PERIODONTAL REGENERATION OF INFRABONY DEFECTS USING HYALURONIC ACID AND BONE SUBSTITUTE

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Aim: the aim of this case report is to show the regeneration of an infrabony defect following regenerative therapy with hyaluronic acid and bone substitute with a 3-year follow-up.
Methods: a 26-year-old patient showed a PPD of 11 mm with BOP + on mesio-buccal site of tooth 2.1, associated with an infrabony defect. Step 1 and 2 of periodontal therapy were performed. As a consequence, at reassessment, PPD of the site decreased at 8 mm, and a regenerative surgical therapy of the defect was scheduled. A minimally invasive surgical approach was adopted to have access to the defect and, after appropriate root debridement, hyaluronic acid with bone substitute were placed into the defect. Double horizontal internal mattress e-PTFE sutures were used to close the flap.
Results: at 6-month follow-up, the filling of the defect was radiographically evident. At 3-year follow-up, radiographic stability of the regenerated defect and soft tissue maturation were obtained, with a final PPD of 3 mm with BOP- were recorded.
Conclusions: regeneration of infrabony defects using hyaluronic acid gel with bone substitute is a viable therapeutic alternative to achieve CAL gain, reduction of PPD and bleeding on probing, ensuring stability of hard and soft tissues over time.

SIMULTANEOUS TREATMENT OF INFRAOSSEOUS DEFECT AND EPULIS: A CASE REPORT

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Aim: the aim of the treatment is removal of the epulis, treatment of the infrabony defect and minimization of the recession in a 35-year-old patient who presents also tissue outgrowth on the buccal side of the 2.2 element, sensitivity to thermal stimuli, pain and imperfection, in addition, presence of periodontal pocket associated with infraosseous defect.
Methods: it is decided to proceed with TPNC in zone 2.2. Two months later, given the permanence of the pocket associated with infrabony defect we proceed with regenerative periodontal surgery with surgical removal of the tissue outgrowth. A lateral displacement and coronal advancement flap associated with single flap approach in the papilla area at the level of the infraosseous defect is then used. In association, a connective epithelium graft was harvested from the palate and placed on the vestibular side of the root.
Results: treatment resulted in mobility indices of 0 at 1-year follow-up, PPD of 2-2-2 vestibularly and 3-2-3 palatally. The same values were found at 5-year follow-up. The use of the single flap at the infrabony defect avoided the creation of an aesthetically unpleasing black triangle while the free gingival graft allowed the preservation of the connective lamina within the graft, which was essential for post-surgical coronal tissue creeping and keratinization of the graft area.
Conclusions: the use of the mentioned therapy, a multidisciplinary approach, and proper operative timing allowed the patient's smile to be rehabilitated, and the indices taken into consideration to be optimized.

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AI AND RADIOMICS FOR OSTEOPOROSIS DIAGNOSIS FROM ORTHOPANTOMOGRAPHIES

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Aim: this study aimed to develop a predictive model for clinical decision-making in the diagnosis of osteoporosis based on the orthopantomography (OPT) of patients.

Methods: for this study, 492 patients from two different cohorts were selected. Based on Dual Energy X-ray Absorptiometry (DEXA), 291 healthy individuals and 201 diagnosed with osteoporosis were analyzed. For each OPT a specific mandibular Region Of Interest (ROI) was defined that included all the bone tissue positioned apically to the mandibular canal and distally to the mental foramen, including the angle of the mandible and part of the ascending branch up to the mandibular foramen. All ROIs were resized to 256 x 256, and pixel values were normalized within the range [0,255]. Three approaches were employed for the development of the predictive model: classical radiomics, deep radiomics, end-to-end CNN. All stages of machine and deep learning were carried out using Python.

Results: classical radiomics with the "Gradient Boosting" machine learning model achieved an AUC of 0.68, indicating moderate predictivity. The best-performing model in deep radiomics was Naïve Bayes (AUC = 0.674). "EfficientNet Fine Tuning 50%" in the end-to-end CNN approach showed an AUC of 0.80, with a sensitivity of 0.57 and specificity of 0.76.

Conclusions: the study highlights the potential of radiomic and CNN models in osteoporosis diagnosis through OPTs. Further research is warranted for optimizing these models for improved healthcare outcomes.

ULTRASONOGRAPHIC FEATURES OF GINGIVAL TISSUE IN HEALTH AND GINGIVITIS

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Aim: gingival inflammation triggered by the accumulation of bacteria is the primary risk factor for the development of periodontitis. Clinically, localized signs of inflammation limited to the gingiva, presence of significant bacterial plaque load, and stable attachment levels on the periodontium can be observed in the course of gingivitis. The aim of the present study was to compare clinical aspects of gingival tissue in healthy patients *versus* patients with gingivitis to assess the ultratructural variations present in course of inflammation.

Methods: patients with gingivitis and healthy controls were enrolled. All patients underwent ultra-high frequency ultrasonographic scans (70 MHz) of gingival tissue on three areas per dental arch (anterior, middle right, middle left). Gingival thickness, echogenicity, and vascularization assessed through resistive index were evaluated.

Results: forty patients (20 per group) were enrolled. In patients with gingivitis, significantly reduced gingival thickness ($p < 0.05$) and echogenicity ($p < 0.001$) were noted. Resistive index increased in course of gingivitis, as all patients demonstrated values >0.8 compared to healthy patients who showed values between 0.6 and 0.7.

Conclusions: gingival inflammation corresponds to an ultra-structural alteration of gingival tissue. The increase in resistive index may be justified by the presence of blood vessel narrowing and increase in resistance to flow following the development of inflammation. Further assessment is advised to further characterize periodontal tissue alterations in course of disease.

DIAGNOSTIC REPRODUCIBILITY OF THE 2018 CLASSIFICATION OF GINGIVAL RECESSION DEFECTS

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Aim: the aim of this study is to assess how the diagnostic reproducibility of the 2018 Classification of Gingival Recession Defects (GRD) could be applied when comparing in-person chairside measurements with photographic measurements.

Methods: thirty-four GRD were photographed and evaluated by four masked operators. For each case, the operators measured twice Recession Type (RT), Recession Depth (RD), Keratinized Tissue Width (KTW), Gingival Thickness (GT), detectability of the Cemento-Enamel Junction (CEJ), and presence of Root Steps (RS), chairside and on photographs. Intra- and inter-examiner agreements were calculated for individual variables. Intra-Class Correlation (ICC) with 95% Confidence Intervals (CI) was calculated for RD and KTW; Kappa with 95% CI was used for GT, CEJ, and RS; quadratic weighted Kappa with 95% CI was used for RT. Overall clinical and photographic agreements were within 0.1 difference for every variable, except for inter-operator agreement for RS which was 0.72 for clinical measurements and 0.45 for photographic measurements. The lowest overall agreement between clinical *vs* photographic measurements existed for CEJ (0.28) and RS (0.35).

Results: RD, KTW and RT showed excellent overall intra-operator agreement (>0.93), and from good to excellent overall inter-operator agreement (>0.80), for both clinical and photographic measurements. Agreements were lower for GT, CEJ and RS.

Conclusions: variables composing the 2018 Classification of GRD are reproducible, both clinically and on photographs, with comparable agreements. The overall agreement was higher for KTW, RD and RT, and lower for GT, CEJ and RS, for both clinical and photographic measurements. The comparison between chairside and photographic evaluations indicated fair to excellent agreement for most variables, with CEJ and RS showing fair agreement.

STRATEGIES OF PREVENTION OF PERI-IMPLANT DISEASES: PATIENT EDUCATION FOR HOME MAINTENANCE

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Aim: evaluate the patients' knowledge of peri-implant diseases and the level of home oral hygiene practices among the target population, in order to identify any knowledge gaps and emphasize the importance of oral hygiene in maintaining oral health.

Methods: a questionnaire was created to collect data on implant knowledge and home hygiene. It was given to patients who underwent implant-prosthetic surgery. Statistical analysis was used to determine the relationship between implant knowledge and home hygiene for the prevention of implant-prosthetic failure. The findings were compared with existing scientific literature to provide useful insights for clinical practice.

Results: we found a general lack of awareness regarding peri-implant diseases.

Conclusions: the results highlighted the importance of proper post-surgical hygiene maintenance. Therefore, there is a need to improve communication between specialists and patients in order to prevent these diseases and ensure long-term success of implant therapy.

IMPLANT PATIENT MANAGEMENT: COMPETENCIES AND DIFFICULTIES OF THE DENTAL HYGIENIST

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Aim: evaluate the dental hygienist's management of the implant patient to intercept any issues related to the practice and identify effective strategies in order to guide less experienced practitioners.
Methods: we created a digital questionnaire in Italian using the SurveyMonkey platform, which was accessible between April and August 2023. The study included all licensed dental hygienists.
Results: the results highlighted the importance of instructing and motivating patients in proper home oral hygiene techniques. Effective communication and cooperation between professionals and patients are essential for achieving and maintaining oral health. However, the efficacy of these practices is hindered by the lack of training among practitioners in effective communication techniques.
Conclusions: the absence of clear treatment protocols for implant patients leads to confusion among practitioners and hampers effective care. Future studies will be necessary to corroborate these findings and develop interventions to ensure high-quality professional practice among dental hygienists and promoting good oral health in patients.

SEM ANALYSIS OF ROOT DENTIN AFTER DIFFERENT CHEMO-MECHANICAL TREATMENTS

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Aim: smooth, decontaminated root surfaces are imperative to enhance the tissue healing process during periodontal surgery. Different chemical conditionings and debridment techniques are available for this scope, with no universal consensus on which is the best practice. Therefore, we aimed to morphologically characterize, by means of scanning electron microscope (SEM), the root surfaces after different chemo/mechanical pre-treatments.
Methods: the root surfaces of sound human premolars were treated as follows: 1) No treatment; 2) Curettes; 3) High-speed ultrasound. Groups 2 and 3 were ulteriorly subgrouped according to the chemical agents (EDTA or H_3PO_4). Half of the specimens received a blood drop to evaluate the clot formation. Three different operators received personal training to standardize the procedures referring to the Blood Element Adhesion Index (BEAI). Data were statistically analyzed ($p < 0.05$).
Results: the types of surface pre-treatments statistically influenced the results ($p < 0.05$). In particular, the association between curettes and EDTA obtained the highest blood clot stabilization ($p < 0.05$).
Conclusions: manual scaling and EDTA can be considered the best treatment approach to enhance periodontal healing and support regenerative procedures.
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TISSUE DISSOCIATION, CELL ISOLATION AND 3D BIOPRINTING OF ISOLATED HUMAN FIBROBLASTS

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Aim: the purpose of this study is to analyze tissue dissociation and isolation of gingival fibroblasts. Human Gingival Fibroblasts (HGFs) are vital constituents of the oral mucosa, playing a pivotal role in maintaining the structural integrity and function of gingival tissues.

Methods: in the de-epithelialization process, the connective tissue graft was dissected using scalpels and tweezers, and sharpen scissors were used to cut it into small pieces (ideally 1 mm 3). Scratches were made on a T25 cell culture flask with a chisel to improve the adhesion of the connective tissue samples to the plastic. After placing the connective tissue samples in the T25, 5 ml of Dulbecco's Modified Eagle Medium (DMEM) with 20% Fetal Bovine Serum (FBS) was added. Furthermore, the T25 needs to be placed in the incubator, and wait for fibroblasts and keratinocytes to migrate out of the tissue and adhere to the plastic. As a final step, fibroblast cells were 3D bioprinted in a commercially available biomaterial in order to assess their viability over-time by confocal microscopy.

Results: dead fibroblasts are visible in red, while live fibroblasts are visible in green. 3D bioprinted cells showed high viability up to 35 days post-printing.

Conclusions: concluding that the present experimental model can be a useful method for testing biomaterials in dentistry.

RG108 RESCUES THE SENESCENT PHENOTYPE OF PPDLSCS DERIVED FROM PERIODONTITIS PATIENTS

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Objectives: periodontitis is a frequent pathologic condition, which often results in teeth loss. Thus, regenerative solutions able to restore the damage to the periodontal ligament (PDL) are mandatory. We studied the PDL-derived mesenchymal Stem Cell (PDLSCs) harvested from both healthy donors (hPDLSCs) and periodontitis patients (pPDLSCs) to investigate potential differences in their respective environments, influencing their potential use for PDL regeneration.

Methods: gene expression, flow cytometry, immunofluorescence and β-galactosidase staining were used to investigate the senescent and stemness condition. The treatment of PDLSCs with or not RG108, a selective small molecule inhibitor of DNA methyltransferase (DNMT) was used at the different concentrations (50 and 100 uM) for 5 days.

Results: the subset of pPDLSCs exhibited a senescent state, expressing higher level of p16, p21 and β-galactosidase compared to hPDLSCs, but it also expressed OCT4, NANOG and SOX2, which are renowned stemness markers. After the RG108 treatment we observed a significant reduction of this subset co-expressing OCT4 and p21 in pPDLSCs compared to hPDLSCs.

Conclusions: RG108 treatment induced rejuvenation state of pPDLSCs, becoming a promising candidate for innovative approaches in periodontal patients.

SOFT TISSUE SUBSTITUTES IN SOFT TISSUE AUGMENTATION: A SYSTEMATIC REVIEW

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Aim: the present review compared the efficacy of Soft Tissue Substitutes (STSs) and autogenous Free Gingival Grafts (FGGs) or Connective Tissue Grafts (CTGs) in mucogingival procedures to increase Keratinized Tissue (KT) width around teeth and implants.

Methods: two independent examiners performed an electronic search on MEDLINE and the Cochrane Library based on the following PICOS format: (P) adult patients; (I) soft tissue substitutes and FGGs/CTGs; (C) STSs *vs* CTGs; STSs *vs* FGGs; STSs *vs* control; (O) KT width gain; (S) systematic reviews, randomized controlled trials. Studies published before November 2023 were included.

Results: around teeth, all biomaterials showed superior performance compared to a Coronally Advanced Flap (CAF) alone for treating gingival recessions. However, when compared to CTGs, Acellular Dermal Matrices (ADMs) yield the most similar outcomes to the gold standard (CTGs), even though in multiple recessions, CTGs continue to be considered the most favorable approach. The use of STSs (acellular matrix or tissue-engineered) in combination with Apically Positioned Flaps (APF) resulted in significantly less gain in KT width compared to that achieved with FGGs and APFs. Around dental implants, free gingival grafts were deemed more effective than soft tissue substitutes in enhancing keratinized mucosa width.

Conclusions: based on the available evidence, questions remain about the alternative use of soft tissue substitutes for conventional grafting procedures using free gingival grafts or connective tissue grafts around teeth and implants.

GUMMY SMILE: SURGICAL TREATMENT *VS* BOTULINUM TOXIN, LITERATURE REVIEW AND TWO CASES REPORT

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Aim: Gummy Smile (GS) is a non-aesthetic condition characterized by an excessive exposure of the gum during smiling (>3 mm). The aim of this paper is to discuss the current treatment options for gingival smile correction, focusing in particular on the GS caused by Altered Passive Eruption (APE) or Upper Lip Hypermobility (HLU).

Methods: the research was conducted using PubMed, Google Scholar and Cochrane databases, including studies from 2019 to 2023. The keywords that were used in the selection of the articles were: Gummy Smile treatment, Botulinum toxin- A (BTA), Clinical Crown Lenghtening (CCL), Upper lip repositioning. There is also a report of two cases: one on CCL and the other on the use of BTA.

Results: fifty-three studies were analyzed. CCL is the surgical treatment of choice for APE gummy smile. In the case of HLU, you can opt for a lip repositioning surgical approach, or carry out a more conservative treatment with the injection of Botulinum Toxin type A (BTA). The last one is a predictable and non-invasive approach but unlike the surgical one it appears to be a reversible treatment. The literature reports that the conventional lip repositioning technique may have a high recurrence rate at 4 months, while the modified technique improves the clinical outcome and duration in the follow-up.

Conclusions: the therapeutic approach depends on the etiology of the gummy smile. BTA injection represents a valid conservative alternative to surgical treatment, although often the best treatment involves a multidisciplinary approach, both surgical and with BTA injection.

THE CLINICAL ROLE OF BONE PEAK AND INTERDENTAL CONTACT POINT DISTANCE ON THE PAPILLA

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Aim: the purpose of this work is to evaluate the influence that the distance between the interproximal bone peak and the interdental contact point has on the presence and on the eventual size of the papilla. This evaluation is important in predicting the possibility of papilla reformation in an area undergoing periodontal and surgical-prosthetic dental treatment.

Methods: for the purpose of the search, English-language articles on the digital platforms PubMed and MedLine were considered. The keywords used for the search were: "contact point bone peak"; "distance from contact point to the crest of bone"; "interdental papilla presence"; "interdental papilla absence" and a review of these was performed.

Results: this research leads to define that the distance between the interproximal bone peak and the contact point between two dental elements plays a determining role the presence of the papilla. In particular, a high distance between the interproximal bone peak and the interdental contact point can lead to papillary deficits following periodontal surgery compromising smile aesthetics.

Conclusions: when planning periodontal, surgical, and/or implant-prosthetic treatment, it is crucial to consider this distance to understand what the prognosis of papilla may be.

MODIFIED CORONALLY ADVANCED FLAPS (MCAF): A SYSTEMATIC REVIEW AND META-ANALYSIS

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Aim: to compare the efficacy of the various mCAF variants for the treatment of multiple adjacent Gingival Recession (GR)-type defects.

Methods: the electronic search strategy was conducted on different databases (PubMed, Cinahl complete, Scopus and Web of Science) including: (i) participants with at least one GR-defect; (ii) randomized controlled trials, prospective and retrospective studies with a minimum follow-up of 6 months with ≥ 5 patients; (iii) mCAF with different variants, analyzing the use of CTG (Connective Tissue Graft), other biomaterials or approaches. Main clinical outcomes considered were: Complete Root Coverage (CRC), Mean Root Coverage (MRC) and Differential Keratinized Tissue Width (ΔKTW).

Results: a total of 902 records were considered based on the predetermined inclusion criteria, and 21 articles were finally included. Regarding the main clinical outcomes analyzed: (i) a significant difference [RR = 0.85, 95% C.I. [0.73-0.98], p = 0.03] in CRC was found for mCAF+CTG *vs* mCAF+Xenogeneic Acellular Dermal Matrix (XADM) in favour of mCAF+CTG; (ii) a significant difference [SMD=0.44, 95% C.I. [0.07-0.80], p = 0.02] in MRC was found for mCAF+CTG *vs* mCAF+Platelet Rich Fibrin (PRF) in favour of mCAF+CTG; (iii) a significant difference [SMD=0.79, 95% C.I. [0.34-1.24], p=0.0006] in ΔKTW was found for mCAF+CTG *vs* mCAF+Collagen Matrix (CM) in favour of mCAF+CTG.

Conclusions: despite heterogeneity of interventions included in this metanalysis, it can be assumed that the use of CTG is a promising adjunct to improve clinical and aesthetic outcomes of mCAF.

ANALYSIS OF ARTIFICIAL INTELLIGENCE MODELS ACCURACY IN PERIODONTITIS PREDICTION

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Aim: this systematic review aimed to examine the actual evidence on the accuracy of artificial intelligence (AI) in predicting periodontitis.

Methods: a search strategy combining MeSH keywords and free-text terms using Boolean operators ('AND', 'OR') was employed across the following databases: Web of Science, ProQuest, PubMed, Scopus, and IEEE Explore, without restricting to a specific time frame. Subsequently, the QUADAS-2 risk of bias tool was used for qualitative analysis.

Results: out of 1121 records identified and screened, 8 articles underwent qualitative analysis. Among these, 4 studies exhibited a low overall risk of bias, 2 showed an unclear risk, and the remaining 2 displayed a high risk. Artificial neural networks were the most commonly utilized algorithms for predicting periodontitis, followed by support vector machines, decision trees, logistic regression, and random forest. These models demonstrated strong predictive capabilities for periodontitis across various evaluation metrics, albeit with heterogeneous methodologies.

Conclusions: in the future, AI algorithms hold promise for enhancing the accuracy and reliability of periodontitis prediction. Yet, current studies primarily employ retrospective designs and often overlook the latest advancements in deep learning networks. Despite limited evidence due to inconsistent data collection and protocols, the substantial potential advantages of integrating AI into periodontics underscore the necessity for continued research and development in this domain.

XANTHAN-BASED CHLORHEXIDINE GEL EFFECTS IN NSPT? A META-ANALYSIS

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Objective: to carry out a systematic review and meta-analysis of Randomized controlled Clinical Trials (RCTs) and Controlled Clinical Trials (CCTs) comparing Scaling and Root Planing (SRP) or placebo with subgingival application of xanthan-based CHX (chlorhexidine) gel as adjunct to SRP.

Methods: the literature search was carried out in PubMed/MEDLINE, EMBASE and SCOPUS; primary outcomes were Probing Pocket Depth (PPD) reduction and gain in Clinical Attachment Level (CAL).

Results: overall, 15 studies were included. Three studies were judged to be at moderate risk of bias while the remaining twelve were rated at high risk of bias. A significant improvement in PPD reduction (standardized mean difference, SMD, 0.87, 95% CI, 0.41–1.34) and CAL gain (SMD = 0.84, 95% CI, 0.36–1.33) emerged for the SRP+CXH gel compared to the SRP alone group, in the presence of significant high heterogeneity among the studies.

Conclusions: our systematic review and meta-analysis showed that xanthan-based chlorhexidine gel as adjunct to non-surgical periodontal therapy gives benefit in terms of PPD reduction and CAL gain as compared to non-surgical periodontal therapy only. Since there was high heterogeneity among studies and the quality of the evidence is low, further studies characterized by a better methodology, adequate sample size and longer follow-up are warranted in the next future.

Registration: the protocol of this systematic review and meta-analysis was registered in the International Prospective Register of Systematic Reviews) (https://www.crd.york.ac.uk/PROSPERO) with ID: CRD42023391589.

INFLUENCE OF MOBILITY ON THE RISK OF TOOTH LOSS IN PERIODONTAL PATIENTS. A META-ANALYSIS

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Aim: the aim of this systematic review was to assess whether Tooth Mobility (TM) increases the risk of tooth extraction/loss.

Methods: the focused PECO questions were: 1) "In patients with periodontitis, undergoing periodontal treatment, are teeth affected by mobility at higher risk of being extracted/lost, with a minimum follow-up of 10 years?", 2) "In these patients, does varying degrees of TM increase the risk of tooth extraction/loss?". Results were reported according to PRISMA statement. Electronic and manual searches were conducted to identify longitudinal studies. The different assessments of TM were pooled into three groups: TM0: Undetectable mobility, TM1: Horizontal mobility ≤1 mm, TM2: Horizontal mobility >1 mm or vertical mobility. Meta-analyses and a trial sequential analysis were performed.

Results: eleven studies were included. The mean follow-up range was 10-25 years. The weighted total of included teeth was 18918, with a total of 1604 extracted/lost teeth. The overall rate of tooth extraction/loss increased with increasing mobility: TM0 was associated with a 5.85% rate, TM1 with the 11.8%, TM2 with the 40.3%. Mobile teeth (TM1/TM2) were at an increased risk for tooth extraction/loss, compared to TM0 (HR: 2.85; [95% CI 1.88 to 4.32]; p <0.00001). TM1 had a higher risk than TM0 (HR: 1.96; [95% CI 1.09 to 3.53]; p <0.00001). TM2 had a higher risk than TM1 (HR: 2.85; [95% CI 2.19 to 3.70]; p <0.00001) and TM0 (HR: 7.12; [95% CI 3.27 to 15.51]; p <0.00001).

Conclusions: within the limits of the studies included, mobile teeth were at higher risk of being extracted/lost in the long-term and higher degrees of TM significantly influenced clinicians' decision to extract a tooth. However, most teeth can be retained in the long-term and thus TM should not be considered a reason for extraction or a risk factor for tooth loss, regardless of the degree of TM.

PERIOGPT: DEVELOPMENT OF A REINSTRUCTED GPT-4 MODEL SPECIALIZED IN PERIODONTOLOGY

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Aim: this study introduces "PerioGPT", a specialized AI model designed to address the need for up-to-date and accurate periodontal knowledge by leveraging OpenAI's GPT-4 and a novel Retrieval-augmented Generation (RAG) system.

Methods: PerioGPT was developed using the OpenAI API to index a vast array of periodontal literature, comprising 85,818 pages of documents. This RAG system integrates a prompting strategy and querying process, designed to efficiently access, and utilize this indexed knowledge base. The evaluation of PerioGPT was conducted through a two-phase process. Firstly, the performance of PerioGPT was assessed against standard ChatGPT versions (3.5 and 4) utilizing a set of 50 periodontal questions formulated by specialists. The second phase was focused on evaluating the generative capacity of PerioGPT (in comparison to ChatGPT), specifically its ability to create complex and accurate questions on periodontal topics.

Results: PerioGPT demonstrated superior performance in generating correct responses, achieving a higher accuracy rate (37/50, 74%) compared to both ChatGPT-3.5 (20/50, 40%) and ChatGPT-4 (25/50; 50%). Regarding the capability to generate correct questions, Perio-GPT was able to generate more complex questions, however questions generated by Chat-GPT-4 were more accurate.

Conclusions: this study underscores the transformative potential of AI in dentistry, illustrating that specialized models can offer significant advantages over general language models for both educational and clinical applications.

SOFT TISSUE HEALTH IN THE TREATMENT OF MINOR RECESSION WITH V CLASS RESTORATIONS

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Aim: to assess if the maintenance of hygiene and tissue health in the treatment of minor gingival recessions are compromised by the impact of the new emergence profile, restored through V class restoration.

Methods: seven recruited subjects, aged 22 to 46, were analyzed, with a total of 50 dental elements, strictly selected (probing <3 mm, non-smokers). The selected patients underwent an initial clinical protocol (T_1) involving a professional oral hygiene session, motivation, and instructions for proper home oral hygiene, impression taking for digital analysis, and compilation of periodontal records before conservative therapy. Subsequently, the patients received a Class V restoration, either to enhance the emergence profile of affected elements with gingival recession by increasing the thickness of the existing CEJ, or to restore the CEJ in elements where it had been vestibularly abraded. After 60 days, a second evaluation and impression taking were performed (T_2).

Results: the plaque index (PI) observed on the affected teeth significantly decreased ($p = 0.012$). While the bleeding on probing index (BOP) displayed a decrease from T_0 to T_1, this reduction was not statistically significant ($p = 0.251$). Moreover, noteworthy finding the improvement in plaque control following the restorative treatment. The reduction of the gingival recession was influenced by different phenotypes.

Conclusions: the patients found it simple to maintain the altered emergence profile achieved through conservative therapy in terms of hygiene. Additionally, this modification offers mechanical protection and reinforcement to the gingival margin, contributing to a decrease in food impaction at the cervical level.

CHANGES IN GINGIVAL CREVICULAR FLUID BIOMARKERS FOLLOWING NON-SURGICAL PERIODONTAL THERAPY

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Aim: this longitudinal study aimed to assess changes in the expression of biomarkers in the Gingival Crevicular Fluid (GCF) in periodontal patients treated with Non-Surgical Periodontal Therapy (NSPT) and to correlate them with periodontal parameters.

Methods: 15 periodontitis patients received steps I-II of periodontal therapy. GCF collection and periodontal examination were performed at baseline, at 3-4 months and at 6-8 months after NSPT. Multiplex bead immunoassays allowed the profiling of GCF for 15 markers, associated with inflammation and tissue repair/regeneration.

Results: significant improvements in all clinical periodontal parameters were observed after NSPT. GCF concentration of TNFα, IL-6, IL-10 e VEGF significantly decreased ($p <0.05$) at 6 months reevaluation. CCL-3, SOST, IL-4 and IL-17 levels decreased significantly both at 3-4 and 6-8 months. IL-6, SOST, MMP-8, IL-10, CCL-2 and VEGF were significantly correlated with baseline periodontal pocket depth, whereas IL-6, OPN, and VEGF were correlated with initial bleeding on probing. The levels of IL-1β, TNFα, BMP-2, CCL-3, IL-6, OPN, SOST, MMP-8, S100A8, IL-10, CCL-2, and VEGF at baseline were significantly correlated with periodontitis stage.

Conclusions: NSPT provided significant clinical benefits leading to a decrease in the expression of several inflammatory and tissue destruction biomarkers. These preliminary data need to be confirmed in a larger sample with the aim to identify biomarkers with high sensitivity and specificity that could have a prognostic role in predicting the response to periodontal therapy.

EFFICACY OF PERIODONTAL RISK COMMUNICATION AT FIRST CONSULTATION. A PARALLEL-ARM RCT

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Aim: to evaluate the efficacy of the PerioRisk prognostic tool in implementing the effect of Motivational Interviewing (MI) on psychological outcomes and supragingival plaque control.

Methods: participants underwent MI immediately after their first periodontal visit. According to a parallel-arm, randomized study design, MI was performed with (RISK group) or without (CTR group) information on PerioRisk level and treatment goals based on PerioRisk output. Psychological outcomes were assessed using Positive Affect Negative Affect Scale (PANAS) and Protection Motivation Theory (PMT). Plaque Index (PII) was re-evaluated after 8-12 weeks.

Results: significant improvements in PMT overall score and PII were observed in CTR and RISK groups, without inter-group difference in PANAS and PMT overall scores and PII. A sub-analysis showed that the overall PMT scores recorded immediately after MI in both CTR and RISK groups for subjects with no tooth loss due to periodontitis were higher than those recorded before MI in subjects with tooth loss due to periodontitis.

Conclusions: at first periodontal visit, MI (either implemented with PerioRisk or not) has tangible effects on psychological outcomes and supragingival plaque control and seems to anticipate the awareness that is commonly generated by periodontitis-related tooth loss.

OUTCOME DETERMINANTS OF MOTIVATIONAL INTERVIEWING AT FIRST PERIODONTAL CONSULTATION

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Aim: to evaluate the association between patient characteristics and their response to Motivational Interviewing (MI) at first periodontal consultation.

Methods: data from a randomized trial comparing the effect of two interventions based on MI at first periodontal visit were re-analyzed. For the analysis, data from the two study arms were pooled. Immediately before and after MI, the psychological profile had been evaluated using *Positive Affect Negative Affect Scale* (PANAS) and *Protection Motivation Theory* (PMT). Plaque Index (PII) had been re-evaluated after 8-12 weeks. Based on subject distribution into quartiles according to the changes in (i) PII, (ii) overall PMT score, overall (iii) PANAS positive and (iv) PANAS negative scores, two subsets of responder (R) and Non-Responder (NR) subjects were identified and compared for baseline characteristics.

Results: eighty-seven and 58 subjects contributed to the analysis of psychological outcomes and PII, respectively. R group smoked a lower number of cigarettes per day compared to NR group, when stratified according to the change in either PII (R: 6.5±8.6, NR:9.7±12.9) or overall PMT score (R: 4.85±10.0; NR: 7.25±11.2). A marked difference in the number of teeth lost due to periodontitis was observed when classifying subjects as R or NR based on the change in overall score of PMT (R: 1.3±5.8; NR: 3.7±5.0) or PANAS negative emotions (R: 1.2±2.1; NR: 3.5±4.4) groups.

Conclusions: increasing smoking exposure and number of teeth lost due to periodontitis may identify subjects who will respond less favorably to MI.

PATIENT PSYCHOLOGICAL PROFILE AT FIRST PERIODONTAL CONSULTATION: A RE-ANALYSIS OF A RCT

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Aim: to evaluate the association between psychological profile and subject-related characteristics at first periodontal consultation.

Methods: data from a randomized trial comparing the effect of two interventions based on Motivational Interviewing (MI) at first periodontal visit were re-analyzed. For the analysis, the two treatment arms were pooled. Before MI, the psychological profile had been evaluated using *Positive Affect Negative Affect Scale* (PANAS) and *Protection Motivation Theory* (PMT). Subjects were distributed into quartiles according to their overall PANAS and PMT scores, and for each score the two quartiles with a favorable and unfavorable psychological profile (FPP and UPP, respectively) were compared for patient-related demographic anamnestic, and clinical characteristics.

Results: eighty-seven subjects contributed to the analysis. UPP group showed a higher proportion of males compared to FPP group for both PANAS-positive (46.6% *vs* 28.0%) and PANAS-negative (84.6% *vs* 44.5%) emotions. For mean overall PMT score, the prevalence of subjects who never smoked, former smokers, and current smokers was different between FPP (42.1%, 0%, and 57.9%, respectively) and UPP (40%, 35%, and 25%, respectively) groups. Also, the two groups differed for the number of cigarettes/day (FPP: 9.9±11.5; UPP: 1.9±4.1).

Conclusions: biological sex and smoking status may inform the clinician on the need for less/more intense MI at first periodontal consultation. In particular, male and non-smoker subjects seem to be candidates for a more intense MI intervention.

EFFICACY OF PERIORISK ON PSYCHOLOGICAL OUTCOMES IN ANXIOUS AND/OR DEPRESSED PATIENTS

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Aim: to evaluate (i) the psychological profile and level of supragingival plaque control at first periodontal consultation and (ii) the efficacy of communicating periodontal risk on psychological outcomes and supragingival plaque control in patients with moderate to severe anxiety/depression (A/D) and matched controls (C).

Methods: patients scoring >10 on the Hospital Anxiety and Depression Scale (A/D group) and C patients presenting for first periodontal consultation were enrolled in a randomized trial. The periodontal visit was followed by an 8' consultation performed as usual (Treatment as Usual; TaU) or implemented with the communication of *PerioRisk* level (RISK). Psychological outcomes were assessed before and immediately after TaU/RISK using the Positive Affect Negative Affect Scale (PANAS) and Protection Motivation Theory (PMT). In patients presenting at 8-12 weeks, Plaque Index (PII) was re-evaluated.

Results: thirty patients (15 D/A, 15 C) were included. Before TaU/RISK, A/D patients showed lower scores for positive emotions ($p < 0.001$) and higher scores for negative emotions ($p = 0.003$) compared to C patients. Although the consultation had positive effects on several PANAS and PMT items as well as PII, no significant differences in treatment effect was found between TaU and RISK.

Conclusions: an 8' consultation either implemented or not with the communication of *PerioRisk* level can effectively improve psychological outcomes and supragingival plaque control, even in A/D patients.

CONNECTIVE TISSUE GRAFT *VS* COLLAGEN MATRIX. A 3D DIGITAL ANALYSIS IN MUCOGINGIVAL SURGERY

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Aim: this pilot study investigated linear and volumetric soft tissue changes when treating gingival recessions with two surgical techniques: autologous Connective Tissue Graft (CTG) in conjunction with Coronally Advanced Flap (CAF) or a Volumetrically stable heterologous Collagen Matrix (VCMX) in combination with CAF.

Methods: 12 clinically healthy patients with a single RT1-RT2 recession in the maxillary anterior arch were randomly assigned either to CAF+CTG (n = 6) or CAF+VCMX (n = 6). Digital impressions were recorded before and 6 months after surgery to assess linear and volumetric changes in soft tissues. STL files were superimposed and analyzed three-dimensionally with a dedicated software (Zeiss inspect 2023). Differences in linear and volumetric parameters from baseline to 6 months post surgery between treatment groups were explored.

Results: all surgeries were uneventful. At 6 months, the linear parameters calculated using the CEJ as reference point did not differ between the two treatment groups, nor the volumetric variations ($p > 0.05$).

Conclusions: this pilot study documented the use of a non-invasive, 3D digital analysis to assess soft tissue changes after mucogingival surgery. A larger sample size and longer follow-up are needed to corroborate the similarity in terms of linear and volumetric variations in the two treatment groups.

EFFECT OF MANUAL BRUSHING ON THE GENESIS OF GINGIVAL RECESSIONS - A CLINICAL TRIAL

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Aim: the study aims to evaluate the effect of manual brushing and the brushing force on gum recessions.

Methods: twenty healthy patients with gum recession (REC) and 20 without gum recession (HEA) were included in the present research. Patients were healthy without periodontitis, drugs intake or previous orthodontic treatment. In the first appointment, during the dental hygiene session, a questionnaire on oral hygiene habits was filled out, Plaque Index (PI), Bleeding on Probing (BoP) and the phenotype were measured by an expert operator. In addition, all patients were provided with a soft toothbrush (1560 soft, Curaprox) and toothpaste (enzycal 1450, Curaprox). After one month (T_1) of use the patients were re-evaluated (PI and BoP) and the width of the bristles measured with a caliper.

Results: all patients performed the analysis. The mean width of the toothbrushes after 1 month was 15,26 in the REC group and 12,10 in the HEA one with a statistically significant difference. The mean phenotype width was 1,45 in the REC group and 1,53 in the HEA one.

The mean PI at T_1 for REC was 23,27 and BoP 11,90. The mean PI at T_1 for HEA was 21,98 and BoP 9,11. The results of the questionnaire showed that almost half of the patients think they brush too hard, and more than half use a medium-bristled toothbrush.

Conclusions: given the limitations of the present research, it is however possible to identify greater stress and wear on the toothbrush in patients in the REC group. This could correlate the strength and method of brushing in the genesis of gingival recessions.

PERI-IMPLANT SOFT TISSUE INCREASE AT SMALL BONE DEHISCENCES WITH EITHER VCMX OR CTG: A RCT

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Aim: the aim of the present randomized clinical study was to compare profilometric measurements of the buccal tissue volume at sites augmented using Volume stable Collagen Matrix (VCMX) or Connective Tissue Graft (CTG) simultaneously to implant placement in presence of small buccal bone dehiscence (SBBD, ≤3 mm from the implant collar). Patient-Reported Outcome Measures (PROMs) related to the two different procedures were also compared.

Methods: forty-four patients were treated with Soft Tissue Augmentation (STA) simultaneous to implant placement using VCMX or SCTG. Clinical periodontal data and 3D intraoral scans were collected prior to STA (BL), at 30 (FU-30) and 90 days (FU-90); PROMs until 2-weeks post-surgery. BL, FU-30 and FU-90 STL files were superimposed to compare profilometric volume and linear changes at 1, 3 and 5 mm on the buccal profile.

Results: no difference in clinical parameters could be detected between the 2 groups. Both treatment modalities achieved a significant STA at FU-90, with a slight decrease observed between FU-30 and FU-90. At FU-90, the mean increase was 1.07±0.22 mm in the VCMX and 1.22±0.44 mm for the CTG group ($p = 0.156$). Linear changes resulted significantly different only at 3 mm, favoring the CTG ($p = 0.041$). PROMs revealed significant difference in the perception of the bleeding at day 1, pain at 2 and 3 days, and swelling at 3 days favoring VCMX.

Conclusions: within the limitation of this short-term study, VCMX and CTG resulted in a similar STA when used simultaneously to implant placement at posterior sites with SBBD, while VCMX led to better PROMs.

FLAPLESS SURGERY WITH ENAMEL MATRIX DERIVATIVES

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Aim: to compare clinical and radiographic outcomes of flapless procedure alone or in combination with Enamel Matrix Derivatives (EMD) in the treatment of deep intrabony defects.

Methods: forty-six patients were randomly assigned to the test (flapless with EMD) or control group (flapless alone). Clinical measurements were recorded at baseline and at 6 and 12 months, radiographic measurements were taken at baseline and 12 months.

Results: forty-six patients completed the study. Significant improvements were observed in both groups at 12 months, with significant differences between test and control groups in mean clinical attachment level gain and probing pocket depth reduction [0.88 mm (95% CI: 0.16-1.60, $p < 0.05$) and 0.79 mm (95% CI: 0.40-1.18, $p < 0.001$); respectively]. Also, more sites achieved successful Composite Outcome Measure (COM) for the regenerative treatment in the flapless + EMD group (82.6% *vs* 52.2%; $p = 0.028$). In terms of radiographic outcomes, EMD yielded a greater defect bone fill when compared to flapless alone (3.0±1.0 mm *vs* 1.8±1.5 mm; $p < 0.001$).

Conclusions: flapless resulted in significant positive clinical and radiographic changes at 1 year. The additional application of EMD provided improved clinical and radiographic outcomes.

EFFICACY OF A PROBIOTIC MOUTHWASH FOR THE MANAGEMENT OF GINGIVITIS IN ORTHODONTIC PATIENTS

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Aim: the main objective of the study was to evaluate the additive effect of using a mouthwash containing probiotics, zinc, pca and microRepair in gingivitis in a cohort of orthodontic patients.

Methods: a parallel-group randomized controlled trial was designed for a period of 3 months in 50 systematically healthy subjects aged 12 to 20 years who were already undergoing orthodontic therapy and suffering from biofilm-induced gingivitis. The study population, after performing oral prophylaxis, professional debridment and periodontal charting, was randomized into a Test group and a Control group. The Test group was asked to take a mouthwash containing probiotics, zinc, PCA and microRepair every evening after brushing teeth in an amount of 10 ml; the Control group was not given any additional substance. Periodontal variables such as Full Mouth Plaque Score (FMPS), Full Mouth Bleeding Score (FMBS), pockets (PPD<4.4-6,>7 and >4+BOP), RECessions (REC), Clinical Level of Attachment (CAL), FURCations (FURC) and MOBility (MOB) were recorded at baseline, 1 month and 3 months.

Results: an improvement in all periodontal variables was observed after 1 and 3 months, and in particular there was a significant decrease in plaque accumulation and bleeding on probing in the Test group.

Conclusions: the comparison between the Test group and the Control group showed that probiotics are effective on controlling plaque and decreasing gingival bleeding, therefore, probiotic mouthwash could have potential therapeutic and preventive value for periodontal diseases.

SUBGINGIVAL INSTRUMENTATION EFFECTS ON CLINICAL AND MICROBIAL OUTCOMES IN PERIODONTITIS

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Aim: this study aimed to compare the effectiveness of Quadrantwise Subgingival Instrumentation (Q-SI) *versus* one-stage Full-Mouth Subgingival Instrumentation (FM-SI) on probing depth and periodontal bacteria and to assess if baseline periodontal pathogens impacted the efficacy of periodontal treatments.

Methods: patients with periodontitis were randomly allocated to receive Q-SI (n = 22) or FM-SI (n = 23). Periodontal indices [Probing Pocket Depth (PPD), Clinical Attachment Loss (CAL), and Bleeding On Probing (BOP)] and pathogens were evaluated via periodontal charting and real-time PCR at baseline and after 30, 90, and 180 days.

Results: after 6 months, the median PPD improved from 4.5 mm to 2.2 mm in FM-SI group and from 4.6 mm to 3.0 mm in Q-SI patients ($p < 0.001$). FM-SI induced a greater reduction of median *Porphyromonas gingivalis (Pg)*, *Aggregatibacter actinocomyctemcomitans*, and *Tannerella forsythia (Tf)* proportions ($p < 0.001$). Multilevel linear regression analysis showed that PPD reduction after 6 months was significantly predicted from high baseline PPD ($p = 0.033$), *Pg* ($p = 0.019$), and *Tf* ($p < 0.001$) levels, and the FM-SI protocol ($p < 0.001$). Moreover, in the FM-SI group, a greater PPD reduction was observed when lower baseline *Pg* levels were detected.

Conclusions: FM-SI was more effective than Q-SI in improving the mean PPD and periodontal pathogens levels in periodontitis patients over a 6-month follow-up period. High baseline PPD and *Pg* levels negatively impacted PPD reduction at 6 months after FM-SI.

IMPACT OF PERIODONTAL TREATMENT ON CARDIOVASCULAR BIOMARKERS IN PERIODONTITIS PATIENTS

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Aim: this study aimed to assess the effectiveness of non-surgical periodontal therapy on serum B-type natriuretic propeptide (NTproBNP) and related cardiovascular disease (CVD) biomarkers. Moreover, it was verified if patients with higher baseline NT-proBNP gained more benefits from full-mouth scaling and root planing (FM-SRP) at 6-month follow-up.

Methods: forty-two patients with stage III periodontitis were randomized to receive minimal Standard Oral Care (SOC) (*n* = 21) or FM-SRP (*n* = 21) treatment. Clinical periodontal [Probing Pocket Depth (PPD), Clinical Attachment Loss (CAL), Bleeding On Probing (BOP)] and serum assessments [NT-proBNP, α1-antitrypsin, C-Reactive Protein (hs-CRP), Endothelial Cell-specific Molecule-1 (ECM-1), and Neutrophil Gelatinase-Associated Lipocalin (NGAL)] were performed at baseline and at 1-, 3-, and 6- month follow-up.

Results: at 6 months, FM-SRP group showed a greater reduction of periodontal indices and NT-proBNP ($p = 0.002$), hs-CRP ($p = 0.005$), α1-antitrypsin ($p = 0.009$), ECM-1 ($p = 0.021$), and NGAL ($p = 0.039$) levels compared to SOC group. Moreover, at 6-month follow-up, variance analysis indicated that FM-SRP significantly impacted the reduction of NT-proBNP, hs-CRP, ECM-1, and NGAL. Furthermore, the effectiveness of periodontal therapy was positively impacted by high levels of NT-proBNP, hs-CRP, ECM- 1, and NGAL at baseline.

Conclusions: FM-SRP was more effective compared to SOC in improving periodontal indices and NT-proBNP levels, although patients with higher baseline NT-proBNP levels gained more benefits from treatment after 6 months.

NON-SURGICAL RE-TREATMENT *VS* PPF FOR RESIDUAL POCKETS. RCT WITH PROMS AND CLINICAL OUTCOME

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Aim: to compare the efficacy of Non-Surgical Re-instrumentation (NSR) and Papillary Preservation Flap (PPF) surgery at single-rooted teeth with residual pockets.

Methods: following Step I and II of periodontal treatment, patients with at least a residual pocket (PD ≥5 mm) at a single-rooted tooth were enrolled and randomly assigned to receive NSR or PPF surgery. Forty-six patients were enrolled, 23 in NSR group and 23 in PPF group. PD reduction was the primary outcome, CAL change and PROMs were the secondary outcomes. Measurements were taken at baseline, 3 and 6 months by a blinded examiner. Statistical analysis included descriptive statistics and analysis of covariance.

Results: of forty-six participants enrolled, one dropped-out in the PPF group. 6 months after treatment, both therapies resulted in a significant PD reduction (1.3±1.2 mm, p = 0.009 NSR; 2.0±0.7 mm, p <0.001 PPF) and Clinical Attachment Level (CAL) gain (1.0±2.4 mm p = 0.031 NSR; 1.4±0.8 mm, p <0.001 PPF). A trend towards greater PD reduction (0.6 mm; 95% CI [-03 to 1.5]; p = 0.167) and more pocket closure (61% NSR *vs* 86% PPF; p = 0.091) was found favoring PPF, but it was not statistically significant. Smoking was associated with less PD reduction of almost 1 mm in both groups. Treatment time was longer for PPF surgery, but PROMs and post-operative pain were similar between groups.

Conclusions: both NSR and PPF were effective in reducing PD at 6 months, without significant difference between treatments. PPF surgery may offer faster PD reduction. Smoking habits reduced treatment efficacy in both groups.

THE EFFECTS OF THE COVID-19 PANDEMIC ON PATIENTS IN PERIODONTAL SUPPORT THERAPY

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Aim: the objective of this study is to understand whether the covid-19 pandemic has worsened the periodontal conditions of SPT patients. Periodontitis is a multifactorial pathology that is associated with a dysbiosis of the plaque biofilm that occurs in a susceptible host, it is a chronic inflammatory pathology with cyclic evolution characterized by the destruction of the deep periodontal tissues. Thanks to the new classification and the PRA patients can be classified into three grades.

Methods: in this retrospective study, 55 patients were recruited for whom the recall of periodontal support therapy was postponed for 6 months due to the pandemic. The patients were divided into 3 groups: A (nonsmokers), B (less than 10 cigarettes per day), C (more than 10 cigarettes per day). The outcomes measured are FMPS, FMBS, PD.

Results: a statistically significant increase was found in all 3 parameters analyzed in the individual groups, but no significant differences were observed in terms of FMPS and FMBS between the groups. While a significant variation in terms of PD was observed between group A and C, as well as between group B and C while it was not observed between A and B.

Conclusions: with the limitations of this study, the outcomes indicate that the pandemic has led to an increase in PD for patients on regular SPT probably linked to the increase in tobacco consumption.

ACCURACY OF ACTIVE MMP-8 CHAIRSIDE TEST IN PERI-IMPLANT HEALTH ASSESSMENT

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Objectives: this study aimed to: i) assess the accuracy of an active Matrix MetalloProteinase (aMMP-8)-Point-of-Care (PoC) test as a quantitative real-time chair-side diagnostic tool for peri-implant diagnosis; ii) examine the correlation between aMMP-8 levels in the peri-implant crevicular fluid (PICF) and the implant clinical and radiographic characteristics.

Methods: 120 participants with 415 implants, functioning for an average duration of 13.5 (±7.4) years were enrolled. Two calibrated dentists conducted the aMMP-8-PoC lateral flow immunoassay test. PICF was collected through paper strips, stored at -80°C for biochemical analysis using a time-resolved immunofluorometric assay (IFMA). Full-mouth clinical data and radiographic examination of the implants were recorded.

Results: moderate-to-high diagnostic accuracy of the aMMP-8-PoC test for the detection of peri-implant diseases was found (sensitivity: 76%; specificity: 70.8%; AUROC: 0.826). The test performance improved in combination with some clinical characteristics: implant survival >10 years, cemented-retention, posterior, tooth lost due to periodontitis (AUROC: 0.842). The concentration of aMMP-8 in the PICF was higher in subjects with peri-implant diseases (mean values 828.096 ng/ml for peri-implantitis; 526.329 ng/ml for mucositis; peri-implant health 334.891 ng/ml). AMMP-8 values were positively correlated with clinical signs of inflammation: bleeding and suppuration on probing, increased probing pocket depth, worse radiographic mean bone levels.

Conclusions: aMMP-8-PoC test can be implemented to alert for and detect peri-implantitis, especially when combined with subject characteristics. The results confirm that aMMP-8 levels are in correlation with clinical and radiographic signs of inflammation of the peri-implant tissues.

SALIVARY BIOMARKERS ANALYSIS TO IMPROVE DIAGNOSIS AND PREVENTION OF PERIODONTITIS

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Aim: to achieve in a simple way an early, objective diagnosis of periodontitis (PD), before the loss of periodontal attachment (settled periodontal damage), whose observation is currently considered for PD diagnosis, and to improve the pathogenic knowledge of PD.

Methods: saliva samples were collected from 26 healthy subjects, 16 PD free (controls) and 10 with PD. Salivary proteome, cell-free mitochondrial DNA (cf-mtDNA) (a marker of cell damage and DAMP), bacterial DNA and interleukins (IL), considering pro-inflammatory (PRO-INF) IL-1β and IL-8, major ANTI-INF IL-4, IL-10 and interferon-γ (IFN-γ), IL-6 (pleomorphic cytokines), were assessed at baseline and after step 1 and 2 of periodontal treatment (NSPT) and compared to PD free subjects.

Results: 81 proteins resulted up-regulated in saliva from PD patients; among them, 16% were immune and INF-related proteins. At baseline, cf-mtDNA and PRO-INF cytokines were significantly higher than controls and returned to basal levels after NSPT. Bacterial DNA showed a similar trend while ANTI-INF cytokines showed the opposite trend. Pleomorphic cytokines, similar at baseline if compared to controls, normalized post-treatment.

Conclusions: in PD, cf-mtDNA release occurred; this, along with other PRO-INF and a lack of ANTI-INF stimuli, contributes to cytokine release and, without an effective switching-off of INF, to the onset of the INF environment of PD. As PD treatment improved INF status and normalized PRO-, ANTI- and pleomorphic stimuli, these molecules can serve as a reliable marker for PD diagnosis and treatment outcomes.

THE IMPACT OF RE-EVALUATION TIMING ON POCKET CLOSURE. PRELIMINARY DATA OF A COHORT STUDY

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Aim: this longitudinal study aims to describe the difference in terms of % of closed pockets when performing periodontal re-evaluation either at 3-4 or 6-8 months post non-surgical therapy (step 1 and 2).

Methods: after an initial periodontal examination (Visit 1 – baseline), which included recording of Probing Pocket Depth (PPD), Clinical Attachment Level (CAL), bleeding and plaque scores, step 1 and 2 of therapy were performed in 15 periodontitis patients. A new periodontal examination was performed at 3-4 months (Visit 5) and 6-8 months (Visit 6) after treatment, where the % of closed pockets (PPD <5 mm and no PPD = 4 mm with bleeding on probing) was also recorded.

Results: at visit 1, a mean PPD of 2.99±0.68 mm and CAL of 3.60±1.33 mm were measured, with a Full Mouth Plaque Score (FMPS) and Full Mouth Bleeding Score (FMBS) of 70.15±14.93% and 57.71±12.43%, respectively. All periodontal parameters significantly improved after steps 1 and 2 of therapy, with a mean change in PPD and CAL of 0.64±0.45 mm and 1.37±0.58 mm at visit 5 and of 1.83±0.69 mm and 1.77±0.66 mm at visit 6, respectively. The mean percentage of pocket closure was 63.89±24.53% at visit 5 and 65.62±26.13%, with no statistically significant differences.

Conclusions: according to these preliminary data, performing re-evaluation at 6-8 months rather than 3-4 months does not seem to offer an advantage in terms of percentage of pocket closure. A larger sample size is needed to corroborate these findings and assess possible correlations with severity of periodontitis and levels of oral hygiene.