

MEETING ABSTRACTS

Open Access



Abstracts from the 32nd Portuguese Dental Association Annual Meeting

Porto, Portugal. 9-11 November 2023

Published: 26 September 2024

1- A/O Risk factors for the development of temporomandibular disorders in F-16 pilots

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BMC Proceedings 2024, **18(14)**:1- A/O

Introduction: The military environment represents a unique work environment. Military pilots have an increased physical and emotional exposure to risk as they are required to rationally operate complex systems. Due to gravitational forces and less than ergonomic positions, military pilots frequently report neck pain, low back pain, orofacial pain and bruxism. Thus, Air Force pilots, when subjected to high levels of physical and psychological stress, are at greater risk of having awake bruxism. Air Force pilots are more emotional to experience Temporomandibular Disorders (TMD) when compared to the general population, since during flight the stomatognathic system is subjected to a particular stress. Studies indicate that the high number of TMD cases in pilots is associated with the push-pull effect and hemodynamic variations caused by interference that can lead to damage to human tissues, including the temporomandibular joint.

Objectives: The aim of this study was to examine the prevalence of sleep and awake bruxism as well as the influence of parafunctional habits and anxiety on the development of TMD in Portuguese Air Force F-16 pilots.

Materials and methods: Observational and cross-sectional study of Portuguese Air Force Flight 201 and 301 Squadron pilots carried out in July 2022 at Beja Air Base during the annual Real Thaw exercise. After carrying out the anamnesis and the Diagnostic Criteria for Temporomandibular Disorders, the self-report questionnaire for the diagnosis of bruxism was applied.

Results: The sample comprised a total of 19 male Portuguese military F-16 pilots aged between 27 and 38 years. Pilots presented a TMD prevalence of 42%. Awake bruxism and sleep bruxism were found in a percentage of 47% and 37% respectively. More anxious individuals had a higher incidence of mandibular locking ($p=0.015$). Pilots who

perform a greater number of annual alert services have more parafunctional habits ($p=0.045$).

Conclusions: Portuguese military F-16 pilots seem to have a higher prevalence of TMD and bruxism compared to the general population.

2- A / O The influence of the sociodemographic context of families on children's oral health – Research study.

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BMC Proceedings 2024, **18(14)**:2- A / O

Introduction: The family's socioeconomic factors can be decisive in children's oral health habits and frequency of dental visits, which can be reflected in their oral health status. Although these associations are studied in specific populations, in different time frames, the results are similar, which means that the development of prevention strategies is crucial for a paradigm shift. The relevance of this research lies in alerting dentists, the community and legislative and executive entities to the impact that the sociodemographic and economic context of families can have on children's oral health.

Objectives: The objective of this study was to assess whether the sociodemographic and economic background of the families of children receiving dental treatment at a pedagogic university clinic has an impact on the oral health of these pediatric patients, their behaviors and adherence to dental appointments.

Materials and methods: A cross-sectional observational study was carried out in a university dental clinic, through the application of a face to face questionnaire to the legal guardians of children aged between 2 and 12 years for the sociodemographic and economic characterization of the families. The child's oral health condition was assessed by consulting the records made at the first pediatric dentistry appointment: medical and dental history data and dental records (DMFT/dmft index). Descriptive/inferential data analysis was performed using IBM® SPSS® Statistics vs. 29.0 software ($p<0.05$) and variables were compared using mostly non-parametric tests. The study was previously authorized by the Ethics Committee of the institution.



Results: The sample consisted of 40 participants. Lower education level of guardians (≤ 3 rd cycle), lower household income (≤ 1000 €) and higher number of children (> 2) were found to have a significant impact on children's oral health. These household characteristics are associated with an increase in the median number of decayed, missing and filled teeth due to dental caries ($p < 0.05$).

Discussion: The sociodemographic and economic context of the families who constituted the sample of this study decisively influence the oral health of children. Similar results are reported in the literature, which reflect that the measures being adopted to limit oral health disparities are not adjusted to the problem described.

Promoting parents' oral health literacy, with the help of oral health professionals, emerges as a viable alternative to improve children's oral health. This strategy of promoting literacy among families is a starting point for further exploration and discussion of these problems at the level of national health systems.

Conclusions: Recognizing the impact of socio-demographic and economic disparities of families on children's oral health is vital for planning an appropriate intervention. Improving the oral health literacy of caregivers becomes crucial to close gaps in access to oral health care among different social groups.

3-

A / O Diagnosis of Periodontal Infrabony Defects with an Individualized Radiographic Device – Cross-sectional Observational Study

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BMC Proceedings 2024, 18(14):3- A / O

Introduction: Periapical radiographs play an important role in the treatment planning of periodontal infrabony defects, as they allow an anatomical characterization of the bone lesion, namely in terms of the angle of the defect and of the number of bony walls that constitute it. Nevertheless, previous reports indicate that intraoral radiographs usually underestimate the clinical dimensions of periodontal defects and it is apparently related to errors in the geometric alignment of the radiological components (sensor, object and ampoule).

Objectives: The aim of this study is to evaluate the accuracy of the infrabony component of periodontal defects on digital standardized intraoral radiographs compared to its intra-surgical measurements.

Materials and methods: A cross-sectional observational study was carried out using data collected from two pragmatic randomized controlled clinical trial of parallel group design on periodontal regeneration of infrabony defects. A total of forty patients, each providing one defect site with an infrabony component of at least 3 mm deep and 2 mm wide, were included. Intra-surgical depth of the periodontal infrabony defect was compared with baseline radiographic levels of marginal bone, assessed by a blinded calibrated examiner, on digital standardized intraoral radiographs obtained using an acrylic customized x-ray positioning stent. The calibration of the radiographic linear measurements, calculated by computer software, was ensured by the inclusion of a 2 mm diameter metal sphere in the positioning device. Preoperative radiographs were taken by a second calibrated blind evaluator.

Results: At baseline, mean intra-operative infrabony depth was 6.1 ± 1.9 mm, while mean radiographic infrabony measurement was 4.4 ± 1.85 mm. Comparison revealed a statistically significant mean difference of 1.65 ± 1.33 mm (95% CI: 1.22—2.07) between baseline measurements. Linear regression considering gender, age, number of defect walls and tooth position failed to identify any of these as statistically significant predictors of the discrepancy between radiographic and intra-operative measurements. Only the intra operative infrabony depth revealed itself as SS predictor. For every mm of increase in intra-operative infrabony depth, a 0.27 mm increase in discrepancy between radiographic and intra-operative measurement is to be expected.

Conclusions: The individualized radiographic device made it possible to overcome the main problems related to classic radiographic standardization systems, optimizing the geometric alignment of the radiographic components, without deterioration over time, ensuring the acquisition of images with high reproducibility and improved the assessment of marginal bone level. However, a radiographic underestimation of baseline intrasurgical measurements of periodontal infrabony defects was identified within a clinically significant threshold; revealing the need for new high-precision radiographic and/or computational techniques for the correct preoperative three-dimensional diagnosis of periodontal infrabony defects, with the inherent enhancement of the prognosis of these lesions. The limitations of radiographic linear measurement techniques are still relevant and project the need to implement new techniques for volumetric and three-dimensional measurements.

4-

A / O Prescription of anti-inflammatory drugs in a hospital setting: a 1-year retrospective clinical study and meta-analysis

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BMC Proceedings 2024, 18(14):4- A / O

Introduction: The prescription of anti-inflammatory drugs after oral surgery plays a key role in controlling postoperative pain and inflammation. Drugs, such as anti-inflammatory and analgesics, decrease pain, edema and trismus. Their analgesic and anti-inflammatory effect depends on the dosage and intervals prescribed.

Objectives: The aim of this study is to characterize the current situation regarding the prescription of steroidal/analgesic or non-steroidal anti-inflammatory drugs in various situations of oral surgery, in a hospital setting, and to compare the obtained results with systematic review with meta-analysis.

Materials and methods: A 1-year retrospective observational clinical study was conducted with a sample of 758 individuals undergoing oral surgery and prescribed steroid/analgesic or non-steroidal anti-inflammatory drugs. Data were collected on the reason, intervention, therapeutic regimen and drug combination. A systematic review with meta-analysis which included 36 articles from 2013–2023 was also conducted on the recommendation of anti-inflammatory/analgesic prescriptions for oral surgery in a hospital settings. Statistical analysis was performed using SPSS[®] and R softwares. In the systematic review with meta-analysis, the I2 statistic was also used and Cohen's Kappa coefficient was calculated in order to determine the agreement between the two observers, as well as the GRADE system to determine the quality of evidence.

Results: The study sample showed a slight predominance for females. Dental caries was the main reason that led individuals to require surgical intervention, with extraction being the most frequent, mostly associated with incision or flap and mucoperiosteal detachment. The lower third molars were the most frequently extracted teeth, individually, and the most frequent prescription was paracetamol 1000 mg 8/8 h, in case of pain up to 5 days, with 18 units. In the systematic review with meta-analysis, drugs with a medium duration of action showed a greater reduction in pain, as did acetic acid derivatives. It was possible to verify that the most prescribed drug for reducing postoperative pain, edema and trismus was ibuprofen 400 mg.

Discussion: According to the Directorate General of Health guidelines, paracetamol, non-steroidal anti-inflammatory drugs and non-opioid analgesics should be prescribed for mild postoperative pain, which is consistent with the results of both studies. The limitations of the 1-year retrospective observational clinical study were that it was not possible to assess the influence of the drugs on the different

individuals, as there was no information about their pre-existing conditions, as well as follow-up after drug prescription. Limitations of the systematic review with meta-analysis include the lack of continuity of certain studies regarding the classification of pain, thus resulting in disparate or even non-existent postoperative intervals or even the great heterogeneity of the studies.

Conclusions: The most prescribed drugs in the retrospective 1-year observational clinical study and in the systematic review with meta-analysis were different, namely paracetamol and ibuprofen respectively. This work is funded by National Funds through FCT—Fundação para a Ciência e a Tecnologia under the project UIDB/00006/2020.

5-

B / O The influence of irrigation on the polishing protocols of composite resins: an in vitro study

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BMC Proceedings 2024, 18(14):5- B / O

Introduction: Polishing is an essential clinical step when performing composite resin restorations as it reduces the risk of fracture, controls surface roughness, and makes the restoration more aesthetic.

Objectives: The present work had two main objectives:

1. To determine the effect of irrigation on the different polishing protocols;
2. To evaluate the effect of different polishing protocols on the roughness and hardness of composite resins.

Materials and methods: Eight test groups per composite resin (three composite resins) were established (n = 10 each). Each specimen was weighed and five microhardness measurements (Vickers test) and five roughness measurements (Ra) were taken before and after polishing (with one of four different systems, with and without irrigation). For statistical analysis, the level of significance was set at 5%.

Results: There was a significant mass loss for all studied samples (p < 0.05). For the Admira[®] Fusion specimens polished with Sof-Lex[™], there were lower Ra values without irrigation than with irrigation (p = 0.048). For the Filtek Supreme[™] XTE and Ceram.X Spectra[™] STHV specimens polished with the Enhance[™] and PoGo[™] system there was a lower Ra when using irrigation (p = 0.010 and p = 0.004, respectively). The Sof-Lex[™] and DIATECH[®] ShapeGuard systems provided the highest hardness for both Admira[®] Fusion and Filtek Supreme[™] XTE. Admira[®] Fusion and Ceram.X Spectra[™] STHV specimens polished with DIATECH[®] ShapeGuard showed higher hardness with the use of irrigation than without irrigation (p = 0.048 and p = 0.027, respectively).

Conclusions: There was a decrease in mass and an increase in microhardness after polishing. Regarding surface roughness, for Admira[®] Fusion specimens, Sof-Lex[™] promoted lower roughness without irrigation, while for Filtek Supreme[™] XTE and Ceram.X Spectra[™] STHV, Enhance[™] and PoGo[™] showed lower roughness when used with irrigation. Considering the limited evidence on this topic, it is necessary to conduct further studies to obtain more clarifying conclusions on this matter.

6-

B / O Particle abrasion as a pre-bonding dentin surface treatment: an in vitro study

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BMC Proceedings 2024, 18(14):6- B / O

Introduction: Several dentin surface treatments have been proposed to reduce the unpredictability of bonding to dentin and enhance long-term clinical success. One such treatment is air abrasion, a mechanical pretreatment with numerous clinical applications. Literature remains inconclusive regarding the effect of this technique on the dentinal substrate, thus requiring a comprehensive understanding of air abrasion potential consequences prior to its clinical recommendation.

Objectives: This in vitro study aimed to assess the influence of three dentin air abrasion techniques (aluminum oxide, aluminum oxide with irrigation and bioactive glass) on the microtensile bond strength, using two different adhesive strategies (self-etch and total-etch). The research hypothesis states that the tested air abrasion techniques affect bond strength.

Materials and methods: Twenty extracted human third molars were selected and separated into two groups (n = 10) according to the adhesive strategy, self-etch or total-etch. The adhesive systems used were Clearfil SE Bond (CSEB) and Optibond FL (OFL), respectively. Each tooth was further divided into four equal parts and submitted to different dentin surface treatments: no pre-treatment (Control), air abrasion with aluminum oxide with irrigation (Al2O3/Aquasol), air abrasion with aluminum oxide without irrigation (Al2O3) and air abrasion with bioactive glass 45S5 (BG45S5). After air abrasion and subsequent adhesive procedures, specimens were submitted to microtensile bond strength (μTBS) test and scanning electron microscopy (SEM) analysis. Bond strength statistical analysis was conducted using a linear mixed regression model and failure mode was evaluated using Fisher's exact and Cochran's Q tests. The significance level was set at 0.05.

Results: SEM images reveal the establishment of an irregular smear layer after air abrasion, with varying levels of density observed among the different experimental groups. Whenever simultaneous irrigation was used during the procedure, the compaction of this layer seems to reduce. Depending on the adhesive strategy, smear layer was either entirely or partially removed, leaving some dentinal tubules occluded and residual abrasive particles on the surface. Regarding μTBS values, the linear mixed regression model reveals statistically significant differences concerning both the adhesive strategy (p < 0.001) and the applied pre-treatment (p < 0.001). Only air abrasion procedures involving aluminum oxide (Al2O3/Aquasol: p = 0.032 and Al2O3: p = 0.002) exhibit statistically significant differences compared to the control. BG45S5 does not show statistically significant differences when compared to the control (p = 0.071).

Conclusions: The use of aluminum oxide with simultaneous irrigation resulted in the highest bond strength values. Bond strength outcomes of air abrasion with dry aluminum oxide directly depend on the adhesive strategy used. Bioactive glass has proven not to interfere with bonding performance of either adhesive system.

7-

B / O Self-adhesive restorative material and chemical preparation of dentin: adhesion forces—in vitro study

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BMC Proceedings 2024, 18(14):7- B / O

Introduction: The clinical success of restorations depends decisively on the adhesive system used. Self-adhesive restorative materials allow for a simplified methodology. On the other hand, the chemical-mechanical method of dentin preparation allows the conservative removal of infected dentin in a more selective way.

Objectives: The aim of this study was to evaluate the bond strength to dentin by microtensile testing of different adhesive/restorative strategies combined with different dentin preparation methods.

Materials and methods: A total of 20 permanent molars were prepared and randomly divided into 4 groups according to 2 variables—dentin preparation method and adhesive strategy: Group 1 (G1) mechanical dentin preparation (MecDP) followed by restoration with self-adhesive/restorative material; Group 2 (G2) MecDP followed by restoration with a 2-step self-etching adhesive system and composite resin; Group

3 (G3) chemical–mechanical dentin preparation (CheMecDP) followed by restoration with a 2-step self-etching adhesive system and composite resin; Group 4 (G4) CheMecDP followed by restoration with self-adhesive/restorative material. To carry out the microtensile tests, the samples were sectioned to obtain rods with a square section smaller than 1mm², followed by testing in a universal testing machine at 0.5 mm/min. Fractured surfaces were examined with light microscopy to classify fracture patterns. Statistical analysis was performed using the Two-Way ANOVA test followed by a t-test with Bonferroni correction, for a 95% confidence interval and a statistical significance level of $p \leq 0.05$. For the type of failure, the chi-square test was used with a statistical significance level of $p \leq 0.05$.

Results: The adhesion values (MPa) obtained by microtensile were: G1—15.22 ± 7.02; G2—42.08 ± 13.68; G3—47.34 ± 10.70; G4—22.42 ± 12.45. Comparing the p values between all groups, there was a statistically significant difference ($p \leq 0.05$) between all of them, except between groups 2 and 3 ($p = 0.82$). The 2-step self-etching adhesive system exhibited significantly greater bond strength to dentin compared to the self-adhesive/restorative material. Regarding the dentin preparation methods, the chemical–mechanical preparation increased the bond strength, but with statistical significance only for the self-adhesive/restorative material group.

Conclusions: As described in the literature, the two-step self-etching adhesive system showed higher adhesion values compared to self-adhesive/restorative materials. However, the combined use with chemical–mechanical methods of dentin preparation can induce alterations in the type of smear-layer produced, capable of potentially facilitating self-etching and self-adhesive procedures. Despite the relatively high adhesion values compared to other self-adhesive/restorative materials reported in the literature, the dentin bond strength of the self-adhesive/restorative material evaluated here was significantly lower compared to the evaluated 2-step self-etching adhesive system. It was interesting to note that chemical–mechanical preparation of dentin can increase bond strength, particularly and statistically significant in the self-adhesive/restorative material group.

8-

C / O Surface treatment of miniscrews: a systematic review

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BMC Proceedings 2024, 18(14):8- C / O

[previously published](#)

9-

D / O The injection resin technique in orthodontic treatment: when and why? Clinical case report

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BMC Proceedings 2024, 18(14):9- D / O

Introduction: Orthodontic treatments in young patients with an unfavorable skeletal pattern are always a challenge. If we associate a worn dentition to this factor, the complexity of these clinical cases goes beyond the scope of conventional orthodontic treatments.

Clinical case description: A 15-year-old female patient came to the appointment accompanied by her parents, referred by a colleague in the specialty of orthodontics. According to the colleague, orthodontic planning would be a non-surgical approach to correct a skeletal class III. However, the absence of a generalized integral dental structure led to the suspension of treatment and the respective referral of the patient to the discipline of oral rehabilitation.

After clinical and radiographic analyses, a pathological occlusion and biocorrosion were diagnosed, with generalized loss of tooth structure. Several clinical approaches are documented in the literature to restore dental anatomy and its function in a transient way. The traditional concept of rehabilitation is with temporary crowns, which implies a bigger wear on the tooth, so we decided to rehabilitate in a conservative way, adding resin to the remaining tooth structure.

We started the treatment with joint reprogramming, using the technique with the “Lucia Jig” device, and the respective intra-oral “scanner” to record the physiologically more favorable joint position. Clinical, extra and intraoral photographic and video protocols for digital smile planning were also carried out.

After making the digital diagnostic wax-up by the Dental Technician, we applied the aesthetic-functional mock-up, which was validated by the patient. Now, the goal would be to reproduce them in resin restorations that work temporarily, during and after orthodontic treatment. “Freehand” resin rehabilitation would be a viable approach for the execution of this clinical case, but reproducing a correct dental anatomy, curves of spee or disocclusion guides, such as the “mock-up”, could be a limitation and decrease the success rate of this approach due to its complexity.

Using the Flowable Injected Technique, we would achieve a faithful reproduction of the “mock-up”, without the need for tooth wear, simulating the final restorations and creating a new role for the patient.

Conclusions: Orthodontic treatments in patients with loss of tooth structure, regardless of their age, require prior oral rehabilitation in order to facilitate occlusal stability, making orthodontic treatment more predictable.

The patient (or their guardian) consented to their information being published in an open access journal.

1-

A / P The impact of dental caries on quality of life related to oral health in diabetics

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BMC Proceedings 2024, 18(14):1- A / P

Introduction: Diabetes mellitus (DM) is a chronic metabolic disease with high prevalence in older ages, with oral implications for patients. These patients have a high degree of oral health degradation, which triggers changes in the functions of mastication, phonation, changes in body image, self-esteem, which leads to social repercussions for these patients. It is up to the dentist to make an early diagnosis and monitor this type of patient more effectively, in order to prevent complications resulting from the disease. Helping the patient to control the disease and minimizing the impact of oral complications resulting from diabetes on their quality of life.

Objectives: Characterize the sample regarding sociodemographic, behavioral and OHRQoL variables, using the OHIP-14, in diabetic patients.

Characterize the manifestations of dental caries disease in diabetic patients, through clinical examination and dental caries registration.

To assess the relationship between dental caries disease and DMFT and OHRQoL in diabetic patients.

Materials and methods: An observational, analytical and cross-sectional study was carried out through the application of an OHIP-14 questionnaire and evaluation of the oral condition through the CPOD caries index to diabetic patients who are followed in the endocrinology consultation of a hospital in the northern region. In the statistical treatment, the SPSS platform was used with a significance level of 5%. A descriptive analysis was carried out in which the data were described in tables of absolute and relative frequencies. In the statistical inference, non-parametric tests were used.

Results: In this study, 120 patients were surveyed, 52.5% female, the average age was 59.5 years (sd=15.3), 67.5% of respondents described being married/in a de facto union, 42.5% had basic education and 49.2% were retired. The OHIP-14 total score obtained (M=9.02, SD=8.36) may demonstrate that the sample has a low level of perception/impact on OHRQoL, (sd=2.556) and physical pain (M=2.225, sd=2.132) and the least scored are social disability (M=0.392 sd=1.015) and disadvantage (M=0.442 sd=1.165). In the correlation between the OHIP-14 and the CPOD, it is verified that it has statistical significance ($p=0.005$) and with the number of missing teeth ($p=0.001$), which suggests that the number of missing teeth in the patient's mouth has an impact on the QVRSO. In the correlation of OHIP-14 with self-rated health, there were statistically significant differences in relation to the assessment of their health ($p=0.006$); assessment of oral health ($p<0.001$) and the way health affects QoL ($p=0.007$), suggesting that oral manifestations of DM negatively affect OHRQoL in the physical, psychological and social dimensions. Conclusions: In the study, it was found that there is no impact of DM on OHRQoL diabetics, and it can be concluded that they do not relate dental problems to the disease, but to other factors (eg aging). It is the number of teeth lost and filled by dental caries that has the greatest impact on DMFT values. DM patients with higher DMFT levels had higher OHIP-14 values, which demonstrates that the higher the DMFT value, the more impact there is on the OHRQoL of these patients.

2-

A / P Antibiotic prescription pattern in dentoalveolar surgery: a study conducted in a university-based population

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BMC Proceedings 2024, 18(14):2- A / P

Introduction: The risk of infection associated with dentoalveolar surgeries is one of the indications for the prescription of antibiotics in Dental Medicine. In a global pandemic of antibiotic prescription, it is crucial to adopt good practices in antibiotic prescription in order to mitigate the development of antimicrobial resistance by microorganisms.

Objectives: Ascertain the antibiotics prescribed to patients undergoing dentoalveolar surgery in the educational clinics of a Portuguese university during a 5-year period (2018–2022). Evaluate the potential correlation between the prescribed antibiotic and the type of dentoalveolar surgery, patient age group, and postoperative complications.

Materials and methods: A cross-sectional observational study with a positive review by the Ethics Committee of the University Institution. The initial sample consisted of 5404 dentoalveolar surgical procedures performed on 2220 patients during the period from 2018 to 2022. The following inclusion criteria were considered: adults who underwent at least one dentoalveolar surgery during the study period. The exclusion criteria were: children, pregnant patients, immunocompromised individuals, diabetics, patients with risk factors for bacterial endocarditis, and those who received antibiotic therapy within 2 months prior to surgery. Data were collected through clinical record review, including information such as gender, extracted tooth, type of extraction, prescribed antibiotics, and postoperative complications. Statistical analysis was performed using IBM® SPSS® Statistics software, version 29.0, including descriptive statistics (counts and percentages for qualitative variables, and mean and standard deviation for quantitative variables) for sample demographics and antibiotic prescription profile, and inferential statistics to assess relationships using chi-square or Fisher's exact tests. Categories in some variables were grouped to draw valid conclusions during testing. Results with statistical significance were determined at $p<0.05$.

Results: Final sample comprised 3265 instances of dentoalveolar surgery conducted on 1691 patients (following application of exclusion criteria). The mean age of individuals was 54.5 ± 15.9 years. Antibiotics

were prescribed in 178 surgical procedures (5.5%). The most frequently utilized antibiotic therapy was the combination of amoxicillin and clavulanic acid (58.4%). Amoxicillin was prescribed in 15.7% of cases.

Conclusions: The most frequently prescribed antibiotics were the combination of amoxicillin-clavulanic acid and amoxicillin, both of broad spectrum. There was a greater inclination to prescribe antibiotics to younger patients and in complicated extractions.

3-

A / P Comparative evaluation of post-operative pain after using manual irrigation and EDDY during root canal irrigation

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BMC Proceedings 2024, 18(14):3- A / P

[previously published](#)

4-

A / P Temporomandibular disorders and neck disability in dental students

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BMC Proceedings 2024, 18(14):4- A / P

Introduction: Temporomandibular disorders (TMD) are frequently encountered disorders and it is thought that the presence of cervical dysfunction and poor postural habits may be etiological factors for their onset. As well as TMD, cervical muscle dysfunction is one of the most common musculoskeletal disorders, with neck pain being a recurrent health problem.

Objectives: The aim of this study is to evaluate the posture of dental students with and without TMD.

Materials and methods: The study sample consisted of dental students of the 1st and 5th years from the Faculty of Dental Medicine of Portuguese Catholic University. The study was carried out at the University Clinic and The Fonseca Anamnestic Index and the Neck Disability Index were used for data collection. Photographs were taken for postural evaluation software—SAPO.

Results: This study included 61 dental students from the 1st and 5th years. 62.3% of the total sample presented TMD and 41.0%, cervical dysfunction. Regarding TMD diagnosis and the incidence of cervical disability, final year students showed higher percentage in both when compared to 1st year students.

In relation to the variables studied in the SAPO software, a lower cranial-vertebral angle was noted in students with TMD and cervical disability, a higher angle between shoulder blades in students with cervical disability and lower values of vertical head alignment in students with TMD.

Conclusions: This study showed high incidence of TMD and its association with neck disability in dental students. A significant association between neck disability and the presence of temporomandibular disorders has also been demonstrated.

5-

A / P Emotional disorders, parafunctional habits and bruxism in hospital-based healthcare professionals in the post-pandemic period

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BMC Proceedings 2024, 18(14):5- A / P

[previously published](#)

6-

A / P Correlation between dental and chronological age using the Demirjian and London Atlas methods

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BMC Proceedings 2024, 18(14):6- A / P

Introduction: Age determination is important in various fields such as orthodontics, pediatric dentistry, pediatrics, anthropology, radiology and forensic medicine. The age estimation method introduced by Demirjian in 1973 is widely used due to its simplicity. In 2010 an alternative method of age estimation, the London Atlas, was developed.

Objectives: This study sought to assess the accuracy of chronological age estimation by comparing the Demirjian and London Atlas methods, based on the stage of tooth development.

Materials and methods: This study analyzed 201 orthopantomograms of children (105 boys and 96 girls) aged between 6 and 16 years, performed between January 2014 and February 2022. The sample was selected from patients attending the dental clinic of a higher education institution. Radiographic examinations with poor quality images and patients with a history of treatments, orthodontic interventions, dental anomalies, trauma, systemic diseases or dental pathologies with repercussions on dental development were excluded. Chronological age was calculated as the difference between the date of birth and the date of the radiograph. Dental age was determined by the two methods analyzed. Data analysis was performed using SPSS 28.0 software.

Results: The results of this study show slight differences between the methods analyzed.

The Demirjian method showed agreement in 38.3% of observations and the London Atlas in 31.3%.

While Demirjian overestimated chronological age in 45.3% of cases, London Atlas overestimated it in 36.3%. The Demirjian method overestimated chronological age by 40.6% in females and 49.5% in males, while the London Atlas method overestimated it by 34.4% in females and 38.1% in males.

The highest gender concordance was observed at 16 years for the Demirjian method and at 15 years for the London Atlas.

With regard to underestimation, the Demirjian method obtained this result in 16.4% of cases and the London Atlas method in 32.3%.

Conclusions: In cases of forensic identification or when the date of birth is not known, accuracy in age estimation is essential. A study by Gelbrich compared the London Atlas, Demirjian and Willems methods of age estimation, finding that there were no significant differences between the Demirjian and London Atlas methods. This study also revealed significant differences between the two methods, with Demirjian mostly overestimating age and London Atlas underestimating it.

Some limitations were identified as well as the need to update the methods. Based on the results obtained in the present investigation, it is suggested to include third molars in the age analysis, as well as to increase the samples in order to obtain more representative results. The methods used in this study have limited accuracy in estimating chronological age, posing challenges for their legal applications. Some changes and updates are recommended in order to improve accuracy and broaden their applicability.

7-

A / P Malocclusion in children: association with oral health-related quality of life

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BMC Proceedings 2024, 18(14):7- A / P

Introduction: Malocclusion is the third biggest problem in the field of Dentistry and affects children at an increasingly early age and progressively increases over the years. The approach to malocclusion should go beyond biological factors and include psychosocial parameters, such as quality of life.

Objectives: This study evaluated the prevalence of malocclusion and its association with oral health-related quality of life in a population of Portuguese children.

Materials and methods: After approval by CES and updating by the research team, a pilot study was carried out to refine the instrument and assess intra- and inter-examiner agreement (Kappa between 0.87 and 1.0). Next, the main study included children from 3 to 12 years old assisted by the "Ser Criança" Project and their legal guardians. Sociodemographic data and quality of life measured by the ECOHIS-Pt or P-CPQ-Pt instruments were obtained by interviewing the parents. Clinical data regarding occlusion were obtained by examining the children. These were described and the groups compared using the test for equality between means. The significance level adopted was 5% ($P < 0.05$).

Results: The sample of 63 children was predominantly female, aged between 6 and 12 years and with a family income greater than one minimum wage. The prevalence of malocclusion ranged from 1.6% to 20.6%, with overbite and unilateral posterior crossbite being the most prevalent. The average total scores and the quality of life subscales by the ECOHIS-Pt and P-CPQ-Pt demonstrated good quality of life related to oral health, which, however, was associated in some aspects with malocclusion.

The results follow the world and European trend with a predominance of Class II and the same distribution trend both in the deciduous and mixed dentition, however, with a lower prevalence in global terms and in comparison to other Portuguese children. The quality of life instruments used are based on the perception of parents and were validated for the study population. The malocclusion that affects the anterior sector had more impact on quality of life related to oral health and this was greater in schoolchildren than in preschoolers. New studies with methodological adjustments that include confounding factors and multivariate analysis are needed.

Conclusions: The prevalence of malocclusion in children ranged from 1.6% to 20.6%. In children aged 3 to 5 years, anterior open bite was associated with oral health-related quality of life. Among children aged 6 to 12 years, the associated malocclusions were exaggerated overbite, anterior crossbite and unilateral posterior crossbite. The data obtained suggest that children with malocclusion should be evaluated regarding the need for orthodontic intervention.

Funding obtained under the BPI Awards "La Caixa" Foundation Childhood.

8-

A / P Transverse skeletal features of different manifestations of incisor retroclination in Class II division 2

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BMC Proceedings 2024, 18(14):8- A / P

Introduction: Since the introduction of the concept of Class II division 2 malocclusion by Angle, it has been considered as a distinct clinical entity. Despite the multiple characteristics present in its phenotype, incisor retroclination is the most peculiar, with different manifestations of upper incisor retroclination being reported in the literature. According to some authors, they have been described as a post-eruptive consequence of the availability of space in the upper dental arch when the incisors erupt, and by others as having a pre-eruptive origin. There is, therefore, little consensus whether the different forms of incisor retroclination in Class II division 2 are different manifestations of the same clinical entity or whether they are distinct clinical entities. Identification of a transverse skeletal pattern may contribute to a better understanding of the etiology of malocclusion. However, studies that cross-sectionally characterize Class II division 2 malocclusion are scarce and there is a total absence of investigations that differentiate the different manifestations.

Objectives: To assess whether there is a craniofacial transverse skeletal characteristic pattern in the different manifestations of upper incisor retroclination in Class II division 2 malocclusion.

Materials and methods: This investigation is a retrospective observational study. The sample, consisting of orthodontic patients with Class II division 2 malocclusion who had posteroanterior radiograph in their initial records, after applying inclusion and exclusion criteria resulted in 26 individuals who were divided into two groups: group A, with 15 individuals with Class II division 2 malocclusion and exclusive coronal retroclination of the two maxillary central incisors; group B, with 11 individuals with Class II Division 2 malocclusion and coronal retroclination of four to six upper anterior teeth. In the telerradiographs, through the frontal cephalometric analysis of Ricketts, the facial, nasal, maxillary and mandibular skeletal transverse widths were evaluated and a comparison between groups was made. The clinical software NemoCeph was used to perform the cephalometric tracing and calibration was performed by measuring the nasal support of the x-ray device. As the sample was small, in order to assess the intra-examiner error, it was decided to retrace 6 radiographs, randomly selected, after a period of one month and Pearson's correlation was applied. In the statistical analysis, the t-Student test was used and a significance level of 5% was established.

Results: The reliability of the cephalometric tracings was evaluated using Pearson's correlation, where a strong correlation was verified, p value < 0.001 . The results showed that of the four measures (facial, nasal, maxillary and mandibular) only the Nasal Width showed statistically significant differences ($p = 0.002$), where Group A (30.2 ± 2.5 mm) had a mean nasal transversal dimension higher than Group B (27.2 ± 1.7 mm).

Conclusions: In the present study, patients with Class II division 2 malocclusion with retroclination of the maxillary central incisors only have a greater nasal width than patients with Class II division 2 malocclusion with retroclination of four or more anterior teeth. Given the reduced sample size, we found it appropriate to carry out a new study with a larger sample.

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A / P Impact of evidence-based dentistry education on capacity of critical appraisal of dental students

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BMC Proceedings 2024, 18(14):9- A / P

Introduction: Clinical decision-making is complex and should be based on high-quality scientific evidence. However, studies have shown that these decisions are often based on experienced colleagues' opinions. Despite the existence of evidence-based dentistry tools, their utilization requires knowledge of the basic mechanisms of this paradigm. Therefore, it is imperative to include this discipline in the programs of educational institutions. This need arises from the fact that the effective application of evidence-based dentistry requires specific training and the lack of evaluation systems for its effectiveness.

Objectives: The aim of this study was to evaluate the impact of education in Evidence-Based Dentistry on the ability to critically appraise scientific articles among postgraduate students at the Faculty of Dental Medicine, University of Lisbon.

Materials and methods: Students from the postgraduate specialization courses and doctoral program at the Faculty of Dental Medicine, University of Lisbon, were included in the study. A prospective cohort study was conducted, in which students completed a tool for detecting biases in randomized controlled trials (The Cochrane Collaboration's Tool for Assessing Risk of Bias 5.1.0) for two articles previously selected by the investigators and evaluated by experts (reference answers). The questionnaires were completed at two-time points, T0 and T1, with 16 h of Evidence-Based Dentistry training provided in between. The study was approved by the Local Ethics Committee and conducted with the consent of the participants. The proportion of

correct responses between T0 and T1 was analyzed using the McNemar-Bowker test. The significance level was set at $p < 0.05$.

Results: Twenty students (10% male, 90% female), with a mean age of 29.55 ± 5.76 years, critically evaluated the articles. There was a statistically significant association between performance in critical appraisal before and after education in Evidence-Based Dentistry (McNemar-Bowker Test = 127.66, df 6, $p = 0.001$). This association was observed across the seven domains of the bias detection tool (Selection Bias—McNemar-Bowker Test = 23.00, df 3, $p = 0.001$, McNemar-Bowker Test = 25.33, df 6, $p = 0.001$; Performance Bias—McNemar-Bowker Test = 26.67, df 6, $p = 0.001$; Detection Bias—McNemar-Bowker Test = 27.00, df 6, $p = 0.001$; Attrition Bias—McNemar-Bowker Test = 20.80, df 6, $p = 0.002$ Reporting Bias—McNemar-Bowker Test = 23.00, df 6, $p = 0.001$; Other Bias—McNemar-Bowker Test = 17.67, df 6, $p = 0.007$). Out of the 280 responses given at T0 and T1, at T0 the number of correct responses was 76 (27.1%), while at T1 it was 174.

Conclusions: In this study, education in Evidence-Based Dentistry improved the ability to critically appraise the analyzed scientific articles.

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A / P Prevalence of oral infections in chronic kidney disease patients: A cross-sectional study

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BMC Proceedings 2024, 18(14):10- A / P

previously published

11-

A / P Monitoring of immune status to COVID-19 in a population of dentistry teachers—pilot study

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BMC Proceedings 2024, 18(14):11- A / P

Introduction: Monitoring the immunity status to COVID-19 in the academic community is important as they are exposed risk professionals, and in direct contact with patients and students.

Objectives: The purpose of this pilot study was to monitor anti-SARS-CoV-2 IgM and IgG, antibodies to the S1 subunit of the spike protein, in a population of dentistry teachers/professionals, by the scope of occupational health. Also, aimed to determine the prevalence of SARS-CoV-2 infection history and the respective vaccination rate.

Materials and methods: Prospective observational analytical study, approved by ethics committee (PI-172/21, 9 June 2021). Convenience sample of 47 dentistry master teachers and dental care professionals, that exercised teaching and/or clinical activity between September 2020 and July 2021. Survey on history of infection and vaccination, and blood samples taken at, approximately 1, 6th and 12th months after vaccination against SARS-CoV2. Atellica[®] IM sCOVG was used to detect IgM and IgG antibodies. Results with serum values > 1.00 UA/mL were considered positive for SARS-CoV-2 IgG/IgM antibodies.

Results: The mean age was 42.38 years (minimum 26 and maximum 65 years). During the study period, 51.0% ($n = 24$) of the population was diagnosed with SARS-CoV-2 infection, with 4 cases of re-infection. At the end of the study, the non-vaccination rate was 6.4%. There was a significant relationship between the number of doses of vaccine administered and IgG positivity (Fisher's t . $p = 0.003$), but no relationship was detected between those and the history of infection (Fisher's t . $p > 0.05$).

The periodic knowledge of blood analytical values of health professionals constitutes a measure of good health practices and occupational risk prevention. No evidence was found on epidemiological published studies or data, in Portugal, regarding all the SARS-CoV-2 infection rate, the vaccination rate and the IgG and IgM antibodies described monitoring, in both dentistry teachers and dental care, professionals, hence the relevance of this pilot study. The history of SARS-CoV-2 infection of the population followed the temporal evolution of the disease in Portugal, during the study period. Of the total number ($n = 24$) of reported cases, 79.2% ($n = 19$) occurred between January-June 2022, through probable social contacts and not professional contacts. The vaccination rate recorded in this population was 93.6% ($n = 44$), one of the highest worldwide. Humoral response to the virus can be estimated from IgG/IgM positivity. The results indicate a positivity significantly related to vaccination, but not to the history of infection. This may be related to the large temporal variability between illness and blood testing.

Conclusions: The IgG positivity rate was high and consistent over time, for 12th month. The vaccination rate of the population was high. Infection rates followed infection peaks in the general population.

Founding Source: FP-I3ID.

12- B / P Development of berberine polymeric nanoparticles, a tool in endodontic irrigation

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BMC Proceedings 2024, 18(14):12- B / P

Introduction: Irrigation plays an important role in endodontic treatment due to the antimicrobial activity of irrigants. However, toxicity can be pointed out as a disadvantage of the most widely used irrigant, sodium hypochlorite. Thus, new alternative treatment modalities have attracted the attention of researchers, with special emphasis on nanotechnological solutions. Nanoparticles (NPs) have a high surface area, the ability to encapsulate and efficiently deliver antimicrobial agents in high concentrations to the target site. The study of natural compounds with antimicrobial characteristics in endodontic treatment may benefit from their incorporation into a delivery system to overcome the drawbacks associated with the physicochemical properties of the compounds and thus develop a new irrigant solution. Once the production of berberine polymeric NPs as an irrigant solution is finalized, it is intended to evaluate their antimicrobial efficacy on *Enterococcus faecalis* and *Candida albicans*, a study that is currently ongoing.

Objectives: To develop an irrigation solution based on the natural compound, berberine (BBR) using polymeric NPs of poly-L-lactic-co-glycolic acid (PLGA).

Materials and methods: BBR-loaded PLGA NPs were prepared by nanoprecipitation method followed by sonication at room temperature. The preparation process involved mixing BBR and PLGA in acetone with polyvinyl alcohol (PVA) in aqueous solution. The resulting solution was then left on a magnetic stir plate overnight at room temperature for complete evaporation of the solvent. Characterization of the NPs involved determination of the average particle size, polydispersity index (PDI) and surface potential by dynamic light scattering (DLS) using a ZetaPALS potential analyzer. The concentration of BBR in the NPs and the encapsulation efficiency were determined by ultraviolet spectrophotometry and the chemical interactions evaluated by Fourier transform infrared spectroscopy (FTIR). Storage stability studies were performed with regular measurements over 5 months at 4 °C and room temperature. The in vitro release of BBR from the NPs was also assessed.

Results: The average size of the empty PLGA NPs and the PLGA NPs containing BBR were 148 ± 2 and 140 ± 3 nm, respectively, indicating that the presence of BBR inside the NPs did not influence their size

compared to the empty NPs. The PDI was 0.26 ± 0.01 approximately and negatively charged. The encapsulation efficiency is $54.10 \pm 0.95\%$. The developed NPs showed physicochemical stability during 5 months of storage at 4 °C and room temperature (protected from light), which shows potential use of this delivery system of BBR. In the in vitro release study, 50% of the total BBR was released after 4 h.

Conclusions: Berberine was successfully encapsulated in PLGA nanoparticles, exhibiting a controlled release profile and stability in solution during storage.

PT national funds (FCT/MCTES, Foundation for Science and Technology and Ministry of Science, Technology and University Education).

13- B / P Effects of endodontic irrigation using microbubbles on coronal dentin chemical composition An in vitro study

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BMC Proceedings 2024, 18(14):13- B / P

Introduction: Vital pulp therapy (VPT) and revitalization procedures require the use of well-known endodontic irrigation solutions to promote disinfection. Sodium hypochlorite (NaOCl) remains the most frequently used irrigant as it displays effective broad-spectrum antimicrobial activity and tissue-dissolution ability. Being a deproteinizing agent, NaOCl concurrently acts on dentin by dissolving dentinal collagen, ultimately impairing dentin's mechanical properties. Some of the unsolved challenges regarding irrigation within the scope of VPT and revitalization include the deleterious NaOCl-dentin interaction and the NaOCl-associated cytotoxicity, with a pressing need to look for alternative irrigants. Microbubbles (MBs) emulsion has been proposed as contrast agents for bioimaging and carriers for pharmaceutical products. Besides MBs' effective antimicrobial action once ultrasonically activated, they do not induce cytotoxicity to human cells. The set of characteristics of MBs led to a growing interest in these agents as a promising option for regenerative procedures. However, to our knowledge, no studies have described the effect of MBs on coronal dentin.

Objectives: This study aimed to assess the chemical composition of coronal dentin following irrigation with sodium hypochlorite and a new MBs experimental formula, with the latter being ultrasonically activated for one or two minutes. The null hypothesis states that no solution alters the chemical composition of coronal dentin.

Materials and methods: Dentin fragments of six extracted non-carious and non-treated third molars were assigned to four groups according to the irrigation protocol ($n = 6$): distilled water (control group); 5% NaOCl (NaOCl group); MBs ultrasonically activated for one minute (MB1min group); MBs ultrasonically activated for two minutes (MB2min group). Dentinal chemical composition was assessed using Attenuated Total Reflection Fourier Transform Infrared Spectroscopy (ATR-FTIR). Data regarding phosphate/amide-II and carbonate/phosphate ratios was statistically analyzed using ANOVA followed by Tuckey post-hoc tests and Kruskal-Wallis followed by Dunn-Sidak tests with correction for multiple comparisons, respectively. A significance level of 0.05 was considered.

Results: NaOCl resulted in a statistically higher phosphate/amide-II ratio when compared to all the remaining groups ($p < 0.001$), while no statistically significant differences were found between both MBs groups and the control ($p = 1.000$). Concerning the carbonate/phosphate ratio, no statistically significant differences were found between groups ($p > 0.05$).

Conclusions: Within the limitations of the present in vitro study, it can be concluded that NaOCl irrigation reduced coronal dentin's organic content by dissolving collagen from the dentin matrix, while no alterations were produced by the ultrasonically activated MBs emulsion. In addition, inorganic dentinal composition remained unaltered independently of the tested irrigation protocol. Together with their antimicrobial potential and non-cytotoxicity, MBs present a promising alternative for endodontic irrigation within the scope of revitalization procedures and VPT.

14-

B / P Impact of magnifying loupes on finish lines in fixed prosthesis-an in vitro study

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BMC Proceedings 2024, **18(14)**:14- B / P

Introduction: The quality of the finish line is crucial in dental preparation for fixed prosthesis because it defines the fit of the crowns and when irregular, it increases the risk of microleakage and secondary caries. Magnification aids not only improve ergonomics, but also diagnosis and treatment. Magnification instruments are, therefore, being more used by dentists to improve their visual acuity and compensate visual deficits. Although the use of magnification appears to have advantages in dental preparation for fixed prosthetics and is widely used in clinical practice, it has not yet been well documented.

Objectives: To determine what impact magnification has on the quality of the finish lines during the performance of preparations for fixed prosthesis.

Materials and methods: Study approved by the Ethics Committee (FCS/MED- 340/22-3). After hydration of 64 teeth (Incisors, Canines, Premolars and Molars) and natural drying, these natural teeth were randomized into two groups: Group O (preparation without additional magnification) and Group L (preparation with Kitus[®] 2.5 × magnifying glasses). The teeth were prepared for full crowns, with an ideal finish line between 0.5–1 mm, using an NSK[®] turbine. The quality of the termination lines was evaluated under the OPMI[®] PicoZeiss dental microscope at 10 × magnification, according to the criteria: Continuity (Not Continuous, Slightly Continuous and Continuous), Roughness (Rough, Polished) and Thickness (micrometer-μm). To evaluate learning, a training period was performed with the loupes where the same protocol was applied to 15 additional teeth (LT Group).

Results: There were no significant differences between Group O and L in any of the parameters assessed. In thickness, Group O had a median (AIQ) of 600 μm (500–800) and Group L of 600 μm (400–800), $p=0.482$. Group L showed Continuous, Slightly Continuous and Not Continuous in 64.8%, 26.1% and 9.1% of the evaluations respectively, consequently having a slight advantage over Group O, whose values were 58.0%, 35.2% and 6.8% in order ($p=0.165$). Group L was presented Polished in 71.0% of cases and Rough in 29.0% of cases, against 69.3% and 30.7% of Group O ($p=0.727$). Individually, there was a significant difference in Molar Continuity, 62.5%, 32.8%, 4.7% in Group O respectively ($p=0.027$) and 70.3%, 15.6%, 14.1% in Group L, as well as in incisor thickness, 700 μm (500–800) in Group O and 500 μm (400–800) in Group L ($p=0.040$).

Conclusions: The 2.5 × magnification magnifiers demonstrated a short positive impact on improving the quality of dental preparations for fixed prostheses, however, since the results are not statistically significant, it is impossible to extrapolate them to the population.

15-

B / P Physicochemical changes of gutta-percha cones after the rapid disinfection protocol and its clinical relevance

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BMC Proceedings 2024, **18(14)**:15- B / P

Introduction: Endodontic treatment encompasses procedures on the dental pulp and infected canals to promote healing or maintain the absence of symptoms and clinical signs. The occurrence of apical periodontitis leads to the endodontic treatment itself, the

three-dimensional obturation of the root canal system. Gutta-percha (GP) cones used for obturation during endodontic treatment are manufactured under aseptic conditions and contain between 70 to 82% of zinc oxide (ZnO). However, they are easily contaminated due to inadequate storage, physical handling, and aerosols. A recent study revealed that 5% to 19% of newly opened GP packages were contaminated with microorganisms. Given the thermoplastic characteristics of cones, they cannot be sterilized by the conventional autoclave process, as it would cause deformation of the material. Due to this limitation, the use of sodium hypochlorite (NaClO) as a rapid decontamination agent was proposed. This proved to be effective against Gram-positive and Gram-negative microorganisms, including spore-forming microorganisms.

Objectives: The present study aims to evaluate and compare the chemical composition of five brands of GP points, n. 25, (Cerkamed, ProTaper Gold, Reciproc, AutoFit e Zarc), and possible modifications after a quick disinfection protocol with NaClO and alcohol rinse. In this context, we also evaluated potential differences between the chemical composition and other properties of the cones among the different brands of the study.

Materials and methods: Chemical composition analysis: GP points were dissolved in chloroform and centrifuged, leading to the formation of two phases, an inorganic and an organic phase. WDXRF analysis: thermo-plastification of the material was initially performed, followed by compression at 10 t; the analysis was performed under vacuum. Radiopacity analysis: Digital radiographs of the transition between the medial and apex thirds were obtained and analysed with the software Gimp 2.0 and stepwedge. Antimicrobial activity analysis: inoculation of *Enterococcus faecalis* and *Staphylococcus aureus* in Muller Hinton agar medium, followed by placement of the GP points of each brand in the agar. These were observed for halo formation (inhibition of microbial growth). The points were divided into three groups: Group C no treatment, Group S immersion (5,25% NaClO), and Group A immersion (5,25% NaClO) followed by rinsing in alcohol (96%).

Results: Chemical composition analysis show: the organic phase was 13,4–21,3%, GP 11,5–18,8%, resin and waxes 1,3–2,5% and the inorganic phase 77,3–85,6%. WDXRF analysis, identified several oxides such as ZnO, BaSO₄, Na₂O, TiO₂, MgO, SiO₂.

Radiopacity analysis shows different levels of radiopacity: Cerkamed exhibited the lowest value, Zarc the highest, while AutoFit and ProTaper Gold showed similar radiopacity. No antimicrobial activity was detected.

Conclusions: The chemical composition analysis, WDXRF, and radiopacity analysis showed that there are statistically significant differences between the five brands investigated here before they were submitted to a quick disinfection protocol, and that Zn can influence the radiopacity. It should be noted that none of the investigated brands possessed antimicrobial activity. The employment of a quick disinfection protocol does not cause any change on the characteristics investigated herein.

Work and research for a Master's Thesis, funded by the Egas Moniz Institute.

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B / P Optical transmittance of resin-based composites on cementation of indirect restorations—An in vitro study

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BMC Proceedings 2024, **18(14)**:16- B / P

Introduction: The longevity of indirect adhesive restorations depends, among other factors, on the type of restorative material, the thickness of the restorative material, properties of the resin-based cement and the light curing procedure.

Objectives: The objective of the present study was to assess the light transmittance through a CAD/CAM resin composite with different thicknesses using resin-based cements and resin composites as cementation materials.

Materials and methods: CAD/CAM resin composites blocks reinforced with 89 wt % of inorganic particles were sectioned in blocks of 2 and 3 mm thickness. To perform the cementation of CAD/CAM resin composite, flowable resin composites with different inorganic content of 60 and 83 wt % were used. A thermally-induced resin composite with 83 wt %. Two dual cure cements reinforced with 78 and 73 wt % of inorganic fillers were also analyzed as luting materials. To assess the light transmittance before and after light curing a spectrophotometer with an integrated monochromator was used. Through nanoindentation the mechanical features of the material were obtained, as the indirect evaluation of the polymerization efficiency. By optical microscopy and scanning electron microscopy the microstructural analysis was performed.

Results: The highest values of light transmittance were obtained for the 2 mm thickness for the 60 wt % flowable resin composite. For the 3 mm thickness the flowable resin composite reinforced with 83 wt % of filler particles obtained the highest light transmittance values. The dual cure resin-based cement with 78 wt % obtained the lowest light transmittance values for 2 and 3 mm. Regarding the cementation thickness the material that showed lower thickness was the flowable resin composite with 83 wt %.

Conclusions: Other materials than resin-matrix cements can be considered for luting CAD/CAM resin-matrix composites at 2 mm thickness such as flowable resin-matrix composites. For thicknesses values of 3 mm dual cure resin-matrix cements must be used. The composition of the cementation materials used in this study affects the light transmittance through the materials. Restorative thicknesses of 3 mm compared with 2 mm thickness reduce the light transmittance in the 89 wt % CAD/CAM resin composite.

Founding Source: *University of Minho, University Polytechnic Institute of Health Sciences CESPU.*

17-

C / P Biologically Oriented Preparation Technique (BOPT) state of the art: a scoping review

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BMC Proceedings 2024, 18(14):17- C / P

Introduction: The preparation of a tooth to receive a prosthetic element involves its reduction with rotary cutting instruments and the design/outline of the finishing line. Finish line design for fixed prostheses can be classified as horizontal, or vertical with or without finish line. The preparation technique without finishing line is also known as biologically oriented preparation technique (BOPT). In this protocol, the natural anatomical emergence profile of the dental crown at the cemento-enamel junction is eliminated, creating a new anatomical crown and a new prosthetic emergence profile, adapted to the gingival margin. Currently, there has been an increase in the number of clinical cases using the BOPT technique, and, consequently, the vertical techniques have been described with greater precision and detail; however, the available evidence is still limited.

Objectives: The aim of this review was to map the available information on the BOPT technique, focusing on the preparation technique, biological advantages and clinical success. Additionally, it was intended to determine how research on this topic has been conducted, what is the level of evidence available on the topic, gaps in available information and suggest areas for future research.

Methods: The present scoping review followed the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-Scr). The main research question based on the PCC research question design (population, concept and context) was defined as: "Is BOPT a viable preparation technique with clinical success in natural teeth?". A bibliographical research was carried out in the PubMed, Embase, Cochrane and Web of Science databases, considering articles published until May 2023. Articles describing the BOPT approach in natural teeth were included, while articles where the technique was applied to dental implants were excluded. After, the relevant information for each included study was collected, including: first author's surname, year of publication, study type, sample number, preparation protocol performed, type of evaluation and its results.

Results: A total of 44 articles were selected, including 7 describing the technique and associated protocols, 6 in vitro studies, 9 case reports, 16 case series, 3 randomized controlled clinical studies, 1 non-randomized clinical study, 1 narrative review and 1 systematic review. The findings indicate that the BOPT technique exhibits several advantages. The BOPT technique was not associated with periodontal problems, being effective in maintaining the periodontal health, presenting few functional or biological complications, complemented simultaneously by good aesthetics and patient satisfaction with the treatment. Furthermore, when comparing the fracture strength to horizontal preparations, the BOPT technique exhibited similar results, with higher internal adaptation values. Long-term success rates were encouraging, with the BOPT technique showing comparable or even superior results to horizontal techniques at both 1 and 5-year follow-ups.

Conclusions: BOPT proved to be a viable and more favorable technique in certain clinical cases in terms of aesthetic, functional and periodontal parameters, compared to conventional horizontal techniques. However, more studies are needed to corroborate the long-term results.

18-

C / P White spot lesions: diagnosis and treatment—a systematic review

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BMC Proceedings 2024, 18(14):18- C / P

[previously published](#)

19-

C / P Adhesive systems with antimicrobial activity: Systematic Review

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BMC Proceedings 2024, 18(14):19- C / P

Introduction: Adhesive systems are essential for effective bonding between different substrates, allowing the preservation of the remaining tooth structure and prolonging the longevity of the restoration. Methacryloyloxydecylpyridinium bromide (MDPB) is a monomer that has antimicrobial properties and its incorporation into adhesive systems allows combating biofilm formation and the proliferation of pathogenic microorganisms around restorations, without compromising the functional properties of the adhesive.

Objectives: The aim of this systematic review is to present the MDPB monomer in adhesive systems and its antibacterial properties.

Methods: Based on the initial question: "What is the antimicrobial effect when an adhesive system with MDPB monomer is used compared to an adhesive system without MDPB monomer?", the literature search was performed in the PubMed database. Three investigators included in the inclusion criteria in vivo studies, in vitro studies on cell

culture, randomized controlled trials, animal tests and prospective cohort studies, and excluded articles that were not available in full, systematic reviews, duplicate articles and articles that were not compatible with the topic to be addressed. The initial search resulted in 39 articles, of which 24 were eliminated for not belonging to the determined period. Subsequently, 15 were analyzed for their relevance by title and abstracts, and 2 articles were excluded. Then, the selected articles were read and analyzed individually in relation to the objective of this study, resulting in the exclusion of 7 articles. Based on the eligibility criteria there is a final selection of 6 articles, in which the risk of bias of this study consists in the varied methodology between the studies.

Results: The final selection of 6 articles and all were in vitro studies and during the analysis of the studies there is a danger of bias due to the different conditions of in vitro studies compared to the oral cavity.

The antibacterial effect generated by the adhesive system containing MDPB on essential bacteria in the various stages of oral biofilm formation is corroborated, reducing their metabolic activity and lactic acid production. This monomer constitutes a promising advance in restorative dentistry, as it combines the adhesive properties of a material with antimicrobial properties, improving the quality of restorative treatment in the short and long term. Still, the scarcity of long-term clinical studies, in vitro studies that do not fully represent the real clinical conditions of the oral cavity and the varied methodology are some limitations of the studies reviewed.

Conclusions: The adhesion agent containing MDPB showed excellent antibacterial and antibiofilm activity, so that its use may have significant implications in dental treatments. In vitro studies and short and long-term clinical trials are of utmost importance.

20-

C / P Orthodontic treatment and oral health quality of life in children and adolescents: systematic review

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BMC Proceedings 2024, 18(14):20- C / P

Introduction: Malocclusion can affect the normal functioning of the stomatognathic system and affect quality of life. It has a high worldwide prevalence and early onset and can be treated by orthodontic intervention.

Objectives: The aim of this systematic review was to assess whether orthodontic treatment has an impact on the oral health-related quality of life of children and adolescents.

Methods: The methodological design followed the Cochrane guidelines. A primary search verified the feasibility of the project and the research protocol was registered in the PROSPERO database and is available at: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=393609e. The research question, formulated from the acronym PICO, was: "Is there any impact for children and adolescents (P) undergoing orthodontic treatment (I) when comparing before and after the intervention (C) using as outcome the quality of life related to oral health (O)?" The high-sensitivity search included 8 databases and was complemented by gray literature and manual searching of retrieved articles. Identified studies were entered into Mendeley Desktop Software[®] and duplicates were removed. The following steps were performed in pairs and inter- and intra-examiner agreement was evaluated. These included application of eligibility criteria, data extraction, risk of bias assessment (RoB2 and ROBINS-I) and narrative synthesis of results.

Results: The results of the study selection process were expressed in a PRISMA flowchart. Sixteen studies made up the review, 4 randomized and 12 non-randomized and had different methodological designs, but in common, the acronym PICO. Risk of bias analysis indicated that most studies were of moderate quality. The lack of blinding for the allocation of participants contributed to the risk; lack of blinding for outcome assessment and significant sample losses. The treated

sample consisted of 1242 individuals between 08 and 17 years old, treated for different malocclusions with different orthodontic devices. Quality of life related to oral health was assessed using the CPQ and OHIP-14 instruments. Orthodontic treatment had a positive impact on quality of life in 12 studies. The overall scores and by domain of the instruments were lower after the intervention in 15 studies. The domains most affected by orthodontic intervention were related to emotional and social well-being and functional limitations. The main limitations found concern the heterogeneity of the studies in relation to the sample, malocclusion treated and orthodontic intervention performed.

Conclusions: The results suggest a positive impact of orthodontic treatment on the quality of life of children and adolescents. However, further studies are needed.

21-

C / P Essix vs Hawley Retainer: Which Achieves Greater Post-Orthodontic Treatment Stability?—Umbrella Review

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BMC Proceedings 2024, 18(14):21- C / P

Introduction: The retention period is crucial to prevent the relapse of the results obtained through orthodontic treatment, which can occur due to the reorganization of the periodontal tissues and, due to the changes produced by residual growth. Regarding removable retainers, several clinical questions about the effectiveness of established protocols are still controversial. In this way, it was intended to carry out an umbrella review on the effectiveness of the Hawley Plate and Essix, answering the following PICO question: "Which orthodontic removable retainer (Hawley retainer or Essix retainer) is more effective?"

Objectives: This review was conducted following the PRISMA guidelines and was registered in the International Prospective Register of Systematic Reviews (PROSPERO). The inclusion criteria encompassed systematic reviews of randomized and non-randomized clinical trials, controlled clinical trials, and case-control studies comparing patients in the orthodontic retention phase. Conversely, the exclusion criteria included case reports, case series, literature reviews, and studies addressing feeding and phonation issues.

Methods: The literature search was conducted in different databases, including PubMed, Cochrane, Embase, Epistemonikos, and Web of Science. The keywords used were "Retainers," "Orthodontic," "Recurrences," "Relapse," "Essix" and "Hawley" with the combination of Boolean factors. Study selection and data extraction were conducted independently and in duplicate, with a third investigator resolving disagreements. The quality assessment of the included studies was performed using the AMSTAR2 tool. The initial search yielded a total of 234 articles without additional documents from gray literature. After removing duplicates, 189 articles were obtained. Title and abstract screening resulted in 12 articles for full-text reading, with 177 articles excluded. Based on the inclusion and exclusion criteria, 4 articles were included in the qualitative analysis, all of which were systematic reviews without meta-analysis.

Results: The retention phase is recommended by most studies for a period of at least 1 year. There is a lack of scientific evidence to conclude that full-time use of removable retainers provides greater stability than part-time use. According to the AMSTAR2 tool criteria, one of the reviews was considered low quality, while the remaining reviews were of moderate quality.

The current literature does not show differences in the effectiveness of Hawley retainers compared to Essix retainers. There is no gold standard regarding treatment protocol, duration, and duration of retainer use. However, this review has some limitations, such as most included studies lacking a protocol registration, the study by Yun et al. having a sample size of zero, none of the included reviews conducting a meta-analysis, which precludes quantitative analysis, and not discussing the risk of bias in the included studies.

Conclusions: The choice of retainer appliance should be based on the orthodontist's clinical experience, considering factors such as age, patient's aesthetic demands, cost, and the initial and final situations of orthodontic treatment.

22-

C / P Carcinogenesis promotion by M1 and M2 in oral potentially malignant disorders- a systematic review

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BMC Proceedings 2024, 18(14):22- C / P

Introduction: Oral potentially malignant lesions are a group of benign lesions with an increased potential for malignant transformation. These lesions develop in a complex immune microenvironment, in which tumour-associated macrophages (TAMs) can directly or indirectly influence the malignant transformation process.

The M1 phenotype is related to anti-tumour defence, whereas the M2 phenotype enhances angiogenesis and tissue growth, which are considered to be functions that enhance tumour growth.

Objectives: The aim of this study is to answer the PICO question "What is the role of TAMs in the risk of malignant transformation of potentially malignant oral lesions?"

Seeking for evidence whether or not they may be useful as biomarkers of the potential for malignant transformation of these lesions.

Methods: The protocol of this systematic review is registered under number CRD42023392880 on the PROSPERO platform and complied with the PRISMA guidelines.

Regarding the inclusion criteria, the typology of the articles considered for this systematic review was: (1) clinical trials, cross-sectional studies, prospective studies, cohort studies and retrospective studies, (2) patients diagnosed with any of the potentially malignant oral lesions, regardless of gender and socioeconomic status. Exclusion criteria were (1) other types of research than those previously announced: reviews, letters, case series, editorials, dissertations, theses, animal studies and in-vitro studies and (2) patients under 18 years of age. The search considered articles between 2012 and 1st November 2022, on the platforms: Web of Science; PubMed; B-ON; EBSCO.

Results: 11 studies were included, totalling 865 samples. All articles were subject to critical appraisal of methodology using the Joanna Briggs Institute tools.

The results of this work demonstrate that high levels of M2 macrophages (CD163+) and CD68+ in oral leukoplakia are associated with increasing degrees of dysplasia and the process of malignant transformation.

Expression of the interleukins IL-37 and IL-10 was associated with the presence of CD163+ macrophages. Additionally, IL-10 was also shown to be associated with the expression of Treg cells (FoxP3).

In oral lichen planus, macrophages seem to assume a secondary and mostly a pro-inflammatory phenotype (M1), being recruited and polarised by pro-inflammatory cytokines secreted by T CD4+ cells which are the main constituent of the infiltrate.

Conclusions: M2 phenotype macrophages appear to contribute to the carcinogenesis process in leukoplakia, whereas M1 phenotype macrophages are predominant in oral lichen planus.

Given the promising results demonstrated in oral leukoplakias, the role of macrophages in the immune microenvironment of other oral potentially malignant lesions should be investigated.

Clinically, these results suggest that the use of macrophages as biomarkers may favour a stratification of the risk of malignant transformation of leukoplakias in an individualised way, based on the immune microenvironment of each lesion, mitigating the disadvantages associated with the histological technique for determining the degree of dysplasia, currently considered gold-standard.

23-

C / P Is there an association between Periodontal Disease and Obstructive Sleep Apnea? A systematic review

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BMC Proceedings 2024, 18(14):23- C / P

Introduction: In recent years, there has been a growing interest in both periodontal disease and obstructive sleep apnea. These two conditions share similar risk factors, such as age, gender, and smoking habits. Additionally, inflammatory mediators play a role in both diseases. Both conditions are associated with similar systemic inflammatory responses and involve common inflammatory mediators, such as interleukin-1 β , interleukin-6, tumor necrosis factor- α , and C-reactive protein. The aim of this systematic review is to assess the association between periodontal disease and obstructive sleep apnea.

Objectives: The objective of this review was to investigate the association between periodontal disease and obstructive sleep apnea. Five studies found a significant relationship between periodontal disease and obstructive sleep apnea, while 1 study failed to show significant differences in clinical attachment level between the groups. The findings of this systematic review need to be interpreted with caution due to the low quality of evidence in many studies. The assessment of periodontal disease and the definitions used varied among the studies, which may have led to overestimation or underestimation of the disease prevalence.

Methods: The protocol for this systematic review was registered in Prospero (CRD42021236096). The PEO acronym was used to formulate the question: "Is there an association (O) between periodontal disease (E) and patients diagnosed with obstructive sleep apnea (P)?" An electronic search with no time or language restrictions was conducted on three databases (PubMed, LILACS, and Cochrane Library) using a combination of free-text and indexed terms: "Obstructive sleep apnea," "Periodontal disease," and "Periodontal disease treatment." The inclusion criteria were: cross-sectional and case-control studies, use of polysomnography for diagnosing apnea, and assessment of periodontal disease through probing depth and clinical attachment level.

Results: The literature search was conducted on 3 databases, using the keywords: "obstructive sleep apnea" and "periodontal disease"; "periodontal disease treatment" and "obstructive sleep apnea." The search strategy resulted in 113 records, and after title/abstract screening, 17 studies were assessed for eligibility, of which 6 studies were included in the qualitative synthesis; all of them are cross-sectional or case-control studies. The Berlin questionnaire (Bq) was used for the diagnosis of sleep apnea, while the Epworth sleepiness scale and the STOP-bang questionnaire were used to verify the risk of obstructive sleep apnea. Data extraction was performed independently by two study authors using data extraction forms, and any disagreements were resolved through discussion.

Conclusions: The existing evidence for the association between periodontal disease and obstructive sleep apnea is insufficient. Most of the included studies support the hypothesis of an association between periodontal disease and OSA; however, more intervention studies with a more robust methodology are needed to confirm the cause-effect relationship between periodontal disease and obstructive sleep apnea.

24-

C / P Assessing the Competencies of Dental Practitioners in Nitrous Oxide Inhalation Sedation: Systematic Review

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BMC Proceedings 2024, 18(14):24- C / P

Introduction: Conscious sedation by inhalation of nitrous oxide is recognized for its efficacy in patients with high levels of anxiety about dental treatments. It is the Dentists responsibility to ensure both quality and safety in conscious sedation.

Objectives: The objective of this study was to systematize the scientific evidence on the acquisition of skills for the practice of conscious sedation by inhalation with nitrous oxide by the dentist.

Methods: Systematic review carried out using the PRISMA methodology, according to the PICO criteria, for the research question. The search was carried out in the MEDLINE (PubMed®), Web of Science® and Scopus databases, with a Gray Literature supplement of studies/articles published in the last 20 years, according to the defined inclusion criteria. Inter-investigator agreement was assessed using Cohen's kappa coefficient and the quality of studies using the Downs and Black checklist.

Results: Of the 620 records obtained through the search in search engines, 7 articles were selected. There is some variability between studies with regard to the duration of training, 10 to 96 h. This must contain a practical component through simulation and supervised cases, under the supervision of a trained dentist. The importance of proper recording of the entire procedure in the patient's process is highlighted, to monitor ventilation and oxygenation, in a context of adequate sedation, with the lowest concentration of nitrogen protoxide. The dentist must be able to manage possible complications, be trained in basic life support and update regularly.

Conclusions: Conscious sedation by inhalation of nitrogen protoxide must be carried out in safe conditions, by accredited Dentists, with adequate theoretical and practical training, assisted by a dentist or assistant with adequate training, and competent to deal with any complication. Once these requirements are met, there are no contraindications for the administration of sedation by inhalation, in the context of a dental clinic. Most studies refer to the guidelines of the Council of European Dentists and the American Academy of Pediatric Dentistry. The results of this study hope to contribute to a better understanding of the acquisition of skills for the practice of conscious sedation by inhalation with nitrous oxide by the dentist.

25-

D / P Evaluation and surgical treatment of altered lingual frenulum in pediatric dentistry patients – case series

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BMC Proceedings 2024, 18(14):25- D / P

Introduction: Ankyloglossia is a partial or total congenital anomaly of the lingual frenulum, in which it is abnormally short or with an insertion too close to the lingual apex (Fujinaga et al., 2017).

This oral clinical condition translates into a restriction of normal lingual movements and may be associated with repercussions (Pompéia, Ilinsky, Feijóortolani, et al., 2017), more or less serious, such as, for example, interference with feeding, sucking and swallowing changes; phonetic disorders with speech imprecision due to shifting or distortion of lingual sounds; among others (Braga et al., 2009).

A conservative therapeutic approach with mechanotherapy is recommended between 6 and 8 years of age, and surgical intervention should preferably be performed from 8 years of age, except in more severe cases, which should be performed as early as possible.

Clinical case description: Two clinical cases, C1 and C2, are presented, relating to male patients aged 9 years old, diagnosed with alteration of the lingual frenulum and whose main complaints were related to difficulties in speech and tongue mobility. C1 had a short, anterior frenulum, with its insertion being visible from the inferior alveolar crest and being located between the sublingual middle part and the lingual apex. C2, on the other hand, had a short frenulum, with its insertion being visible from the inferior alveolar crest and located at the level of the sublingual middle part.

None of the participants had undergone previous surgical intervention, however, both attended regular speech therapy appointments.

Phonetic alterations due to distortion, omission, and substitution of phonemes were observed – these being more significant in C2 than in C1, however, difficulties inherent to chewing or swallowing were not reported.

The behavioral control of both children was a determining factor in choosing the laser as an auxiliary tool in lingual frenectomy. A diode laser was used, with a wavelength of 980 nm, following the parameters recommended by the manufacturer. In the control appointment, the Wong-Baker Faces Pain Rating Scale was also applied, in order to overcome the underestimation of the pain report of each patient.

Conclusions: In the clinical cases presented, the Marchesan Protocol general test items related to lingual anatomy and motricity improved after lingual frenectomy. However, no total improvements were observed in all of the more complex phonetic alterations such as distortion, omission, and substitution of phonemes associated with an altered lingual frenulum. A coordinated articulation with speech therapy then becomes essential for functional re-education.

The patient (or their guardian) consented to their information being published in an open access journal.

26-

D / P Apical surgery: about two clinical cases

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Introduction: Surgical endodontic treatment presents itself as a therapeutic alternative for the treatment of apical periodontitis when it is not possible to perform it orthogradely (primary endodontic treatment or retreatment) due to an inaccessible root anatomy or persistent infection. It is an option that allows you to preserve the tooth, thus avoiding its extraction.

Among the causes for the failure of endodontic treatment we can identify the biological (uncontrolled intra or extraradicular infection, cysts and foreign body reaction) and biomechanical (cracks, fractures, compromised coronal sealing).

Calcium silicate cements play a leading role in these treatments, showing favorable biocompatibility, osteoconductivity and sealing.

Clinical case description: Apical surgery tooth 11.

27-year-old female patient. Asymptomatic apical periodontitis in tooth 11 with associated chronic apical abscess. Absence of periodontal pockets. Well adapted rehabilitation with ceramic crown performed about 1 year ago and presence of fiberglass post. Apical surgery was performed. After 1 year, it is possible to prove the complete remission of the apical lesion and absence of symptoms.

Apical surgery teeth 15 and 16.

33-year-old female patient. Asymptomatic apical periodontitis in teeth 15 and 16 with associated chronic apical abscess. Non-surgical endodontic treatment performed about 2 years ago in the 15 and non-surgical endodontic retreatment 1 year ago in the 16. Rehabilitation with ceramic overlays in both. After analysis of CBCT and periapical radiography, it was possible to observe an extensive apical lesion on tooth 15 and a smaller one on the mesiobuccal root on tooth 16. Apical surgery was performed. After 1 year it is possible to prove complete remission of the apical lesion in both and absence of symptoms.

Conclusions: Apical surgery promotes tissue healing by ensuring the sealing of the root canal system. This effective barrier prevents contamination of periapical tissues by persistent microorganisms.

The selection and execution of each case of apical surgery based on an appropriate decision is essential to obtain more predictable results, since the success rate of this treatment ranges from 78 to 91%, with follow-ups from 2 to 13 years. It presents a favorable prognosis, if performed using modern surgical techniques combined with biocompatible and bioactive retrofilling materials.

The patient (or their guardian) consented to their information being published in an open access journal.

27-

D / P Immediate implant placement with SOCKET SHIELD-TECHNIQUE in the maxillary anterior zone Case Report

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BMC Proceedings 2024, 18(14):27- D / P

Introduction: Implant-supported dental rehabilitation has become an increasingly popular treatment option for both partially and completely edentulous patients. Today, the success of overall restorative treatment is measured by implant survival through osseointegration, long-term maintenance of the restoration of function and optimal aesthetic results and the health of periodontal tissues.

The rehabilitation of the anterior area is a challenging task due to the high aesthetic importance and the difficulty in achieving a natural-looking restoration that replicates the white and pink esthetic factors of the tooth and soft tissue. The preservation of the natural alveolar architecture or the recreation of an adequate peri-implant hard and soft tissue morphology is critical in achieving these esthetic outcomes. Tooth extractions can result in bone resorption and remodeling, especially in the anterior region where thin biotypes and a thin alveolar bone plate are common.

In an effort to prevent reabsorption of the buccal bone plate, partial extraction therapies have been recently proposed. The Socket-Shield technique (SST) aims to preserve the healthy periodontium by leaving a portion of the root in the buccal socket, maintaining its vascularization. Subsequently, an implant is immediately placed to prevent post-extraction resorption and preserve the bone wall height and prevent post-extraction resorption.

Clinical case description: After a car accident:

- Crown Fracture 12
- Radicular Fracture 11 and 21
- Swelling and trauma of the upper lip

In order to preserve the previous aesthetic and since the roots didn't show any apical lesion and horizontal fracture didn't compromise the vestibular wall, it was decided to use the SST.

The bed for the implant was prepared with the osseodensification technique to allow the maintenance of the natural bone in the gap between the shield and the implant, ending with the placement of two conical implants Vega+[®] Klockner to obtain a higher primary stability.

Conclusions: The SST can serve as a minimally invasive and cost-effective rehabilitation option, offering predictable aesthetic results in complex cases with high aesthetic demands. However, it requires technical proficiency from the clinician and careful patient selection based on appropriate indications.

The patient (or their guardian) consented to their information being published in an open access journal.

28-

D / P Complications of the treatment of Lichen Planus Erosive in diabetic patients: apropos of aclinical case

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BMC Proceedings 2024, 18(14):28- D / P

Introduction: Corticosteroids are drugs with strong anti-inflammatory and immunosuppressive properties that can be used to treat various pathologies, both acute and chronic. These drugs are used in the long-term treatment of several pathologies, namely autoimmune pathologies. Thus, the various side effects that this drug family can cause are known, including hyperglycemia spikes. Oral lichen planus is an

autoimmune disease that affects the oral cavity and in which the first-line drugs are corticosteroids.

Clinical case description: We present a case of a 78-year-old woman who came to the consultation for burning and erythema of the buccal mucosa with complaints for months, with a diagnosis of Oral Lichen Planus. She was medicated with systemic corticoids and after a few days she had a hyperglycemia crisis, as she had concealed having diabetes in the anamnesis.

Conclusions: This poster intends to illustrate the importance of taking a good anamnesis and how to deal with the side effects of the different drugs that are prescribed by dentists.

The patient (or their guardian) consented to their information being published in an open access journal.

29-

D / P Symmetrical palatal fibromatosis in an adult- Pre-prosthetic surgical approach- case report

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BMC Proceedings 2024, 18(14):29- D / P

Introduction: Fibromatosis comprises a group of locally aggressive benign neoplasms occurring in the head and neck, with only extra-abdominal desmoid tumors being present, and its incidence in the population is 1 in 750,000, being twice as common in women.

There is no consensus regarding the classification of cases of Symmetrical Palatal Fibromatosis due to its rarity, with few cases described in the literature and without evidence of its genomic or reactive etiological character. It is also characterized by slow and progressive growth of gingival tissue, typically on the hard palate, without involvement of the teeth. The condition occurs in a later age group than GF, typically in the second to third decade of life, and is characterized by uncontrolled proliferation of fibroblasts and collagen. The clinical appearance of the affected tissue is similar to GF, presenting as normal in color, firm, painless, and poorly vascularized.

Clinical case description: Female patient, 39 years old, ASA II (smoker of 20 cigarettes per day), who has never consulted a dentist.

Poor oral hygiene, several non-restorable teeth destroyed by caries, retained roots, chronic apical abscesses, two swellings on the palate, stage IV grade C periodontitis, with several edentulous spaces.

She presented aesthetic and functional complaints: phonetics and chewing.

The swellings on the posterior palate included the tuberosities, were bilateral, sessile, firm, symmetrical, extending to the palatal raphe, non-bleeding, painless, with smooth and intact surfaces, and normal in color. The underlying bone was radiographically normal and the involved teeth were asymptomatic with no positional changes due to the fibrous masses. The dimensions of the lesions prevented prosthetic rehabilitation and also increased the risk of opportunistic candidiasis.

Conclusions: Gingival fibromatosis is a benign lesion; however, due to its exuberance, it can cause various disturbances in the daily life of patients, such as pseudopockets, ischemic ulcers, large areas of food retention, difficulty in swallowing, chewing, and phonetics. Resection of the lesion is only advisable when all other elective treatments are completed, and the treatment, in a significant number of cases, involves a surgery considered pre-prosthetic. Its excision, using blade cutting techniques, electrosurgery, or laser, is always associated with high morbidity, with partial flap necrosis being the most frequent complication due to the poor vascularity of the tissues and the dimensions of the excised tissue, even when there is preservation of the underlying periosteum. Recurrence is likely, although it decreases after puberty.

The patient (or their guardian) consented to their information being published in an open access journal.

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D / P Surgical Approach to a Large Dentigerous Cyst: Decompression Prior to Enucleation – Case Report

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BMC Proceedings 2024, 18(14):30- D / P

Introduction: Dentigerous cyst are the most common developmental odontogenic cyst according to the World Health Organization (WHO). This condition is often asymptomatic and is therefore diagnosed through routine radiographic examinations. It is defined as a well-circumscribed radiotransparent image, surrounding the crown of an unerupted tooth, as it is attached to the tooth's cervical region. Dentigerous cysts can enlarge to great dimensions, which can weaken the bone structure and compromise adjacent vital structures. In these cases, decompression prior to enucleation is a more conservative approach and may prevent complications.

Clinical case description: A 46-year-old leucodermic male patient with cleidocranial dysplasia, was referred from a private dental office, due to a radiographic finding of a radiolucent lesion attached to the cemento-enamel junction, around the crown of the impacted tooth 38. Despite being asymptomatic, patient reported swelling and fluid drainage from the area in the past.

Complementary exams, such as orthopantomography and cone beam computed tomography (CBCT), were performed. Due to its large dimensions and the consequent risk of mandibular fracture and/or injury to the inferior alveolar nerve associated with definitive treatment, a surgical technique involving decompression and incisional biopsy of the lesion was carried out. The clinical, radiographic, and histological data led to the definitive diagnosis of dentigerous cyst. The patient was instructed to perform mouthwashes and irrigations with 0.2% chlorhexidine. Monthly clinical follow-ups were conducted to assess the drain's permeability. After six months of the decompression, a new orthopantomography and CBCT were performed, revealing an image consistent with osteogenesis and increased cortical bone around the lesion. The cyst was enucleated simultaneously with the extraction of tooth 37 and impacted tooth 38 with no intraoperative or postoperative complications.

At seven months after the enucleation surgery, clinical and radiographic follow-up was conducted, showing an image compatible with bone healing.

Conclusions: When dealing with a large dentigerous cyst, it may be advisable to perform surgical decompression prior to enucleation of the lesion, in order to reduce the likelihood of surgical complications such as mandibular fracture or nerve injury. For adequate monitoring of the lesions regression, complementary exams such as CBCT are mandatory.

The patient (or their guardian) consented to their information being published in an open access journal.

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D / P Spontaneous diastema closure after extraction of a mesiodens and frenectomy: a case report

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BMC Proceedings 2024, 18(14):31- D / P

Introduction: Supernumerary teeth manifest in both deciduous and permanent dentition, being more frequent in permanent dentition, causing a variety of pathological disorders. The mesiodens is the supernumerary tooth that often appears impacted in the anterior region of the maxilla, causing functional (malocclusion) and aesthetic (interincisal diastema) changes, affecting the patient's quality of life. The presence of a wide interincisal diastema in the permanent

dentition, associated with a labial bridle with a configuration that compromises function, is one of the indications for an early frenectomy, i.e. before the eruption of the maxillary canines.

Clinical case description: An 8-year-old healthy male patient. In a routine consultation, a panoramic radiograph was requested where the presence of a supernumerary tooth in the interincisal area—a mesiodens—was diagnosed. Clinically, the patient had a large maxillary interincisor diastema and an increase in volume of the palatal mucosa, indicating the palatal localization of the supernumerary. For this reason there was no need to request a computerised tomography scan. Surgical extraction of the mesiodens was performed. After detachment of the palatal mucosa, the follicular sac of the mesiodens was observed, without bone covering. With the aid of a lever, it was possible to remove the supernumerary tooth, which had a dimension of about 18 mm. In the same surgical procedure, frenectomy of the labial frenum was performed using the Newmann incision with palatal displacement. After extraction, a bone locus appeared that was not filled with any type of bone graft and was closed by first intention. The clinical evolution was followed up until the eruption of the permanent teeth was completed (12 years).

Conclusions: Timely exodontia of the mesiodens allows spontaneous recovery from complications, so early diagnosis and treatment are essential. The maxillary bridle is a dynamic structure subject to changes in shape, size and position during the phases of human growth and development. Questions remain as to when in the chronology of eruption it is most favorable to act. Radiographs are an important tool in the detection of mesiodens, as its diagnosis is very often a radiographic finding. Dentists should be aware that supernumerary teeth can develop late, especially in patients with a history of supernumerary teeth, so a regular reassessment appointment is indicated.

The patient (or their guardian) consented to their information being published in an open access journal.

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D / P Treatment of a external cervical reabsorption of the tooth 35 – A clinical caseLuís Pedro Correia¹, Sofia Marques Pereira²¹Independent Consultant, Funchal, Portugal; ²Independent Consultant, Santa Iria de Azoia, Portugal**Correspondence:** Luís Pedro Correia, luiscarvalhocorreia@gmail.com

BMC Proceedings 2024, 18(14):32- D / P

Introduction: The loss of tooth structure derived from odontoclastic action leads to the development of external cervical resorption (ECR). Clastic cells can attach to the underlying dentin and be stimulated in order to perpetuate the process 1,2,3,4,5. ECR has a poorly understood etiology due to a multitude of factors 1,2,3,4,5,6. The success of the treatment depends on the correct assessment of its location and nature 1,3,4,6,7.

This work aims to present the treatment of a Heithersay class II ECR6 and its 1-year follow-up.

Clinical case description: A 39-year-old female patient attended the consultation (21-02-2022) due to a radiolucent image on tooth 35, identified in the oral hygiene consultation. Diagnosed with Heithersay class 2 ECR6. Normal pulp and periapical tissues. Increased probing depth throughout the buccal zone around the defect (6 mm). Clinical case carried out in 3 consultations.

- 1st—Anesthesia. Flap elevation to expose defect. Cleaning. Occurrence of invasion of the canal space, TENC was initiated. CT determination and instrumentation. Placement of cementless gutta-percha cone to prevent canal blockage by the material used to repair the defect. Suture 5.0 polyamide.
- 2nd—Suture removal.
- 3rd—Removal of the cone and conclusion of the TENC. Determination of apical caliber, final irrigation protocol with 5.25% NaClO and 10% citric acid. Obturation with continuous heat wave technique, cones with 4% conicity and epoxy resin cement.

Canal sealing with light-cured glass ionomer and restoration with composite resin and adhesive system.

Follow up at 1 year (2023–07–12)—asymptomatic patient with no evidence of periapical lesion.

Clinicians should be aware of the existence of ECR, its complexity, invasive pattern and the most appropriate way to approach it. This type of resorption was classified by Heithersay in 19,996.

The guidelines of the European Society of Endodontics recommend performing CBCT in ECR7. This allows obtaining a 3D image of the defect to avoid underestimating and/or not visualizing the true extent of the resorptive process7. It was not possible to perform CBCT due to financial constraints.

To differentiate ECR from internal resorptions, it is necessary to observe the contour of the canal walls within the lesion on periapical radiographs. The detection, usually casual, usually presents asymmetric margins. The clinical signs present in the case allowed obtaining a differential diagnosis: location in the cervical region, tooth with positive response to sensitivity tests, abundant bleeding during probing and sharp and thin edges around the cavity. In caries lesions, probing is hard and a rough surface is identified1,2,4,6.

Conclusions:

- Unknown etiology.
- Clinicians should pay attention to clinical and radiographic signs, in order to make a differential diagnosis with other pathologies.
- 2D analysis involves taking more than one radiograph using the parallelism technique.
- Location of the resorption and its relationship with the bone is crucial for choosing the type of material to be used for restoring the defect.

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D / P Incontinentia Pigmenti: Case Report

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BMC Proceedings 2024, 18(14):33- D / P

Introduction: Incontinentia Pigmenti (IP), also known as Bloch-Sulzberger Syndrome, is a dominant inherited disease that predominantly affects females due to its linkage to the X chromosome. Deletion of exons 4 to 10 in the IKBKG/NEMO gene accounts for 80% of cases and usually results in a fatal outcome in males.

The incidence of this condition is estimated to be 0.7 per 100,000 births, resulting in approximately 27.6 new cases per year worldwide. PI is a multisystemic disorder characterized by abnormalities in the skin, hair, nails, skeletal, muscular, neurological, ophthalmic and dental systems.

Diagnosis is usually performed by pediatricians and/or dermatologists and requires the presence of skin abnormalities, which are the main criterion for assessing the degree of the disease, and can range from mild to severe. The prognosis of patients with this condition is variable and based on the degree of involvement of the skin and vital organs. Patients without significant ophthalmic or neurological complications usually have a good prognosis and can lead a normal life.

Dental anomalies occur in about 17% to 34% of patients and include hypodontia, microdontia, delayed tooth eruption and conoid teeth. Case reports on oral manifestations in patients with IP most often describe changes in shape and agenesis. The presence of fusions and accessory cusps are rare findings.

The present case refers to a 14-month-old patient diagnosed with mild PI, followed up by the specialties of neuropediatrics, dermatology,

ophthalmology and genetics. The patient was referred to the dental clinic of a higher education institution for evaluation of dental development.

During the intraoral examination, she revealed a normal eruptive sequence. However, tooth 51 showed a change in shape due to reduced structure at the distal edge, suggesting the change typically associated with this disease: conoid teeth.

Clinical case description: The present case refers to a 14-month-old patient diagnosed with mild PI, followed up by the specialties of neuropediatrics, dermatology, ophthalmology and genetics. The patient was referred to the dental clinic of a higher education institution for evaluation of dental development.

During the intraoral examination, she revealed a normal eruptive sequence. However, tooth 51 showed a change in shape due to reduced structure at the distal edge, suggesting the change typically associated with this disease: conoid teeth.

Conclusions: Considering that PI has consequences on several levels, a multidisciplinary approach including dentistry is essential to ensure the quality of life of these patients. However, it is important to emphasize that the implementation of a medical treatment protocol for rare diseases such as PI is challenging.

Given that PI has dental implications, it is essential that dentists are familiar with it, thus making the presentation of this work relevant.

The patient (or their guardian) consented to their information being published in an open access journal.

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D / P Valorization of dental aesthetic self-perception, its influence on the QoL of a pediatric patient

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BMC Proceedings 2024, 18(14):34- D / P

Introduction: Usually Dentists do not consider in pediatric ages the importance of the child's aesthetic self-perception and the impact this may have on the patient's quality of life, since it may influence self-esteem and the degree of socialization among peers.

Clinical case description: An 8-year-old girl was referred to the post-graduate consultation of Pediatric Dentistry, having been evaluated according to the Frankl scale with a negative behavior. She was previously diagnosed with attention deficit hyperactivity disorder.

She mentioned the occurrence of a dental trauma in January 2022, and it was clinically observed enamel and dentin fracture on 11 and 21, without pulp involvement.

In order to realize the psychological impact that the trauma had on the child, questionnaires based on the "Child's and Parent's questionnaire about teeth appearance" and the "Child—Oral Impacts on Daily Performance" (Child-OIDP) were made, and it was evident that aesthetic self-perception limited the patient in her daily life.

In the clinical examination appointment, several behavioral modeling techniques were introduced. Pulp vitality tests were performed and showed a normal response in both incisors. The rehabilitation of 11 and 21 was proposed through direct definitive restorations with composite resin, using a palatal matrix made with silicone.

Impressions and diagnostic wax-up were made, on which a silicone palatal guide was made. Subsequently, dental restoration was performed using the incremental technique with composite resins. A functional and aesthetically satisfactory final result was obtained for the patient's age. The restorative treatments were performed under basic behavior control techniques and without the need for sedation techniques.

At the end of the treatment, a visual analog scale for satisfaction (EAV-S) was given to the patient to evaluate the improvement in aesthetic appearance and satisfaction regarding the treatment and was identified as 7 (on a scale of 1 to 7, with the value 1 corresponding to "no improvement" and the maximum value corresponding to "excellent improvement" in dental appearance).

Conclusions: The differentiated clinical approach, taking into account the previous psychological conditioning factors and those inherent to the patient's age, allowed a treatment anticipated to be complex and time-consuming, to be performed without the need to resort to sedation, successfully performed with basic behavior control techniques. The parents reported that after the aesthetic rehabilitation of the anterior teeth, an increase in socialization at school among peers was noted, with the patient starting to smile more, demonstrating an improvement in her state of mind, results that are in line with those described in the literature.

This case illustrates the importance of previously questioning the parents and the child about the impact that dental aesthetic self-perception is having on the child's quality of life and respective social behavior, so that aesthetic rehabilitation, adapted to the patient's early age, can be privileged.

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D / P Myofunctional device to replace the pacifier in abandoning the sucking habit: Clinical Case

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BMC Proceedings 2024, 18(14):35- D / P

Introduction: The continued use of a pacifier often causes changes in the development of dental occlusion, which may even result in craniofacial bone changes. The consequences derived from this habit depend on the intensity, duration, and frequency of use. However, eliminating this habit of non-nutritive sucking can represent a real challenge, and may result in a traumatic event for the child, due to their emotional dependence. The need of professional help felt by parents, makes this a frequent reason for many children's first visit to dentistry.

Clinical case description: Female patient, 4 years and 5 months old, healthy, with an open bite associated with a non-nutritive sucking habit (pacifier) and a huge dependence on it. Clinically, she had decreased overbite (open bite), increased overjet and negative torque in the posterior sectors of the maxilla. The patient's mother reported several previous attempts to remove the pacifier, but none of them were effective.

Additionally, she mentioned the birth of a younger sister, a situation that exacerbate her dependence on the pacifier and the difficulty in abandoning it.

As a treatment plan, the use of a myofunctional device (Myobrace® J1) was suggested as a substitute for the pacifier, also seeking to favor the correction of the occlusion alterations observed.

In a follow-up appointment 3 months later, the mother expressed her enormous satisfaction with the solution presented, since the pacifier had been completely abandoned. It's replacement by the device was immediate and very well accepted by the patient.

At the control visit five months later, there was an occlusal improvement in the three spatial planes, with resolution of the anterior open bite (vertical plane), overjet correction (sagittal plane) and torque correction in the posterior sectors (transverse plane) and a consequent increase in the amplitude of the upper arch.

Conclusions: The use of a myofunctional device as a substitute for a pacifier can be an excellent option for many patients with difficulty in giving up this habit, as it is a gradual strategy, which allows for greater self-control by the patient. Consequently, occlusal changes were corrected in a short period of time.

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D / P Use of a titanium splint in an avulsion of a lower canine: Clinical case

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BMC Proceedings 2024, 18(14):36- D / P

Introduction: Dental trauma is quite common in children and adolescents and is considered a public health problem, which can negatively influence quality of life. Avulsion of permanent teeth is one of the most serious dental injuries, the prognosis of which depends on immediate actions taken at the site of the accident and in the first hours after it.

The objective of our procedure was the replacement of the splint performed in a hospital environment in order to re-establish a correct dental occlusion, without occlusal contact of the repositioned tooth, thus avoiding, in the long term, dental ankylosis.

Clinical case description: Male patient, 19 years old, healthy, suffered dental trauma, with avulsion of tooth 43, at home, in February 2020. The tooth was immediately reimplanted, and the patient was referred to a hospital unit, where it was splinted with wire and composite. When observing the patient, the following day, it was verified that the splint did not allow maximum intercuspation, and the only occlusal contact occurred in the zone of 42 and 43, over the splint.

When trying to wear down the ferrule, the wire broke and was replaced by a new titanium ferrule (Medartis® Titanium Trauma Splint) and composite.

Radiographically, it was verified that the tooth had a closed apex and in the evaluation of the soft tissues, no alterations were verified.

As it was a tooth with a closed apex, it was indicated that the endodontic treatment should be started within 2 weeks. A systemic antibiotic was prescribed (Amoxicillin + Clavulanic Acid, 2x/day, 1 week) and a soft diet was indicated for 2 weeks. Instructions were given on oral hygiene with a soft brush after each meal, use of 0.12% chlorhexidine mouthwash (EluPerio), 2x/day, 2 weeks, and avoidance of physical contact sports. The patient had planned to start orthodontic treatment, but due to the trauma, it was suspended.

Two weeks after the trauma, RCT was started and the canal was filled with calcium hydroxide and provisional restoration was performed with glass ionomer (Vitrebond™ Plus). The ferrule was also removed. The RCT was finished 2 weeks later, with filling of the root canal with gutta-percha and restoration of the access with composite.

At a follow-up visit after 5 months, he was asymptomatic, and a slight metallic sound was recorded on percussion.

After 3 years and 5 months, the patient is undergoing orthodontic treatment, however, no bracket was placed on tooth 43 in order not to apply forces and avoid the risk of root resorption.

Conclusions: Immediate reimplantation of an avulsed permanent tooth is the treatment of choice, the prognosis of which depends directly on the immediate actions taken. The type of splinting, taking into account the specific properties and care, is essential to ensure adequate healing, maintaining the physiological mobility of the tooth and preventing further damage.

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