follow-up after a diagnosis of tooth concussion. Compared to conventional optical systems that use light in the visible spectrum, NIRI uses light in the range of 700 to 1700 nm and has superior optical characteristics. In this study, we investigated the possibility of using NIRI to examine microcracks in dental trauma.

Materials and Methods: Teeth extracted due to periodontitis, which the subjects agreed to use for this study, were used. The crowns of the teeth were divided vertically and horizontally with a bone chisel and mallet, and MMA resin was bonded to the crowns to create a model of microcracks. The microcracks were diagnosed using NIRI as they were (NIRI group) and using NIRI with ICG applied (ICG-NIRI group), respectively.

Result: Microcracks could be diagnosed by NIRI in both the NIRI and ICG-NIRI groups. There were no significant differences in diagnosis in either the vertical or horizontal segmentation; the contrast of microcracks was particularly clear in the ICG group, but microcracks were difficult to identify in cases where proper cleaning was not performed.

Conclusions: This study suggests that NIRI and ICG-NIRI are useful for the diagnosis of dental trauma, and that NIRI imaging is useful for screening teeth with external forces due to trauma because it is simple and non-hazardous, and the data can be easily stored and reanalyzed. NIRI images are simple and harmless, and the data are easy to store and reanalyze.

Key words: near-infrared imaging , NIRI, Dental Enamel , diagnostic imaging , dental trauma

Brief CV

Education Experience

2010 DDS, Showa University

Position and Employment

2010-2013 Regident, Rakuwakai Otowa Hospital.

2013-2022 Medical staff, Division of Oral and Maxillofacial Surgery, Matsue City Hospital

2022- Director, Odawara dental Clinic

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