

evaluation aimed to determine the frequency and the classification of root canal ramifications, such as lateral canals, recurrent canals, collateral canals, inter-radicular canals and apical deltas. Lateral canals (4.3%), apical deltas (3.6%) and interradicular canals (0.25%) were the most frequently found ramifications. The greater frequency of lateral canals was found in the maxillary first molars (0.74%) and in the maxillary central incisors (0.49%). The greater frequency of apical deltas was in the mandibular first molars (0.87%). Mandibular first molars presented 0.12% of the inter-radicular canals. Recurrent and collateral canals were not found in the examined teeth. It was concluded that molars are the teeth with the greatest frequency of radiographically detected ramifications. The presence of such ramifications emphasizes the need of a proper chemomechanical preparation, followed by an adequate root canal filling, in order to seal the ramifications.

#### **Clinical complications due to the lack of knowledge of root canal internal anatomy of the root canals: case report**

Fontes, T.S.; Pereira, M.V.S.; Lyon, L.A.; Silveira, A.M.V.

The knowledge of internal dental morphology is essential for the correct execution of the root canal disinfection and shaping. Several factors can make the treatment fail, such as fracture of instruments in the root canal and perforations. Fracture of endodontic instruments can be an obstacle to the treatment progression, or even pose risk to treatment completion, such as in cases where root perforation establishes an artificial communication between the pulp chamber or root canals and the periapical tissues. This event is usually due to the lack of knowledge of dental anatomy. The analysis of the pulp chamber is complex because the, using the available resources, the endodontist should interpret the image of a three-dimensional structure in only one dimension. Therefore, deep knowledge of the internal of tooth anatomy is extremely important to reduce the incidence of failures that could lead to tooth loss. Failure of the endodontic treatment frequently represents the lack of observation in one of the initial operative steps. These situations are illustrated by the presentation of the cases of two endodontic instruments fractured inside the root canal and root perforation that induced treatment failure with consequent tooth loss.

#### **Enucleation of apical periodontal cyst with apicoectomy: case report**

Davalos, P.M.E.; Venâncio, C.A.B.; Corotti, M.

It is acknowledged that the endodontic treatment has advanced over time both technically and scientifically, thus reaching greater success rates. However, root canal therapy involves some complex operative steps that subject to failures, accidents and a wide array of complications that can lead, in some cases, to complete failure. For cases that cannot be treated by conventional endodontic treatment, endodontic surgery appears as an important treatment resource, as observed in the present case report. A 17-year-old female patient was referred to the Clinic of Endodontics of Uningá for presenting a periapical lesion associated with the root-filled tooth 22, which was under orthodontic treatment. After evaluation of the situation, endodontic surgery for cyst enucleation was indicated together with apicoectomy of tooth 22, which was satisfactorily treated endodontically. The treatment approach was considered as successful because, until the present moment, the case evolves with the gradual disappearance of the radiographic periapical lesion signs, showing an excellent healing process.

#### **Bond strength of Endofill sealer to root canal walls after the surface treatment with CO<sub>2</sub> laser**

Alves, G.T.O.; Oliveria, A.G.; Marchesan, M.A.; Alfredo, E.; Silva-Sousa, Y.T.C.; Sousa-Neto, M.D.; Gabriel, A.E.S.

New technologies have been investigated to increase the adhesion of endodontic sealers to root canal walls. Among them, the CO<sub>2</sub> laser has shown promising results due to the microretentive pattern created on dentin surface. Therefore, this study evaluated in vitro the adhesion of Endofill sealer after surface treatment with CO<sub>2</sub> laser, using the push out method and comparing the results to those of conventional dentin treatments. Forty-five caries-free maxillary canines had the crowns sectioned and the root canals endodontically treated. The roots were included in aluminum molds with acrylic resin (16 mm diameter and 8 mm height) and regularized with SiC papers. The internal diameter of each canal was standardized with a tapered diamond drill under a flat base. The specimens were randomly divided into 3 groups (n=15) according to the surface treatment: GI - CO<sub>2</sub> laser irradiation (3W, continuous mode, during 10 s), GII - 2 mL 17% EDTA (5 min), GIII - 2 mL of distilled water (5 min - control). The specimens were then filled with Endofill sealer and stored at 37°C by a period of three times the sealer setting time. After this, the push out test was performed in a universal testing machine at a crosshead speed of 1 mm/min. Kruskal-Wallis test (p<0.01) showed that the specimens that received CO<sub>2</sub> laser application had the highest bond strength means (0.137 ± 0.036 KN). The water (0.082 ± 0.030 KN) and EDTA (0.092 ± 0.036 KN) groups were statistically similar to each other

(p>0.01) and had the lowest means. It was concluded that surface treatment with CO<sub>2</sub> laser increased the adhesion of Endofill sealer to the root canal walls.

#### **Bond strength of a resin-based cement after root canal preparation with endodontic chemical substances**

Silva, D.P.; Gonçalves, F.R.; Venâncio, J.S.; Silva, M.C.P.; Campos, G.R.

The present study evaluated "in vitro" the influence of chemical substances used in the chemomechanical preparation on the bond strength of Rely X resin-based cement to root dentin. 55 bovine teeth had their crowns removed at the cervical region and the roots sectioned longitudinally, being standardized in 10 mm, having the cemento-enamel junction as a reference. Next, the specimens were embedded in autopolymerizing resin blocks and were treated with the following sodium hypochlorite (NaOCl) concentrations: 0.5% (group 1); 1% (group 2); 2.5% (group 3); 5.25%, in addition to the control group that received distilled water (group 5), for periods of 20 min. Thereafter, all specimens were immersed in 17% EDTA for 3 min. One specimen *per* group was submitted to SEM analysis for surface evaluation. For the tensile bond strength test, the specimens were etched with 37% phosphoric acid for 15 seconds, Single bond adhesive system was applied followed by Rely X resin-based cement. Bond strength means (in kgf) were: G1:(7.77); G2:(12.39); G3:(13.75); G4:(23.12) and G5:(5.68). Data were submitted to statistical analysis. The SEM analysis showed that the root dentin, when in contact with NaOCl, presented alterations in its morphological structure, with reduction of the intertubular dentin, increase in the diameter of dentinal tubules and presence of areas of depressions on the surface. Based on the obtained results, it may be concluded that 5.25% NaOCl increased significantly the bond strength of the resin-based cement to dentin compared to the distilled water and the other NaOCl concentrations.

## **Pediatric Dentistry**

#### **Orofacial changes in patients with mucopolysaccharidosis**

Tanaka, M.H.; Cavalcante, L.B.; Figueiredo, E.L.; Giro, E.M.A.; Caminaga, R.M.S.; Nascimento, P.B.L.

Mucopolysaccharidoses (MPS) are lysosomal storage diseases caused by a deficiency or absence of any of the enzymes that break down mucopolysaccharides. These build up in the lysosomes and impair cell function. The MPS can be classified into seven types depending on the enzyme that is deficient. The defective gene for the MPS is in one of the autosomal chromosomes; therefore it is an inherited condition of autosomal recessive transmission, except for Hunter Syndrome (MPS Type II), where the defect is in the X chromosome. The objective of this study was to report the case of two male uterine siblings with mucopolysaccharidosis type II, aged 6 and 16 years old, with emphasis on orofacial manifestations. Upon examination, severe systemic changes were detected, such as hydrocephaly, prominence of the temporal and frontal bones, hepatosplenomegaly, mental retardation, joint, pulmonary and heart changes and dental changes were also observed, namely delayed tooth eruption, diastemas and enlarged alveolar ridge. These characteristics are directly or indirectly associated with the accumulation of mucopolysaccharides in the tissues. Therefore, it is very important to know the changes that have taken place so that an adequate treatment plan may be settled to improve the oral conditions and quality of life of these patients.

#### **Replantation of an avulsed primary maxillary central incisor and management of dilaceration as a sequel on the permanent successor**

Paschoal, M.A.B.; Sakai, V.T.; Oliveira, T.M.; Moretti, A.B.S.; Santos, C.F.; Machado, M.A.A.M.

This case report outlines the sequel and possible management of a permanent tooth traumatized by the predecessor, a primary maxillary right central incisor that was avulsed and replanted by a dentist 1 hour after the trauma in a 3-year-old girl. Three years later, discoloration and fistula were present, so that the primary tooth was extracted. The patient did not come to the scheduled follow-ups in order to perform a clinical and radiographic control of the succeeding permanent incisor, only returning when she was 10 years old. At that moment, impaction and dilaceration of the permanent maxillary right central incisor were detected radiographically. The dilacerated permanent tooth was then surgically removed, and an esthetic fixed appliance was constructed with the crown of the extracted tooth. Positive psychological influence of the treatment on this patient was also observed.

**Congenital toxoplasmosis as an etiological factor in West syndrome**

Calvacante, L.B.; Tanaka, M.H.; Kishimoto, K.Y.; Bocardi, K.; Caminaga, R.M.S.; Giro, E.M.A.

Congenital toxoplasmosis is transmitted to the fetus through blood by a focus of infection in the placenta. Roughly 75% of the congenitally infected newborns are asymptomatic. However, nearly all of these children will present clinical manifestations of congenital toxoplasmosis as they develop and these may include: ophthalmologic changes, CNS abnormalities (microcephaly, hydrocephaly, encephalomyelitis, convulsions and mental retardation), jaundice, anemia and thrombopenia. Toxoplasmosis is one of the most common prenatal forms of catastrophic epilepsy and West syndrome represents from 3 to 11% of this type of epilepsy. Phenytoin is used to control convulsions in these cases and drug-induced gingival hyperplasia occurs as a side effect in 65% of the patients. The objective of this study was to emphasize the clinical protocol and the dental treatment of a patient with West syndrome due to neurological sequelae from congenital toxoplasmosis, who presented drug-induced gingival hyperplasia in the entire dental arch, tartar and high caries activity. Initially, the neurologist was asked to replace phenytoin by another drug that did not induce gingival hyperplasia. Preventive and restorative treatments were undertaken. Four months after the substitution of phenytoin by topiramate, gingivoplasty was done in each quadrant in monthly intervals. The obtained results were favorable both esthetically and functionally and, after an 18-month follow-up, a slight decrease in gingival growth was observed. In conclusion, the substitution of phenytoin by topiramate and gingivoplasty, as well as oral hygiene advice, improved the oral health of the patient.

**Baby's oral anomalies**

Souza, D.B.; Buss, M.F.; Borgo, P.V.; Ganhoto, A.P.A.

This work has as objective to present the most frequently found anomalies in the oral cavity of babies and the adequate treatments for these cases. The anomalies considered as the most frequent are: native ankyloglossia, natal and neonatal teeth, ulcer of Riga-Fede, pearls of Epstein, nodules of Bohn, cysts of the dental blade and hematomas of eruption. The current trend in health is to give emphasis to an early care. Therefore, few-month-old babies are now taken to the pediatric dentist. It is therefore important that the dentist has knowledge of the morphological characteristics of babies' oral cavity and the standards of the normality. This way, he/she can recognize and diagnosis, in a safe and correct way, the probable anomalies occurring at early childhood, tranquilizing the parents and establishing the therapeutic approach indicated to the case.

**Dental fluorosis - clinical aspects and associated etiological factors**

Paquier, G.M.; Boaventura, J.M.C.; Brito, C.A.; Padovani, G.C.; Lima, J.P.M.; Queiroz, R.S.; Carrara, C.E.

Dental fluorosis occurs as a consequence of prolonged intake of fluoride in small doses, but above the ideal quantity, during tooth formation. It is characterized by an increase in the porosity of the enamel surface, which gives the tooth an opaque appearance. Clinical characteristics are defined by a range of alterations that comprises fine white lines around the tooth up to conditions in which there is a localized enamel loss associated or not with pigmentation. The clinical appearance of dental fluorosis can be classified in grades reflecting the stages of increasing severity. This work presents clinical situations showing several degrees of fluorosis, suggesting the influence of different factors on its etiology.

**Effect of Er:YAG laser irradiation on incipient carious lesions: morphological analysis**

Alencar, C.J.F.; Tashima, A.Y.; Navarro, R.S.; Mendes, F.M.; Zzell, D.M.; Haddad, A.E.

This in vitro study aimed at evaluating the morphological characteristic of incipient carious lesions, in primary teeth, after irradiation with Er:YAG laser (KaVo Key II). The sample (12 enamel blocks) was submitted to pH cycling (7 days) for the formation of lesions. Then, the specimens were randomly divided into 4 groups (n=20): C – control, LF – Er:YAG laser in focused mode (18.67 J/cm<sup>2</sup>), L3 – Er:YAG laser in defocused mode (3 mm; 3.23 J/cm<sup>2</sup>), L6 – Er:YAG laser in defocused mode (6 mm; 1.04 J/cm<sup>2</sup>). After treatments, the specimens were prepared for scanning electron microscopic analysis (n=3). The SEM analysis showed that group LF presented superficial ablation of demineralized enamel and that the surface irradiation was not uniform. No significant morphological change was observed in group L6, whereas the images obtained for group L3 suggest an increase in porosity as compared to group C. It may be concluded that subablative parameters for Er:YAG laser, in defocused mode 3 and 6 mm, that can be applied on incipient carious lesions, without

causing surface damage were obtained.

**Complete spontaneous regression of congenital epulis in an 8-month-old baby**

Gurgel, C.V.; Santos, C.F.; Oliveira, T.M.; Sakai, V.T.; Machado, M.A.A.M.

This work reports the case of a 7-day old girl, who was referred to the clinic of pediatric dentistry of our institution because of the presence of a pedunculated mass protruding from the front of the mouth. The mass was attached to the maxillary alveolar ridge on the right of the midline, and was clinically diagnosed as a congenital epulis. The baby had no airway obstruction and was able to feed well. A conservative treatment was proposed, with monthly follow-up appointments to monitor the lesion. After 8 months, the lesion had completely regressed, preventing the girl from being exposed to unnecessary surgical procedures in her first few days of life. The eruption of the upper anterior teeth was not affected.

**The dentist and the schizophrenic patient**

Neto, J.S.E.A.; Marta, S.N.

Schizophrenia is a chronic mental disorder that appears during adolescence or adulthood. It is the most serious mental disorder and the main cause of psychiatric internments. It affects 1% of population without predilection for gender or race. The term schizophrenia was described by Bleuler in 1908 and means "splitting of the mind" or "shattered mind", characterized by disorganized thinking, and experiencing of delusions or hallucinations, without emotional responses with genetic and environmental factors. The most known types of this pathology are simple, hebephrenic, catatonic, paranoid, and residual type. The pharmacological therapy for schizophrenia is usually antipsychotic medication mainly to provide symptomatic relief from the positive symptoms of psychosis. The dental treatment for schizophrenic patients must consider the period of crisis manifestations and drug therapy. The choice for ambulatory dental treatment is the use of physical restraint because of the possibility of patient's crisis during the appointment. Furthermore, the dentist should be integrated in a multidisciplinary staff and aware of scientifically based information in order to offer an efficacious and safe treatment, aiming at the welfare and promotion of quality of life of these patients.

**Esthetic space maintainer: a solution for premature loss of primary teeth**

Gonçalves, C.C.; Sousa, K.R.; Costa, A.M.M.; Maia, S.A.; Almeida, M.E.C.

The premature loss of primary teeth by caries disease is very common in Brazilian children, which causes shrinking of dental arch and affect the balance of the stomatognathic system. This loss is an etiologic factor of occlusal dysfunctions. The prevention of this problem can be made with devices called space maintainers, which are able to preserve the occlusal integrity, keep the teeth in their positions and allow the eruption of permanent teeth. The objective of this work to demonstrate the importance of this device with the report of a case of a 4-year-old male patient that was treated at the Pediatric Dentistry clinic of the State University of Amazonas (UEA). The treatment of this patient included extraction of root remnants of primary teeth and fabrication of removable acrylic resin space maintainers. This was the best treatment option because esthetics and functional results were achieved and the patient's psychological conditions improved.

**Effects of the low-power laser therapy on the activity of the MDPC-23 odontoblast-like cells**

Oliveira, C.F.; Hebling, J.; Sacono, N.; Souza, P.P.C.; Lessa, F.C.R.; Costa, C.A.S.

The aim of this in vitro study was to evaluate the effects of the low-power laser therapy on the activity of odontoblast-like MDPC-23 cells regarding the total protein synthesis and expression of collagen type 1 (Col-1) and fibronectin (FN). Cells were seeded (1.5x10<sup>4</sup> cells/cm<sup>2</sup>) on Petri dishes and submitted to stress by reducing the addition of fetal bovine serum into the culture medium. After 3 days, the GaAlAs-diode laser [Thera Laser, DMC Equipments Ltda; (λ)-830nm, (?)-0,6mm, (ñ)-90 mW, (D)-141.5 J/cm<sup>2</sup> and (°)- 4J] was applied (six application every 12-hour interval) at the bottom of the Petri dishes where the cells were attached (Group 1). In Group 2 (control) the cells were not irradiated. The total protein synthesis was evaluated in a spectrophotometer at 680 nm and the data submitted to the statistical analysis (Mann-Whitney). Col-1 and FN expression was evaluated by RT-PCR. GAPDH was used as control. In contrast to the data presented by several in vitro studies in which different cell lines were bio-stimulated by laser therapy, the MDPC-23 cells activated by laser irradiation did not show significant up-regulation of the total protein synthesis. The expression of Col-1 and FN was down-regulated by the laser therapy used in this investigation. Under the tested conditions, it was concluded that the parameters of the laser therapy used in this experiment bio-modulates the MDPC-23

activities by causing no changes in the synthesis of total proteins, but down-regulating the Col-1 and FN expression.

### The presence of supernumerary teeth and its consequences

Matos, D.S.; Ricci, H.A.; Nogueira, I.; Abreu-e-Lima, F.

The mesiodens is most usual type of supernumerary teeth and it is located in the anteroposterior region, between the upper central incisors. In most cases, this tooth has a conical shape and short root and is embedded. This alteration is more prevalent in males and the mixed dentition is the most affected one. The presence of supernumerary teeth can be responsible for some deleterious effects for the patient, such as malocclusion, diastemas, root resorption of adjacent teeth, cystic degeneration and permanent tooth impaction. The purposes of this case report were to alert the clinicians about the consequences of the permanence of a supernumerary tooth and the proper treatment management. In the Pediatric Dentistry Clinic of the School of Dentistry of Araraquara (FOAr-UNESP-Brazil) the presence of an embedded mesiodens was detected radiographically in a 7-year-old male child with malocclusion and anterior diastema. The extraction was performed and orthodontic treatment was conducted for closure of the diastema created by the delayed detection of the mesiodens. Based on the case outcome, it may be concluded that the consequences of the permanence of a supernumerary tooth can be avoided when early diagnosis is performed.

### Oral management of a child with mixed dentition affected by amelogenesis imperfecta

Menezes, C.C.; Moretti, A.B.S.; Sakai, V.T.; Oliveira, T.M.; Silva, S.M.B.; Machado, M.A.A.M.

Amelogenesis imperfecta is a hereditary developmental disorder affecting the deposition, calcification or maturation of dental enamel in both the primary and permanent dentitions. Patients usually present tooth sensitivity as well as problems in chewing function and esthetics. In addition, dissatisfaction with the tooth appearance is often found, affecting the patient's social life. Oral rehabilitation of children with primary or mixed dentition is complex, since no definitive treatment can be done during periods of growth and until the end of eruption of the permanent dentition. This clinical report describes the oral management of a 7-year-old girl with mixed dentition affected by AI. The patient showed accentuated tooth wear and root resorption, decreased occlusal vertical dimension, open bite and alteration in the sequence of eruption of the permanent teeth. Most of the teeth were restored with resin-modified glass ionomer cement. This approach markedly decreased the patient's dental hypersensitivity and improved functional chewing and esthetics. Positive psychological influence of the treatment on this patient was also observed.

### Fluoride concentration in some commercially available fermented milks

Lodi, C.S.; Manarelli, M.; Delbem, A.C.B.; Sasaki, K.T.; Martinhon, C.C.R.

The increase in the consumption of industrialized beverages among children has increased the intake of fluoride ions in the age of fluorosis risk. The goal of this study was to evaluate the fluoride ion concentration in some fermented milks present in the national market and correlate them as a possible fluorosis risk factors. Three batches of 6 fermented skim sugared milks (Parmalat®-uva, Chamyto®, Paulista®, Batavito®, Yakult®, Vigor Club®) were investigated. Fluoride concentration was evaluated after facilitated microdiffusion by HDMS (Taves modified by Whitford method, 1996). Parmalat® products ranged from 0.0221gF/g to 0.0311gF/g, Chamyto® from 0.2281gF/g to 0.2721gF/g, Paulista® from 0.1821gF/g to 0.2201gF/g, Batavito® from 0.0281gF/g to 0.0301gF/g, Yakult® from 0.1151gF/g to 0.2061gF/g and Vigor Club® from 0.8081gF/g to 1.1711gF/g. No product had any specification about fluoride concentration on the label. In conclusion, all analyzed products had some fluoride ion concentration, which contribute to the increase of fluoride intake. The fermented milks evaluated in this study are risk factors to dental fluorosis, indicating the need of a larger control of their consumption.

### Shear bond strength of adhesive systems to primary tooth dentin. Influence of Er:YAG laser energy variation

Frigeri, C.B.; Dibb, R.G.P.; Torres, C.P.; Silva, J.M.G.; Contente, M.M.M.G.; Oliveira, R.H.; Borsatto, M.C.

The objective of this in vitro study was to evaluate the influence of Er:YAG laser energy variation on the shear bond strength to primary tooth dentin. Thirty human were primary molars sectioned buccolingually and embedded in self-curing acrylic resin with the facial or lingual surfaces exposed. The specimens were ground wet to obtain flat dentin surfaces and randomly divided in groups, according to adhesive

systems used, Single Bond (SB) total etch adhesive and Clearfil Tri- S Bond (3S) self-etching adhesive, and according to type of preparation, conventional (high speed) and cavity preparation using Er:YAG laser (frequency 2Hz) with energy variation (mJ) as follows: I- conventional cavity preparation + 37% phosphoric acid etching, 10s + SB (control); II- conventional cavity preparation + adhesive system 3S (control); III- 200mJ + SB; IV- 200mJ + 3S; V- 250mJ + SB; VI- 250mJ + 3S. Using a split bisected polytetrafluoroethylene jig, the specimens were individually fixed in a metallic champing device and Filetek Z250 (3M) composite resin cylinders were fabricated for the shear bond strength test using a universal testing machine (50 kgf/0.5mm/min). Failure modes on fractured sites were determined using a stereomicroscope at 40x magnification. Data were analyzed statistically by two-way ANOVA and Fisher's test. SBS means in MPa were: 6.95 (+ -2.33); 10.72(+ -3.15); 4.14(+ -1.65); 10.06(+ -2.60); 5.38(+ -1.57) and 9.20(+ -2.41), respectively for groups I, II, III, IV, V and VI. Regarding the preparation mode, groups I and II had statistically significant better results than groups III, IV, V and VI. 3S showed higher means and significantly different from SB, independent of the mode preparation used. However, comparing energies of 200 and 250mJ, there was no statistically significant difference. It may be concluded that Clearfil Tri- S Bond had better values of adhesion to all preparations, either bur-cut or laser-irradiated.

### Prevalence of white spot lesions in young children assisted in the Baby Clinic of the Dental School of Araçatuba/UNESP between 1996 and 2004

Alves, K.M.R.P.; Capucci, L.D.; Cunha, J.Z.; Cunha, R.F.

Dental caries is a multifactorial infectious disease, influenced by carbohydrate-rich diet and the action of saliva, resulting in gradual mineral loss and destruction of dental structure. Caries lesions restricted to enamel can be arrested by dental biofilm control, dietary changes and use of fluoride. The purpose of the study was evaluate the prevalence and the profile of white spot lesions in patients aged 0 to 4 years assisted at the Baby Clinic of the Dental School of Araçatuba/UNESP, São Paulo, Brazil, between 1996 and 2004. By dental record analyses, 191 children were selected. 746 cases of teeth with white spot lesions were found. The results showed that children aged 18-24 months had greater presence of white spot lesions (29.3%). 269 (36%) out of 746 teeth presented remineralized enamel and only 71(9.52%) turned into cavitation and that the primary left central incisors were more prevalent in both cases, respectively (16.36% and 22.53%). We concluded that it is important instruct parents with respect to diet and oral hygiene at the specific age of their babies (18-24 months) and that attending a prevention program lead to greater white spot lesion remineralization.

### Art to evaluate special need patients' behavior during dental assistance

Alves, K.M.R.P.; Santos, M.J.P.; Aguiar, S.M.H.C.A.

This project proposes using art to condition special need patients' behavior during dental assistance at CAO. The behavior of 96 patients was assessed before and after participation in the activities using a questionnaire to check the viability of the project, behavior and level of neurological impairment. 48 patients were categorized with mild neurological impairment, 34 moderate, 13 severe and 1 profound. The project was viable for 97% of the patients, being described as calm (54%) and happy (40.6%). Patients' behavior during dental treatment indicated 19.6% as definitely negative, 24% negative, 9.4% definitely positive and 47% positive. A total of 56% demonstrated improvement resulting in favorable conditions for treatment (positive), 90.6% showed behavioral improvement with some significance and 87.5% were in favorable conditions of treatment (positive and definitely positive). The use of art as a process of adaptation and conditioning patients with special needs was proven as helpful for their dental assistance.

### How to manage the lack of children's cooperation during dental treatment

Costa, L.S.T.; Possobon, R.F.; Carrascoza, K.C.

The use of strategies of handling the behavior in Pediatric Dentistry allows the establishment of an adequate dentist-patient relation, which contributes to reduce dental anxieties and fears. This work reports the case of a 57-month-old male child who did not allow the dentist working during preventive dental care sessions. He presented extreme cry, hand on the mouth, avoiding clinical examination, physical and verbal aggression directed to the mother and dentist. These manifestations also occurred at home at toothbrushing time, according to mother's report. The treatment approach was to set appointments to the child for programmed sessions of handling of behavior. The strategies used were: a) Modeling: the sessions were programmed so that the dentist reached one definitive objective, with full cooperation of the child, coming close themselves, to each session, of the final objective (clinical examination/toothbrushing); b) Distraction: use of common toys or with dental reasons, having the goal to increase the dentist-child interaction; c) Positive reinforcement: by compliments, gifts and playful activities. After 4 sessions, the

child was fully collaborative, allowing in-office clinical examination and professional oral hygiene and at-home toothbrushing and oral hygiene.

#### Healing effect of *Mentha viridis*: experimental and clinical studies

Assunção, L.R.S.; Santos, M.J.P.; Elias, G.P.; Aguiar, S.M.H.C.A.; Felipini, R.C.; Silva, C.A.

In the last decades, the use of phytotherapeutic products has increased due to their pharmacologic efficacy presented in several diseases. Antibacterial, analgesic, antiseptic, antiinflammatory, antiviral and immunomodulatory effects have been attributed to *Mentha piperita*, specie of mint commonly cultivated in Brazil. However, there are no studies about the effects of *Mentha viridis* (Mv), a plant belonging to the same family of *Mentha piperita*. The aim of the present study was to evaluate the effect of Mv on the healing process of herpetic and aphthous lesions in humans, and dorsal cutaneous wounds in Wistar rats. A carbopol gel added with 5% of Mv extract was applied onto the lesions and cutaneous wounds. For the control group, the natural extract was not incorporated into the gel. The effect of the treatment was evaluated by clinical analysis in humans and by macroscopic and histological analyses in the animals. The clinical results demonstrated that the premature application of Mv inhibited the herpetic vesicle formation, decreased the burning pain associated with the lesions and accelerated the wound healing process. In the animals (n=7/group), the effect of Mv was observed at three treatment periods (1, 4 and 7 days) and the preliminary results of the macroscopic and histological analysis showed that Mv also accelerated wound healing. These results suggested that Mv can be a therapeutic option for treatment of oral lesions, with analgesic, anesthetic and healing effects. The mechanisms that are involved in these effects should be evaluated by additional studies.

#### Radiographic diagnosis of a large occlusal caries judged to be an incipient pit-and-fissure lesion

Tessarolli, V.; Sakai, V.T.; Oliveira, T.M.; Moretti, A.B.S.; Silva, S.M.B.; Machado, M.A.A.M.

The treatment of a large dentin caries, which seemed to be a small pit-and-fissure carious lesion on the occlusal surface of a permanent mandibular right first molar in a 6-year-old boy, is presented. The treatment included root canal filling and the sealing of the cavity with composite resin. Underlying periodontal tissue healing could be radiographically observed at the 14-month follow-up. Therefore, it is possible that a better visual examination, with careful cleaning and drying of teeth, may improve occlusal caries detection. Dentists should examine bitewing radiographies carefully for occlusal demineralization. As radiographs are an effective method of lesions caries diagnosis, they should be recommended at appropriate ages to aid early detection of these lesions.

#### Pediatric dental approach for patients in the early childhood

Peres, J.A.; Gomide, M.R.; Neves, L.T.

In early childhood, children are involved in an active process of evolution and their behavior in the dental clinic is determined by a series of factors, such as age, maturity, dentist's approach and previous experiences. The pediatric dentist, with psychological knowledge of the different stages of children development, should analyze and indicate the most effective methods for behavior management and psychological preparation. During early childhood, the manifestations of dental anxiety can assume several forms, such as crying, refusal to enter the room or open the mouth, shaking hands or screaming. In this age range, techniques with physical restraint are usually necessary to contain improper movements during dental treatment and may be active or passive. After 18 months of age, language techniques as tell-show-do can be used with an appropriate vocabulary. The goal of child conditioning is to present the dental environment and to show that the procedures to be performed are not associated with pain or discomfort. The objective of this work is, by a literature review, to address the most common behaviors and different management techniques used for the 0-3-year-old age group aiming at adaptation of the child to the dental care.

#### Correction and prevention of Class III malocclusion in an early treatment: a case report

Chaves, J.M.V.S.; Silva, S.M.B.; Abdo, R.C.C.; Eleutério, A.S.L.; Machado, M.A.A.M.

The application of the Planas Direct Tracks concept and technique may represent an interesting tool for the early treatment. This is a very strong tendency among clinicians. When perfectly understood and applied, the neuroocclusal rehabilitation reorients growth to a morphological normalization. In the beginning, the class III

can be defined as a functional reflex of an anterior position of the mandible, which without proper treatment of the malocclusion, will induce dental, neuromuscular and skeletal deformities. The result is a modified size and shape of the respective skeletal units. There are still great controversies about when is the best moment to start the class III treatment. The eruption of the primary incisors establishes an important period of development. A good treatment starts with a good clinical interview. The purpose of this study is to report a case in which a baby (class III patient) was successfully treated with Planas Direct tracks in early primary dentition. The case illustrates the importance of the early diagnosis. Although more studies are needed to determine the effects of the early treatment in the human primary dentition, the results suggest that the Planas Direct Tracks can be optimal in preventing malocclusions.

#### Influence of beverages usually consumed by children on enamel microhardness of primary teeth: in vitro evaluation

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This in vitro study evaluated the influence of a lemon soft drink (Sprite®), a soy-based apple juice (Ades®) and a strawberry juice (Kapo®) on the superficial enamel microhardness of primary teeth influenced by time. Forty crowns of primary incisors put on acrylic bases with the buccal surface exposed (3mm) were divided in four groups (n=10), according with the tested solutions and control group, where the specimens stayed in artificial saliva. After measurement the initial microhardness, immersion cycles were undertaken with 75 mL of solutions, 3 times a day, with intervals of 4 hours during a total period of 60 days. The microhardness were measured 7, 15, 30, 45 and 60 days of repetition of these cycles by a pyramidal Knoop indenter (50 gf, 10 seconds and 5 indentations). After each immersion/agitation cycle, the specimens were washed and kept 37°C in 15 mL of artificial saliva with daily changes until the next cycle. Data were submitted by ANOVA with solution and time as the factors. Regarding the solutions, Sprite® presented the greatest microhardness variation, being statistically different from others groups. For the factor time, there was progressive loss during the studied periods. Regarding time/solution interaction, Sprite® varied 81.55% in 60 days. We concluded that all beverages produced gradual and significant alteration on superficial microhardness in all evaluated periods. However, Sprite® altered the enamel in a more accentuate manner. Saliva presented a gain of superficial hardness until 30 days (p<0.05), diminishing and stabilizing on the initial values.

#### Treatment of dental anomalies in pediatric dentistry: surgical and psychological aspects

Caruso, R.G.G.; Oliveira, C.S.B.M.; Oliveira, A.L.B.M.; Rosell, F.L.

The oral surgery applied to children, works with the same basic principles as the one applied to adults, but some differences must be considered, like the techniques applied during the surgery (do to the size of the oral cavity, localization of inferior alveolar nerve, dentition phase, presence of the permanent tooth germ, amount, type and injection of local anesthetics) or techniques used while handling psychological limitations of the child. Some anomalies detected during childhood, like root dilaceration, supernumerary teeth or dental ankylosis, are commonly associated with delayed or absent eruption of permanent teeth. In addition, a detailed clinical interview, clinical exam and correct evaluation of the radiographs are fundamental for the diagnosis and choosing of the correct treatment. The purpose of this study was to address the main clinical and psychological aspects of surgery in pediatric dentistry. Three different cases are presented (ankylosis of tooth 54; supernumerary teeth in the anterior region; root dilaceration of tooth 11) to aid the understanding of these aspects, in addition to showing the complications and consequences that can be generated by the permanence of these alterations in the oral cavity.

#### The autistic patient in the dental office

Sant'Anna, E.; Chiacchio, V.; Castilho, A.R.F.; Marta, S.N.

Autism or developmental disorder is a disturbance of complex behavioral development with multiple etiologies and varied degrees of severity. Bleuler used the expression "autism" for the first time in 1911, to assign the loss of the contact with the reality that was caused by difficulty or impossibility of communication. The autism is the third more prevalent developmental disorder. It affects around 40 to 130 individuals for every 100,000 live born. The behavioral manifestations include deficiency in the social interaction and communication, repetitive and stereotypical behavior, and restriction of interests and social activities. The difficulties in social interaction are described as isolation or improper social behavior; poor visual contact; difficulty in participating of in-group activities; affective indifference, and lack of social or emotional empathy. When these individuals become adult, there is an improvement of the social isolation. The diagnosis of autism and its related disturbances depends

on the clinical evaluation of multidisciplinary staff and the use of objective scales, such as Childhood Autism Rating Scale (CARS). The management of autistic people by dentists requires an interdisciplinary intervention because the social-cognitive deficits and behavioral problems interfere with the integration of these patients in the dental office. Moreover, many of the autistics take neuroleptics and antipsychotic drugs, and there is the risk of convulsions during dental care. The prognosis of autism is changeable and is related to the patient's level of abilities, demonstrated in cognitive and language tests. Thus, the acquaintance of dentists with autism could favor the management of autistic patients during the dental treatment.

## Orthodontics

### Indirect bonding of brackets: simplified technique

Magno, A.F.F.; Porto, C.H.S.; Martins, R.P.; Martins, L.P.

Indirect bonding has several advantages over direct bonding in the orthodontic practice, such as improved precision in positioning of brackets, reduce chair time and, therefore, less stress to the orthodontist. Most traditional techniques are not used due to the cost, laboratorial time and because specific materials must be used for the production of the tray and bonding of the brackets. The aim of this work is to demonstrate a technique for indirect bonding focused on low cost and simplicity. The materials used are soluble glue, brackets, Vaseline, hot glue pistol, hot glue and adhesive. The brackets are bonded to the model with the soluble glue and painted with Vaseline before the hot glue bonding tray is made. The tray is then removed and soaked in water for removal of the soluble glue. At that time, the brackets are ready to be transferred to the mouth. This simplified technique of indirect bonding allows a correct and precise positioning of brackets. The procedure for indirect bonding became simple and accessible to all professionals with the use of the hot glue. This is due to the low cost and transparency of the hot glue, allowing the use of any kind of adhesive. Also, its good usability simplifies the laboratorial procedures.

### Space closure using the segmented arch technique: fabrication and clinical use of T-loop spring for type A anchorage

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The segmented arch technique uses an efficient device for orthodontic space closure called T-loop spring. This device develops a precise force system with control of tooth movement, delivering light continuous forces to teeth and optimizing their movement. The force system produced by a T-loop spring consists of several components: the alpha moment, the beta moment, horizontal forces, and vertical forces. Differential moments to anterior and posterior units are used for obtaining differential anchorage (A, B and C), differential tooth movement. Differences on preactivation bends and position of spring produce differential moments. In type A anchorage, the anterior unit (Alpha) moves by controlled tipping, with subsequent root movement and the posterior unit (Beta) is kept stable with translation. This poster board demonstrates how T-loop spring was fabricated with preactivations to type A anchorage and their clinical use.

### Orthopedic treatment of class III malocclusion with rapid maxillary expansion (RME) and face mask

Guirro, W.J.G.; Pieri, L.V.; Henriques, R.P.; de Freitas, M.R.; Janson, G.R.P.; Henriques, J.F.C.

Class III malocclusion appears precociously and is complex to diagnose and treat, mainly in the mixed and primary dentitions. The ideal approach is to reach a positive horizontal overlap until the succession of the permanent upper central incisors associating rapid maxillary expansion with face mask therapy advancing the maxilla and its dentition from 1 to 2 mm, mandible clockwise rotation with more upward-forward direction in the mandibular condyle growth (in the early mixed dentition) and lingual inclination of the lower incisors. Activate the expansion screw 2/4 turn (twice a day) until the evidence of the median palatal suture opening (8-10 days) by the maxilla/anterior diastema occlusal radiograph, continue with ¼ turn/week (when no maxillary expansion is required) or ¼ turn/day until overcorrection with the palatal cusps of the upper posterior teeth touching the buccal cusps of the lower posterior teeth. The capping of the upper posterior teeth avoids undesired opening of the bite in the vertical pattern. The face mask is adapted and associated with the vestibular hooks of expander by means of bilateral elastics (3/8 inch in the first two weeks, than ½ inch and 5/16 inch) for the traction. The face mask is used full-time, except at school, until obtaining a 4-5mm positive horizontal overlap, and additional 6 months just for sleeping. Remove the expander appliance (band splitting plier) and the resin inside, and wear it as a full-time removable appliance, until the handing over the retainer appliance (impression took after one week), otherwise, the expansion

will be lost rapidly. Use the FR-3 as a retainer (whenever has residual growth) or put fixed appliance if necessary. This association is an option in Class III malocclusion treatment in the mixed and primary dentitions and the last attempt to avoid orthognathic surgery in early permanent dentition, with greater craniofacial adaptations in early mixed dentition.

### Use of reverse lip lumber on early class II malocclusion treatment, subdivision with mandibular asymmetry

Grehs, B.; Pinto, A.S.; Grehs, R.A.; Pinto, L.A.M.S

This study aimed at evaluating the efficiency of reverse lip lumber on the asymmetry treatment of patients with Class II division 1 malocclusion, subdivision with mandibular problems corroborated through extraoral submental-vertex radiographs. The sample comprised 23 selected 8-11-year-old children at mixed denture phase, evaluated for a period of 12 months. Reverse lip lumber and unilateral elastic on the side of the asymmetry were used. The angular and linear measurements obtained from radiographs by means of the Radiocef program were submitted to statistical analysis using Student's t-test, Snedecor "F" test, and the Mann-Whitney-Wilcoxon non-parametric test. According to the results, 75% of the treated cases presented Class I dental relationship on the side of the asymmetry. The studied cephalometric variables showed mandibular rotation when maxilla and mandible were related. There was jaw repositioning showing the orthopedic effect of the appliance, and normalization of dental midline, but statistically significant tooth movements were observed. It may be concluded that the use of the reverse lip lumber system caused a statistically significant mandibular rotation.

### Effects of low-level laser therapy irradiation on bone regeneration on midpalatal suture during rapid palatal expansion: literature review

Alencar, C.J.F.; Carvalho, D.S.; Filizzola, L.B.

The purpose of this study was to contribute to the application of low intensity laser in Orthodontics. We have revised the pertinent literature about the effects of low-power laser irradiation on bone regeneration during expansion of midpalatal suture. After revision, it may be concluded that low-level laser therapy (LLLT) with Ga-Al-As diode laser irradiation can accelerate bone regeneration in midpalatal suture during rapid palatal expansion and that this effect is dependent not only on the total laser irradiation dosage, but also on the timing and frequency of irradiation. The analgesic effects also contribute to the orthodontic treatment. Although further studies are still required, it may be suggested laser therapy may be of therapeutic benefit in inhibiting relapse and shortening the retention period by acceleration of bone regeneration and greater mineralization in the midpalatal suture.

### Rapid maxillary expansion for passive eruption, mesiodens extraction and surgical traction of the tooth 21

Henriques, R.P.; Pieri, L.V.; Freitas, M.R.; Janson, G.R.P.; Henriques, J.F.C.

Supernumerary teeth are an anomaly of number due to hyperactivity of the dental lamina, local and genetic causes, being present in congenital dental anomalies. They occur in the maxilla and mandible, isolated or multiple, unilateral or bilateral, with malformation or normal size and shape. They rarely occur in the primary dentition. The prevalence is of 1% being males more affected than females (2:1), 90% to 98% occur in the maxilla, 90% in the premaxilla between the upper central incisors (mesiodens), on vertical, inverted or transverse positions, irrupted or impacted. Supernumerary teeth can stay during many years in the mouth without pathological consequences. The diagnosis is clinical and/or radiographic (Clark's technique in the maxilla; occlusal technique in the mandible). They can be detected precociously even in 5-7 year-old children. Supernumerary teeth could be removed when they interfere with the eruption of a permanent tooth, occlusion and esthetics. The radiographic follow-up is essential. An invasive surgical procedure of supernumerary tooth removal is not always necessary. It is only indicated when the adjacent teeth have their complete roots to avoid interrupting their formation due to the proximity of both. Ulotomy and orthodontic mechanics of leveling and/or orthodontic traction allow the supernumerary irruption becoming a simple extraction. This work reports the case of a 7 year-old boy with a mesiodens. He underwent only rapid maxillary expansion (RME) and radiographic follow-up by means of periapical and panoramic radiographic surveillance up to passive mesiodens eruption. RME provided an eruption corridor for the mesiodens, which, by its active eruption force, had a passive eruption, allowing a simple extraction and the surgical traction of the impacted tooth 21.