

*Conference proceedings***1st CONGRESS OF THE FACULTY OF DENTAL MEDICINE, UNIVERSITY OF RIJEKA AND 7TH ALPE ADRIA INTERNATIONAL ORTHODONTIC SYMPOSIUM "FACIAL SKELETAL DISCREPANCIES AND ORTHOGNATHIC SURGERY", RIJEKA, CROATIA, OCTOBER 1st-3rd 2020.****CHANGES OF BACTERIAL PROFILE OF DENTAL BIOFILM DURING ORTHODONTIC TREATMENT AND INFLUENCE OF FLUORIDES AND CHLORHEXIDINE**

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Abstract

Aim: The aim of this study was to investigate how nickel and titanium ions, released due to corrosion of orthodontic appliance, influence bacteria of dental biofilm. Additionally, does the use of fluorides and chlorhexidine (CHX), intended for prevention of gingivitis and caries, changes the bacterial profile.

Materials and methods: Sample consisted of 30 subjects in orthodontic treatment with fixed orthodontic appliance aged 13-42 years, 56% females. There were 10 subjects in each experimental group – exposed to toothpaste with low fluoride concentration (1450 ppm), high fluoride concentration agent (6150 ppm) or chlorhexidine digluconate (1200 ppm) for a month. Dental biofilm was collected before the start of orthodontic treatment (T1) and during active treatment (T2). Plaque and gingival indices and pH of biofilm were assessed. Real-time polymerase chain reaction was used to analyze total bacterial count and count of *Streptococcus mutans*, *sobrinus* and *salivarius*.

Results: Dental biofilm before the start of orthodontic treatment has similar amount of *S. mutans* and *salivarius* and much less *sobrinus*. Orthodontic appliance tends to increase *S. mutans* and pH of biofilm. Fluorides do not reduce accumulation of biofilm during orthodontic treatment, but they change cariogenic potential by increasing *S. salivarius* and reducing *mutans*. CHX increases *S. salivarius* but it does not reduce *mutans* and *sobrinus*. Gingivitis does not change significantly in either group. Due to great interindividual variability differences are not statistically significant.

Conclusion: Corrosion products from orthodontic appliance increase cariogenicity of dental biofilm. Fluorides tend to reduce cariogenicity of biofilm in patients during orthodontic treatment with fixed appliance. CHX does not reduce cariogenicity.

Keywords: Cariogenic bacteria; Dental biofilm; Fluorides; Oral antiseptic; Orthodontic appliance

VALIDATION OF THE LONG AND SHORT FORM OF THE TEMPOROMANDIBULAR DISORDER-PAIN SCREENER INSTRUMENT IN CROATIA

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Abstract

Aim: Temporomandibular disorders (TMD) are characterized by orofacial pain and dysfunction of the temporomandibular joint. The aim was to translate and validate the TMD-Pain Screener instrument in Croatia.

Materials and methods: The study included 134 participants (patients of University Dental Clinic Rijeka and students at local university) aged 11-62 years, 76% females and 82% adults who self-administered the TMD-Pain Screener. For the assessment of temporal stability, 23 participants completed the questionnaire twice in a two-week interval without any interventions; 14 had painful TMD.

Results: Factor analysis demonstrated one-factor structure accounting for 55% variance. Internal consistency was higher for the 6-item than the 3-item instrument (Cronbach α 0.831 vs. 0.712). Using the 6-item instrument 46% of subjects reported a score ≥ 3 indicating that the person could have TMD, while using the 3-item instrument 50% of subjects were indicative for TMD (scoring ≥ 2). Clinical confirmation of TMD was for 73% of subjects (40% pain with joint disorders and 10% pain without joint disorder). For the 6-item instrument sensitivity was 74.6%, specificity 82.1%, positive predictive value 80.7% and negative predictive value 76.4%, while for the 3-item instrument all values were 83.6%. Likelihood ratio was 4.2, indicating that someone with a positive test is 4.2 more likely to have the disease than someone with a negative test. In test-retest lower reproducibility was lower for 3- than 6-item instrument ($r=0.632$ and 0.706 ; $p \leq 0.001$).

Conclusion: The Croatian version of the TMD-Pain Screener has good ability to detect subjects with painful TMD.

Keywords: Diagnoses and examination; Orofacial pain; Temporomandibular joint disorders.

CAN VISUAL STIMULI FROM MEDIA INFLUENCE PERCEPTION OF DENTOFACIAL ESTHETICS? A RANDOMIZED CONTROLLED TRIAL

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Abstract

Aim: The study explored whether commercials are changing the perception of own dentofacial attractiveness and identifying if it is influenced by personality traits.

Materials and methods: The randomized controlled trial included 83 examinees, aged 19-27 years. The experimental group (N=42) watched commercials portraying famous young individuals with high smile esthetics, bright teeth and no visible malocclusions while the control group (N=41) watched neutral commercials (without people or visible teeth). The perception of subjects' own orofacial esthetics and its psychosocial effects were assessed a month before exposure and immediately after. Subjects' malocclusion severity and personality characteristics (extraversion, conscientiousness, agreeableness, neuroticism, intellect, self-esteem and perfectionism) were assessed.

Results: In their second report, respondents were inclined to report less psychosocial impacts with small differences (ranging from 0-3 scalar points on average) and less significant in the active group than neutral group (2 out of 7 vs. 5 out of 7 aspects). Types of visual stimuli were a significant predictor only of changes pertaining to psychological impact of dental esthetics ($p=0.045$; $r=0.221$). Intellect moderated perception of smile esthetics after being exposed to commercials accentuated beautiful smiles as a suppressor ($\Delta R^2=0.076$; $p=0.005$; total model $R^2=0.347$; $p=0.033$). In subjects with a higher intellect, increasing the self-perceived malocclusion level lead to a less decrease in psychological impact of dental esthetics.

Conclusion: Psychosocial influences of malocclusion are not stable and tend to decrease during time. However, exposure to a high smile esthetic of other individuals can inhibit that process in persons with higher malocclusion and higher intellect.

Keywords: Malocclusion; Perception; Dental; Esthetics; Personality

INTRAORAL APPLICATION OF ANTISEPTICS AND FLUORIDES DURING ORTHODONTIC TREATMENT DOES NOT AFFECT SIGNIFICANTLY CORROSION AND MECHANICAL CHARACTERISTICS OF NICKEL-TITANIUM ALLOY IN ORTHODONTIC APPLIANCES

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Abstract

Aim: The aim was to explore if recommended commercial agents for controlling dental biofilm formation have significant effect in vivo condition on mechanical properties of nickel-titanium (NiTi) alloy.

Materials and methods: NiTi archwires (dimensions 0.508×0.508 mm) were collected after 3-month intraoral exposure from 36 orthodontic patients aged 13-42 years. Three experimental groups were formed: (I) subjects exposed only to saliva and regular oral hygiene, (II) subjects that used fluorides for intensive prophylaxis for a first month and (III) chlorhexidine in the same manner. Corrosion behavior, surface characteristics, stiffness, hardness and friction were analyzed.

Results: Exposure to intraoral conditions significantly reduced stiffness and hardness of the NiTi alloy ($p \leq 0.015$). Fluoride tend to reduce stiffness and hardness in comparison to saliva and antiseptic, but not significantly. Roughness and friction were not influenced by oral exposure much. Intraoral aging produces predominantly general corrosion, independent of the adjuvant prophylactic agent, although localized corrosion may also occur.

Conclusion: Fluorides and the antiseptic chlorhexidine do not increase corrosion more than saliva itself, nor do they further modify the mechanical properties of the NiTi alloy.

Keywords: Antiseptics; Corrosion; Fluorides; Nickel; Titanium

PERFECTIONISM, SELF-ESTEEM AND BODY IMAGE RELATED TO SELF-PERCEPTION OF OROFACIAL APPEARANCE-DEVELOPMENT AND VALIDATION OF PSYCHOMETRIC INSTRUMENT

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Abstract

Aim: The study aimed to develop an instrument for assessment of perception of orofacial appearance and psychological issues that can affect patients' judgments.

Materials and methods: A panel composed of five members (psychologist, two prosthodontists, orthodontist, and final year dental student) generated 31 items that could draw specific hypothetical dimensions. The questionnaire was self-administrated by the Caucasians attending local high school and university (N=261; 26.4% male) in the 14–28 age range. Internal consistency, construct validity, responsiveness and temporal stability were assessed.

Results: Factorial analysis and Cronbach's alpha identified four dimensions (self-esteem, perfectionism, body image and smile appearance concern) that can be best fitted by 17 items. Internal consistency was good (α in 0.70–0.80 range). The dimensions correlated with the existing instruments that measure similar constructs. In responsiveness testing, tooth whitening did not induce changes in perfectionism and body image, however it increased self-esteem and decreased aesthetic concern ($p < 0.05$).

Conclusion: Newly created questionnaire is a proper short instrument that measures psychological issues related to perception of orofacial appearance.

Keywords: Creation; Orofacial aesthetics; Perception; Psychometric instrument; Quality of life; Validation

SALIVARY FLOW RATE, SALIVARY PH, ORAL MUCOSAL AND DENTAL STATUS IN PATIENTS WITH MULTIPLE SCLEROSIS

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Abstract

Aim: Multiple sclerosis (MS) is an autoimmune, inflammatory disease characterized by demyelination and axonal injury in the central nervous system. The disease manifests itself with different clinical signs and symptoms depending on the extent and location of the demyelination. Symptoms of MS worsening can be presented in the orofacial region. The objective of this study was to determine salivary flow rate, salivary pH, oral mucosal and dental status in patients with multiple sclerosis.

Materials and methods: The study involved 31 MS patients and 34 non-MS control subjects. Patients completed the sociodemographic questionnaire and were clinically examined. Salivary pH and unstimulated salivary flow rate were measured. Oral mucosa was examined and the Decayed, Missing, Filled Tooth (DMFT) Index was measured. The statistical methods used were Student's t-test and Chi-square test.

Results: There were no differences in age ($p = 0.258$) and gender ($p = 0.589$) between the groups. Caries experience in MS patients did not statistically differ from the control group. There was no statistically significant difference ($p = 0.06$) in salivary pH. Patients with MS had a lower unstimulated salivary flow rate ($p = 0.025$) and a higher number of oral lesions ($p < 0.001$). MS patients had a higher prevalence of varices ($p = 0.007$) and atrophic tongue ($p = 0.026$) compared to control subjects. The prevalence of other lesions was not statistically significant between the groups.

Conclusion: The results indicate the higher prevalence of oral lesions and reduced salivary secretion in MS patients. A multidisciplinary approach in patients' treatment to improve the quality of life is suggested.

Keywords: Multiple sclerosis; Oral lesions; Salivary flow rate

VITAMIN D LEVEL IN PATIENTS WITH CANDIDA - ASSOCIATED DENTURE STOMATITIS

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Abstract

Aim: Candida-associated denture stomatitis (CADS) is an infection caused by *Candida* spp. which affects 60%-65% of denture wearers. It has complex and multifactorial etiology and is often associated with the host's immunodeficient conditions. Scientific evidence suggests that vitamin D has a potential immunomodulatory and anti-inflammatory effect. The aim of this study was to measure the serum level of vitamin D in patients with CADS and estimate the relation between vitamin D deficiency and CADS occurrence.

Materials and methods: The study involved 32 complete denture wearers with CADS and 32 control subjects without CADS that were sex- and age-matched. The subjects were clinically examined, and the severity of CADS was evaluated according to Newton's classification scale. The level of vitamin D in the serum was determined by using the electrochemiluminescence assay.

Results: In the CADS group, vitamin D level was 54.68 ± 17.07 nmol/L and in the control group 56.82 ± 17.75 nmol/L. No statistically significant difference was found between the groups ($p=0.622$). Vitamin D level was not in the correlation with the severity of denture stomatitis ($r_s=0.11$; $p>0.05$).

Conclusion: Vitamin D level is not a significant factor that can be associated with CADS and does not promote host's susceptibility to CADS. The results indicate that a routine determination of vitamin D level in patients with CADS is not necessary.

Keywords: Candida; Denture; Stomatitis; Vitamin D

A RETROSPECTIVE ANALYSIS OF DENTOFACIAL DEFORMITIES USING THE INDEX OF ORTHOGNATHIC FUNCTIONAL TREATMENT NEED

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Abstract

Aim: The aim of this analysis is to assess the functional needs of orthognathic patients using the Index of orthognathic functional treatment need (IOFTN). *Materials and methods:* The analysis was conducted between the period from 2008 to 2018 on 124 patients (79 female, 45 male, ranging from 17 to 62 years) who had orthognathic surgery at the Maxillofacial Surgery Clinic in Rijeka or were in preparation for it.

Results: The most common IOFTN score in the complete sample was 5.3 (30.6%), followed by 4.3 (22.6%), 5.4 (12.9%) and 5.2 (7.3%). 95% of patients were classified as category 4 or 5, which means they meet the criteria for orthognathic surgery. 85% of patients scored as category 4 or 5 under Index of Orthodontic treatment need (IOTN). The most common type of orthognathic surgery was bimaxillary osteotomy (67.57%).

Conclusions: The relatively greater overlap between the decision of the clinician and the IOFTN suggests that IOFTN is a more reliable tool for recognizing the need for orthognathic functional therapy than IOTN. The advantage of IOFTN is that it considers functional symptoms.

Keywords: Dentofacial deformity; Treatment need; Orthognathic surgery

INTERDISCIPLINARY TREATMENT OF ADULT PATIENT WITH CLASS II/1 MALOCCLUSION: A CASE REPORT

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Abstract

Introduction: Improving the patient's aesthetic harmony has always been the ultimate goal of orthodontic treatment.

Case report: The present case report describes the treatment of a 47 year-old Caucasia male patient with multiple missing teeth and chief complaints of protrusive upper teeth. The extra and intraoral examination exhibited a convex profile with a retrusive mandible, a lack of passive lip seal, excessive upper incisor proclination and extrusion but, lower incisors retroclination and extrusion. Dental casts revealed Class II molar and canine relationships, severe overjet (10 mm) and deep overbite (100%). An upper arch was tapered in shape, lower arch was constricted

with 5 mm of crowding. The multiple extractions of teeth (16, 15, 14, 24, 25, 26, 27, 46 and 47) were caused by caries. The treatment objectives were to (1) align and level the teeth, (2) intrude upper and lower incisors and canines, (3) close the spaces and reduce the protrusion of the maxillary anterior teeth, (4) achieve an optimal overjet, overbite and adequate position for prosthodontic solution. Treatment was initiated using a standard edgewise appliance with a 0.022 × 0.028 in slot. After leveling and aligning, segmental arches for upper and lower incisors intrusion and temporary anchorage devices for direct and indirect anchorage were placed. Retraction of the anterior maxillary teeth was performed using sliding mechanics.

Conclusion: The interdisciplinary treatment protocol resulted in significantly improvement of function, esthetics and quality of life in adult patients.

Keywords: Interdisciplinary treatment; Segmental biomechanics; Miniimplants

ORTHOGNATHIC-SURGICAL TREATMENT OF FACE ASYMMETRY CAUSED BY OVERLOOKED CHILDHOOD INJURY OF TEMPOROMANDIBULAR JOINT: A CASE REPORT

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Abstract

Introduction: Injuries of mandibular condylar process are common among children. However, because they are relatively painless and generally coincide with other injuries, they are often overlooked. These injuries rarely leave permanent consequences, such as growth deficit. The latter is caused by scar tissue growth at the position of the injury, which is restrained and limits translational movements of mandible, so called functional mandibular ankylosis. Usually, the treatment is conservative and rarely requires surgical approach

Case report: A patient began her therapy at age of 9 under the diagnoses of open bite, tendency toward class III, mild crowding of lower frontal area, and midline misalignment for 6 mm to the right. After 2 years into the therapy a worsening of face symmetry was detected, as well as deviation of mandible to the right during opening. Therefore, condylar hyperplasia was suspected. Scintigraphic examination revealed no excessive active growth, and thus the preliminary diagnosis was discarded. Childhood injury of mandibular condylar process, which caused changes in the growth of the mandible, was the next most probable diagnosis. Patient and her parents did not recall any relevant injuries. The proposed therapy included preparation with fixed orthodontic appliance and orthognathic surgical procedure. At

age of 14 a bilateral sagittal split osteotomy and correction of mandibular symmetry were done under general anesthesia. The orthognathic surgery was followed by orthodontic therapy for stabilization of occlusion.

Conclusion: Condylar hyperplasia is one of possible causes of face asymmetry. Interdisciplinary approach can result in sufficient face symmetry and occlusal stability.

Keywords: Condylar hypoplasia; Face asymmetry; Functional mandibular ankylosis; Orthognathic surgery

ASSOCIATION OF SELF-REPORTED HEALTH STATUS WITH ACTIVE CARIES IN ADULT PATIENTS

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Abstract

Aim: To investigate and quantify the association of health-related variables with the number of decayed teeth in adult individuals.

Materials and methods: The cross-sectional study involved 599 adult patients presenting consecutively at the Rijeka University Dental Clinic. Data regarding general medical condition and health habits were obtained from a self-administered questionnaire. The presence of decayed teeth was recorded clinically using the World Health Organization diagnostic thresholds. Multiple linear regression analysis was used to investigate the association of health-related variables with decayed teeth.

Results: Health-related variables explained 15.0 % of the observed variation in number of decayed teeth ($p < 0.001$). Smoking habit on daily basis increased the number of decayed teeth in a person for 0.24, respectively (unique contribution 4.9%). Number of visits to family doctor was significantly associated with higher number of decayed teeth in a person (unique contribution 1.5%). Subjects who have family doctor and dentist providing medical and dental care through health insurance system had significantly lower frequency of decayed teeth (unique contribution 1% and 1.6% respectively). Persons who have visited private dentist during the previous year had on average 0.2 less decayed teeth (unique contribution 1.3%).

Conclusion: The present data demonstrated that daily smoking habit brings the highest contribution to increase in number of teeth with active caries. Persons who did not utilize private dental care or had poor systemic health had significantly higher burden of untreated dental decay.

Keywords: Decayed teeth; Health-related variables

DIMENSIONS OF QUALITY OF LIFE INFLUENCING PATIENTS' DECISION TO ACCEPT ORTHOGNATHIC SURGERY FOR SKELETAL MALOCCLUSIONS

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Abstract

Aim: While some patients with minor malocclusions seek orthodontic consultation and intervention, patients with pronounced skeletal malocclusions and altered facial aesthetics often refuse suggested orthognathic surgery. The aim of the study was to investigate factors influencing patients' decision to accept surgery.

Materials and methods: In a convenient sample of subjects (N=110, 60% female) aged 12-38 years (median 18, interquartile range 17-22), with skeletal malocclusions appropriate for orthognathic surgical intervention, the dimensions of the Orthognathic Quality of Life Questionnaire (OQOL) were compared between subjects who agreed to undergo suggested surgery and those who refused (N=47 vs. 63). T-test was used to analyze the differences.

Results: Subjects with skeletal deformities of the orofacial complex who agreed to proposed orthognathic surgical correction are significantly more aware of the deformity (AW), more concerned with facial aesthetics (FA) and have impaired oral function (OF) than those who refused surgery, with small to medium effect size, lowest in FA and highest in OF ($p \leq 0.001$, $r = 0.219-0.314$). Social aspects of deformity (SA) were also higher, but it did not reach the level of significance.

Conclusion: Impaired oral function is the primary motive to undergo surgery while social aspect of deformity is the least important.

Keywords: Facial aesthetics; Oral function; Orthognathic surgery; Social aspects of deformity

SELF MANAGEMENT AND LOW-LEVEL LASER IN TREATMENT OF MASSETER MYALGIA: SHORT TERM EFFECT

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Abstract

Aim: The aim of this study was to explore the efficiency of self-management (counselling, home self-massage and thermal therapy) in the treatment of masseter myalgia compared with biostimulatory laser.

Materials and methods: The instrument Diagnostic Criteria for Temporomandibular Disorders was used to select subjects and monitor treatment outcome. Fifty-four subjects with masseter myalgia of more than 3 months in duration were invited to participate and 42 cases were available at the end and analyzed. Age range was 16-67 years (median 33, interquartile range 25-53), 36% subjects were ≥ 40 years and there were 62% females in both groups. Both treatment groups (self-management and laser) had 21 participants and were monitored during one month after the start of treatment. Age, gender, distress, somatization, catastrophizing, hypervigilance, health competence and oral parafunctions were also assessed as factors that could influence effectiveness of treatment.

Results: Laser and self-management are effective in reducing symptoms of chronic myalgia of the masseter in self-reported limitation of jaw function and reducing pain intensity ($p < 0.001$). Increase of mouth opening was present in both groups, but mainly significant in laser group. The differences in the amount of change between groups were not significant. Psychological characteristics and parafunctions, present before the treatment, age and gender did not have major influence on the effectiveness of treatment.

Conclusion: Both treatment modalities are effective in treatment of chronic myalgia in short-term.

Keywords: Catastrophizing; Distress; Facial pain; Physical therapy; Temporomandibular joint disorder

RELATIONSHIP BETWEEN SATISFACTION WITH DENTOFACIAL AESTHETICS, QUALITY OF LIFE AND PERSONALITY TRAITS

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Abstract

Aim: Dentofacial deformities and compromised aesthetic have negative effect on quality of life. The aim was to assess correlation

of dimensions of Orthognathic Quality of Life Questionnaire (OQLQ) with personality traits and other instruments focused on satisfaction with dentofacial aesthetics and quality of life.

Materials and methods: A sample included 304 subjects (62% female) aged 12–39 years (median 20, interquartile range 16–22). Study explored correlation of OQLQ dimensions with self-reported satisfaction with facial appearance and constructs measured by Multidimensional Perfectionism Scale, Self-Esteem Scale, Big Five Inventory of the personality traits, Oral Health Impact Profile (OHIP), Psychosocial Impact of Dental Aesthetics Questionnaire and Orofacial Esthetics Scale.

Results: Social aspect of dentofacial deformity beside social component is also related to psychological impact, aesthetic concern, dental self-confidence, self-esteem, perfectionism, extraversion and neuroticism ($r=-0.450-0.617$; $p<0.001$). Facial aesthetics concern measures a construct most similar to satisfaction with facial appearance, but it is also influenced by previously mentioned dimensions except perfectionism ($r=-0.416-0.546$; $p<0.001$). Oral function domain correlates best with the construct impairment of global oral health-related quality of life assessed by OHIP instrument, but also with psychosocial impacts and self-esteem ($r=-0.279-0.508$; $p<0.001$). Awareness of deformity does not correlate significantly to any of the other instruments on interpretable level.

Conclusion: Self-esteem is the most prominent factor influencing quality of life. Increase in self-esteem increases quality of life. Neuroticism and extraversion are partially responsible of altered social interactions and aesthetic concern, while perfectionism influences social interaction problems related to dentofacial deformity.

Keywords: Dentofacial deformities; Perfectionism; Personality traits; Quality of life; Self-esteem

THE INFLUENCE OF DRUGS ON ORTHODONTIC TREATMENT

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Abstract

Introduction: The purpose of this paper is to show the influence of drugs on orthodontic tooth movement.

Materials and methods: An electronic search of the PubMed database was conducted for ten groups of drugs, considering the keywords „orthodontic treatment“ and „drugs“. Of the 583 articles found, 50 were relevant. Articles with proven clinical application and impact on orthodontic tooth movement were included.

Results: In the group of nonsteroidal anti-inflammatory drugs, acetylsalicylic acid and ibuprofen were found to decrease, and paracetamol had no effect on orthodontic tooth movement. In the anxiolytic group, a negative effect of midazolam on osteogenic differentiation was shown. Since anxiolytics in dentistry are often used as premedication, the assumption is that they will not have any influence on tooth movement. By accelerating bone metabolism, antiepileptics accelerate orthodontic tooth movement. With alcohol abuse, the maturation of type I collagen is slowed down and therefore the orthodontic tooth movement is decreased. Cytostatics have a possible effect on tooth movement by inhibiting bone formation, but further research is needed. Oral hypoglycemics and insulin decrease bone remodeling, which makes orthodontic tooth movement accelerated, but unpredictable. Thyroid hormones accelerate orthodontic tooth movement by reducing bone density. Vitamin D accelerate orthodontic tooth movement. Angiotensin-converting-enzyme inhibitors have been shown to accelerate orthodontic tooth movement. Bisphosphonates reduce orthodontic tooth movement by inhibiting bone resorption.

Conclusion: By describing mechanism of action of most used drugs and their possible effect on orthodontic tooth movement it is easier for clinicians to plan the course of orthodontic therapy.

Keywords: Drugs; Orthodontic tooth movement

DENTAL ROOT CANAL MORPHOLOGY REDISCOVERED BY CBCT: A CASE REPORT

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Abstract

Introduction: The complexity of the internal dental morphology has always presented a challenge for successful endodontic treatment. Even though it is well known that the first maxillary molar in most cases has a second mesiobuccal canal (MB2), it is never easy finding it. Owing to a Cone Beam Computed Tomography (CBCT) finding a MB2 has become affordable, and accounts for the higher success rate. The CBCT technology helps to discover the internal root system morphology that facilitates the treatment and secures a favorable outcome. This case report demonstrates the power of CBCT analyzes in some complex endodontic treatment.

Case report: The patient has undergone endodontic retreatment of the first maxillary molar with five roots canals. As a result of CBCT precision, the presence of a third mesiobuccal canal was discovered. The canals were chemo-mechanically prepared with hand instruments utilizing Step back technique and alternation between 2.5% sodium hypochlorite and 16% EDTA as irrigating solutions. All the canals were filled using the lateral condensation technique. The postoperative CBCT was taken in low dose mode to confirm the technical characteristics of root fillings. With the satisfactory findings the patient was referred for a restorative treatment.

Conclusion: The use of a CBCT can facilitate the understanding and improve the treatment of complex root canal morphology. It is a helpful tool for determining endodontic success following endodontic space morphology, possible root fractures and periapical lesions undetectable by conventional radiographs but must be used judiciously.

Keywords: CBCT; Endodontics; Maxillary molar

INTERNET USE FOR MEDICAL INFORMATION IN PATIENTS WITH BURNING MOUTH SYNDROME AND HYPOSALIVATION

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Abstract

Introduction: Internet use in search for medical information regarding the symptoms of the disease has become increasingly popular among patients. Quality of available information presents a concern as it can cause problems in patient-doctor relationship. The objective of this study was to determine the prevalence of internet use for information about oral symptoms in patients with burning mouth syndrome (BMS) and hyposalivation.

Materials and methods: A questionnaire containing questions about patients' internet use and search regarding oral symptoms was given to 20 BMS patients (16 females, 4 males) and 30 hyposalivation patients (27 females, 3 males).

Results: The mean age of BMS patients was 69.7±12.0 years and of hyposalivation patients was 68.4±10.3 years. The results showed that 53% of BMS patients use the internet while 73% searched the internet for oral symptoms; 63% of hyposalivation

patients use the internet while 58% searched the internet for oral symptoms. The most common searches were causes and treatments of the condition. The main reason for searching was to clarify the information they received during the clinical examination.

Conclusion: When compared to other studies about patients' internet use for medical information, a relatively small percentage of patients used the internet to search information about oral symptoms. The reasons could be the low number of respondents and their age. As the trend of searching the internet for medical information is increasing, health care professionals should be prepared to advise patients how and where to look for relevant information.

Keywords: Burning mouth syndrome; Hyposalivation; Internet use; Medical information

CLINICAL MANAGEMENT OF INTERNAL ROOT RESORPTION: A CASE REPORT

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Abstract

Introduction: Internal root resorption (IRR) is a pathological condition of the pulp tissue caused by activity of inflammatory and resorbing cells. Traumatic injury, infection and orthodontic treatment have been suggested as etiological factors. IRR is normally asymptomatic and often recognized clinically through routine radiographic investigations. The aim of this work was to demonstrate the importance of a correct and early diagnosis in the evaluation of the best treatment for each case.

Case report: A 38-year-old patient presented with swelling in the buccal region of the mandibular right central incisor, without any pain. The tooth was traumatized during adolescence. Upon clinical examination, a sinus tract was observed in the medial third of the root. Radiographic examination revealed the presence of an oval shaped enlargement of the root canal radiolucency and periapical bone resorption. The left central incisor presented with periapical radiolucency. A diagnosis of internal root resorption and chronic periapical periodontitis was established. Root canal treatment was performed utilizing step-back instrumentation technique and irrigation with 2.5 % sodium hypochlorite. Calcium hydroxide paste was used as intra-canal dressing between two appointments. The root canal

obturation was performed three weeks after initial therapy using thermoplastic gutta-percha - Obtura II system. The cavity was restored with composite. In the follow-up after 2.5 years patient was asymptomatic. Radiographic examination revealed perapical healing with no signs of internal root resorption enlargement.

Conclusion: This case indicates that timely diagnosis, removal of the cause and proper treatment are obligatory for successful therapy.

Keywords: Endodontics; Internal root resorption; Pulp tissue

THE IMPACT OF PSYCHOLOGICAL STATUS ON A PERCEPTION OF PAIN IN PATIENTS WITH BURNING MOUTH SYNDROME

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Abstract

Introduction: Burning mouth syndrome (BMS) is a chronic orofacial pain disorder characterized by burning sensation in the clinically healthy oral mucosa. Based on etiology, BMS can be divided into primary (unknown cause) and secondary (local, systemic, psychological factors). Psychological factors such as somatoform pain disorder, anxiety, and depression can play a great role in BMS symptomatology and etiology. The aim of the study was to assess the psychological status of BMS patients to determine whether psychological factors are related to pain reports.

Material and methods: Twenty - two patients with BMS along with 15 healthy patients as controls were included in this study. Inclusion criteria were for BMS patients were burning sensation in the mouth, normal oral mucosa, absence of diabetes or iron deficiency, and satisfactory prosthesis. Inclusion criteria were considered for the control group without any oral complaints. The severity of somatic symptoms was evaluated by Patient Health Questionnaire-15 and the tendency to detect visceral and somatic sensations as unusually, alarming intense was assessed with the Somatosensory Amplification Scale (SAS).

Results: The total prevalence of somatization syndromes at a moderate to high level was estimated to be 87% of the BMS patients and 55% in the control group. BMS patients reported mean scores on SAS form significantly higher ($p < 0.01$) than a control group, 86% for BMS patients and 26% for control patients.

Conclusion: The present findings indicate that BMS patients had distinct differences in somatosensory function and high scores show a greater tendency to intensify somatic sensations.

Keywords: Burning mouth syndrome; Somatoform disorder; Oral mucosa

GINGIVAL HYPERPLASIA CAUSED BY ANTI-HYPERTENSIVES DRUGS

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Abstract

Introduction: Gingival hyperplasia (GH) is an enlargement of the gingiva that results from the enlargement of the extracellular matrix of the connective tissue. Drug-induced GH (DIGH) can be caused by different types of drugs (immunosuppressants, anticonvulsants, and antihypertensives) combined with dental plaque which is considered as the underlying cause. The aim is to review the etiology and risk factors of these lesions, their clinical manifestations and periodontal management.

Review of the topic: DIGH risk factors include dose and medication period, age, sex, and oral hygiene status. The first clinical signs occur within 1-4 months after the initiation of the therapy and the clinical picture worsens with dose size and duration of drug administration.

The pathogenesis of GH can be explained through different theoretical approaches. According to the first theory, drugs inhibit intracellular calcium uptake, thus stimulating the proliferation of gingival fibroblasts. The second theory assumes a delayed immune response to bacterial plaque, and the third theory discusses the increased susceptibility of fibroblast subpopulations to the medications. DIGH can be treated with non-surgical and surgical therapy. The first choice is the initial periodontal therapy. If this fails, an effective substitute for the drug should be considered through consulting with the physician in charge. If the condition should not improve even after drug replacement, surgical therapy is performed (gingivectomy or flap surgery).

Conclusion: Gingival hyperplasia is one of the negative side effects of antihypertensive drugs. Before drug replacement, local therapy should be performed acting on other predisposing factors, primarily the bacterial plaque.

Keywords: Calcium channel blockers; Gingival hyperplasia; Hypertension

REPLACEMENT RESORPTION OF AVULSED TOOTH: A CASE REPORT

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Abstract

Introduction: The treatment of dental avulsion involves replantation of the avulsed tooth, its immobilization and endodontic treatment if the apex is closed. One of the complications after replantation includes root resorption. The aim of this case report is to demonstrate the importance of immediate treatment of dental trauma.

Case report: A 12-year-old patient was referred to the Department of Pediatric Dentistry in the Clinical Hospital Centre Rijeka 12 days after trauma occurred. The patient was already examined on the emergency unit 6 hours after the injury. The trauma included avulsion of 21 with uncomplicated crown fracture and complicated crown fracture of tooth 11. Tooth 21 had been stored in dry paper and was brought to the emergency unit. At the emergency unit, tooth 21 was replanted and splinted with a semi-rigid splint and endodontic treatment of 11 was started. At the Department of Pediatric Dentistry, the splint was removed and endodontic therapy of 21 was started. Calcium hydroxide was placed as an intracanal dressing. The root canal treatment of 11 was performed and obturated with cold lateral compaction technique at the next appointment after 5 and a half months. The following radiographic examination showed external root resorption of 21. Calcium hydroxide replacement was done. Further clinical examination of tooth 21 showed no symptoms, and radiographic examination revealed bone reparation.

Conclusion: Tooth avulsion is the most severe dental injury. It is important to educate the population about the importance of immediate treatment and storage of the tooth in inappropriate transport media.

Keywords: Endodontics; Root resorption; Tooth avulsion

VALIDATION OF THE FAMILY IMPACT SCALE IN CROATIA

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Abstract

Introduction: Family Impact Scale (FIS) is an instrument developed to determine the impact of children's orofacial conditions on the family. The aim of the paper was to perform the Croatian translation and validation of the FIS.

Materials and methods: Forward-backward translation of FIS was made. The study included 233 participants (11-14 years; 55% female) and their parents (84% mothers) recruited at the University Dental Clinics Rijeka and Zagreb. The Child Perception Questionnaire (CPQ), Parenter/Caregiver Perception Questionnaire (P/CPQ) and FIS were self-administrated. Malocclusion severity was assessed using the Index of Orthodontic Treatment Need Dental Health Component (IOTN DHC). Factor analysis, Pearson correlation and t-test were used in the statistical analysis.

Results: Factor analysis of the FIS indicated mixing all four dimensions, accounting for 57.6% of variability. Internal consistency is better for one-dimensional instrument (Cronbach $\alpha=0.81$; inter-item correlation $r=0.24$) than for Parental Activity (PA) ($\alpha=0.72$; $r=0.34$), Parental Emotions (PE) ($\alpha=0.66$; $r=0.32$) and Family Conflicts (FC) ($\alpha=0.60$; $r=0.29$). Deleting the item "felt uncomfortable in public places" in PE would increase the internal consistency from 0.66 to 0.70. One-dimensional instrument correlates better with children's and parents' perception of impaired quality of life than four-dimensional ($r = 0.38-0.78$ vs $r = 0.33-0.68$; $p < 0.001$). PE is the dimension that best correlates with a parent's health evaluation and the satisfaction with child's smile appearance ($r=-0.36-0.29$; $p < 0.001$), while Financial Burden (FB) correlates worst. One-dimensional FIS, PA and PE dimensions manage to discriminate people with lower and higher levels of malocclusion (IOTN DHC cut-off ≥ 3 ; $p \leq 0.001$).

Conclusion: FIS is appropriate for use in Croatia.

Keywords: Child; Oral health; Quality of life; Surveys and Questionnaires; Validation study

HISTOLOGIC EVALUATION OF BONE REGENERATION OF ALVEOLAR SOCKET AUGMENTED WITH XENOGRAFT: A CASE REPORT

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Abstract

Introduction: It is known that human bone has excellent potential to regenerate. Biomaterials such as xenografts, allografts and alloplastic are being used to promote bone regeneration following tooth extraction. They play a crucial role in bone regeneration as scaffolds that stimulates bone growth. The objective of this case report was to evaluate histological outcomes six months following alveolar socket preservation using xenograft and native collagen membrane.

Case report: A healthy 25-years-old male was referred to an oral surgeon in Community Healthcare Center in Osijek, for extraction of the tooth 36 and 37 (FDI World Dental Federation notation) due to chronic apical periodontitis. The patient decided to do implant-supported rehabilitation at the extraction site. Following administration of local anesthetic, the location of extraction was exposed via elevation of a full-thickness flap. Flap elevation showed extensive bone destruction. Atraumatic tooth extraction was performed. The socket was filled with bovine xenograft, and the whole defect was covered by a resorbable membrane. Primary closure was achieved by using 5/0 single sutures. The healing period was uneventful. Six months following augmentation bone biopsy for histological analysis was harvested. Histological examination of horizontal cut specimens showed fully integration of biomaterial into the bone tissue, and no signs of inflammatory tissue response were observed.

Conclusion: In this case report, we want to highlight the use of xenograft in extensive bone defect due to the periapical lesion. Xenograft showed osteoconductive properties, easy handling and good three-dimensional filling of the extraction socket.

Keywords: Bone augmentation; Histology; Regeneration; Xenograft