

CONGRESS ABSTRACT

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Congress abstract

4° Congresso Internazionale Bari – Innovazioni tecnologiche e protocolli sperimentali in parodontologia, chirurgia orale e ortognatodonzia



MAXILLO FACIAL SURGERY

Maxillary Sinus Floor Elevation With a Space Maintaining Mesh: Titanium Versus Resorbable

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BACKGROUND: The placement of dental implant in the edentulous posterior maxilla often present difficulties as a result of insufficient bone due to pneumatization of the maxillary sinus and bone resorption after extraction. Lateral window Technique is usually accomplished by creating lateral bony window and elevation the sinus membrane. The new compartment created between the floor of maxillary sinus and the elevated membrane was filled either with autograft, bone graft substitutes or combination of them to maintain space for new bone formation. Recently, non grafting sinus floor augmentation was established based on the concept of membrane elevation and its support either by implants insertion (tenting Technique) or space maintaining devices (titanium screws or Mesh) have proven new bone formation both experimentally and clinically .

Aim: Evaluate the predictability of new bone formation at sinus floor after elevation of the membrane using a space maintaining mesh without graft material.

METHODS: Eight patient (16 sinus lift) selected for implant placement in the edentulous posterior maxilla. Clinical examination, cast preparation, and radiographic examination (Panoramic, CBCT) was performed for all patients. Under local anesthesia, sinus membrane was elevated through lateral window technique and it was supported and maintained either with a titanium or

resorbable Mesh.

Immediate post operative clinical & Radiographic examination was performed to evaluate any signs of dehiscence, infection, membrane exposure. Six month post-operatively, core bone biopsy was performed for histological examination of the formed bone using a trephine drill at planned position of implant.

RESULTS: None of the patients showed any signs of wound dehiscence, infection, or sinusitis. New bone formation was proven radiography, histologically and clinically during implant placement (a satisfactory initial stability) in both groups .

CONCLUSION: Both Titanium and resorbable meshes was reliable and predictable as a space maintaining devices after membrane elevation.

KEYWORD: Maxillary sinus, non-graft, implant, mesh, titanium, resorbable.

Influence of vascularization on Schneider membrane perforations in sinus elevation surgery

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AIM: Schneider's membrane(SM) is of great importance

for endosteal positioning and osseointegration in the sinus lift procedure. Potential factors to membrane perforation include: individual anatomical variations such as membrane thickness, sinus shape (V-shaped sinus cavity), and the presence of antral septa. Vascular complications also often compromise the results of the surgical procedure: anastomosis between the infraorbital artery and the posterior superior alveolar artery can cause bleeding problems during lateral window osteotomies. The presence of the extraosseous posterior superior alveolar artery can often be a cause of complication of the procedure. The aim of our study was to evaluate the impact of anatomic variables on the success of large sinus lift.

METHODS: In 52 patients (47 sinus elevations) six of them had a dense arterial network in SM. The range of patients' age was 45-65 years old, and 4 were smokers. Procedure followed in sinus lift with lateral windows. In all cases we use collagen membrane, CGF clot and sticky-bone with allograft bone.

RESULTS: Of the six cases with arterial network in SM, 5 of them suffered total membrane damage. The arteries were also damaged during the procedure and there were no big hemorrhagic complications. The procedure was continued with the "Loma Linda punch" technique. In this case, the membrane was elevated mesially where the graft was placed with a collagen membrane.

CONCLUSION: These cases are difficult to diagnose in advance at CBCT, when encountered in daily practice such anatomy of arteries increases the possibility of membrane damage.

A summary of the literature on the most used biomaterials for maxillary sinus floor elevation

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AIM: The sinus is one of the hardest locations to regenerate bone in. The current study aimed to evaluate through a critical, systematic review how the maxillary sinus may be elevated using several bone replacements, including alloplastic, allograft, dental matrix, and

bovine bone.

METHODS: According to PRISMA criteria, PubMed/Central, PubMed/Medline, Web of Science, and Google Scholar were used as databases to conduct this systematic search.

RESULTS: According to the findings, Calcium Triphosphate (TCP) accelerates new bone formation compared with other biomaterials, but because it loses volume it exposes the apex of the implants. Some authors believe that the length of the implant in the maxillary sinus has something to do with this resorption. Bovine bone maintains its volume for a longer time and does not expose the apex of the implant. Compared with the most widely used varieties of allografts, DFDBA is believed to be more osteoinductive than FDBA. However, FDBA resorbs much more gradually, with the advantage of better space preservation.

CONCLUSION: An appropriate biomaterial for sinus floor elevation must stand the test of time until it is entirely replaced by bone tissue. Multiple biomaterials can be combined as none of them completely meets the required criteria for osteogenesis; in this regard, dental matrix appears to be promising, although further research is needed.

Prognostic significance of lymph node ratio (Lnr) in predicting the outcome of oral squamous cell carcinoma - a retrospective study

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BACKGROUND: The lymph node status is a very important prognostic factor in Head & Neck cancer. The presence of metastatic Lymph nodes will reduce the overall survival by 50 %. Lymph Node Ratio (LNR) is defined as the ratio of the number of positive lymph nodes to the total number of lymph nodes dissected.

AIM: To investigate the prognostic value of Lymph Node Ratio in Oral Squamous Cell Carcinoma (OSCC) Methods: Medical records of pathologically confirmed Oral Squamous cell Carcinoma (OSCC) patients from January 2017 to January 2022 who reported with loco-regional failure were analyzed. LNR was calculated for each patient. The end point of the study was Disease Free Survival (DFS).

RESULTS: A total of 33 patients were included in the study. LNR was calculated in patients with pN+ neck. There was a negative significant moderate correlation between LNR and Disease Free Survival (DFS) [Spearman's rho=-0.593, p=<0.001]. Higher LNR value of more than 0.01 was associated with shorter Disease Free Survival period. T4 tumour stage had significantly higher LNR. A positive significant moderate correlation was found between LNR and tumour stage [Spearman's rho= 0.703,

p=0.01]. As the T stage increased the LNR ratio also increased. In the present study, tumour subsite Tongue was associated with significantly higher LNR (p=0.001).

CONCLUSION: LNR can be considered as an independent prognostic parameter for Disease Free Survival (DFS) in OSCC patients with lymph node metastasis.

KEYWORDS: Lymph Node ratio (LNR), recurrence, OSCC, Disease Free Survival

PATIENT-SPECIFIC 3D-PRINTED TITANIUM IMPLANTS FOR ORO- FACIAL DEFECTS

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BACKGROUND: Patients undergoing ablative orofacial surgery face with functional and aesthetic issues. They not only cause orofacial deformities but often leads to aesthetic and functional limitations that burden patients physically as well as psychologically. Various reconstructive strategies, such as implant-borne obturator prostheses or microvascular tissue transfer, are currently available for dental rehabilitation but, the patient specific implants appear to be very useful for precise reconstruction of orofacial defects with greater accuracy. The concept of using customized implant with the help of 3D virtual treatment planning, stereolithographic models and computer aided designing greatly improves oral facial defect restoration and helps to achieve good facial profile, aesthetics and dental rehabilitation preventing severe complications related to autologous grafts.

PATIENTS AND METHODS: All patients treated with patient specific implants due to post-ablative orofacial defects were included. The aetiology of defects varied from trauma, mucormycosis, carcinomas, odontogenic pathologies etc. Implants were placed in the 5 cases after successful resection. Definitive prosthodontic restoration was performed in all patients. No implant loosening was observed.

RESULTS: All patient-specific implants showed primary stability, clinical implant stability, soft tissue management, successful prosthodontic restoration throughout the observation period. The major complications evaluated were less for patient-specific 3D implants than non- conventional autogenous grafts. Minor complications such as exposure of the underlying framework or mucositis were observed, but they never led to failure of restorations or implant loss.

CONCLUSION: Treatment of postablative orofacial defects with patient-specific implants offers a safe alternative with predictable results for full and rapid dental rehabilitation, avoiding time-consuming augmentation procedures and additional donor-site morbidity.

A long-term randomized clinical trial compared Sinus

Lift with Algipore® FRIOS® and Autogenous Tooth Bone Graft with Bio-Oss® and PRP

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AIM: The porous fluorohydroxyapatitic (FHA) biomaterial Algipore® FRIOS® and anorganic bovine bone have proven to be suitable for application in maxillary sinus augmentation. The aim of this trial was to test the hypothesis of no differences in the clinical outcomes and biological events in the long-term survival of implants placed in the grafted maxillary sinus by employing porous fluorohydroxyapatite (Algipore® FRIOS®) combined with autogenous tooth bone graft or anorganic bovine bone (Bio-Oss®).

METHODS: Fifty patients underwent maxillary sinus bone augmentation and were divided in 2 groups: Group A with 25 maxillary sinuses were grafted with porous fluorohydroxyapatitic (FHA) biomaterial FRIOS Algipore added with autogenous bone graft; Group B with 25 maxillary sinuses were grafted with anorganic bovine bone (Bio-Oss®) in combination with autologous peripheral blood derived growth factors and bone graft. The Piezo-assisted Split-Crest technique with the two-steps implant insertion procedure was applied.

RESULTS: In total, seventy-eight implants were placed. The 6-years implant survival demonstrated no statistically significant differences among the groups. Conclusion: The results of this investigation showed a faster healing process compared to other more conventional procedures applied in soft and hard tissue regeneration.

KEYWORDS: biomaterials; bone substitutes; sinus floor augmentation; sinus grafting; dental implants.

UN CASO DI DISPLASIA CLEIDOCRANICA: CARATTERISTICHE CRANIO-FACCIALI E ANOMALIE DENTALI

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SCOPO: La displasia cleidocranica (CCD) è una malattia genetica con eredità autosomica dominante, caratterizzata da una displasia generale con varie deformità scheletriche e dentali. Le caratteristiche più diffuse sono clavicole aplastiche o ipoplasiche, denti soprannumerari, mancata eruzione dei denti permanenti e mascella ipoplasica. Questo caso descrive l'estrazione chirurgica di denti soprannumerari in un paziente affetto da CCD.

METODI: Una donna di 22 anni affetta da CCD è stata indirizzata al reparto di chirurgia orale per l'avulsione di denti soprannumerari. L'analisi genetica molecolare ha identificato una mutazione mis-senso eterozigote nel gene RUNX-2 (c.674G>A), con conseguente sostituzione dell'arginina con la glutammina al residuo 225 (p.Arg225Gln). Il padre presentava la stessa mutazione. L'esame fisico ha evidenziato bassa statura, spalle strette, testa brachicefala, mascellare ipoplasico e ampio ponte nasale. L'esame intraorale ha rivelato una malocclusione di classe Angle III, overjet negativo e affollamento inferiore. Il paziente era in trattamento con un apparecchio fisso multibrackets a filo diritto. I risultati radiografici hanno rivelato la presenza di denti inclusi soprannumerari nell'area dei canini mascellari e dei premolari mandibolari. Successivamente, è stata eseguita una cbct per valutare con maggiore precisione la posizione degli elementi dentali inclusi e valutare il giusto approccio.

RISULTATI: i denti soprannumerari sono stati estratti chirurgicamente in anestesia generale. È stato sollevato un lembo a tutto spessore ed è stata eseguita un'osteotomia per esporre i denti. Dopo le estrazioni, il lembo è stato riposizionato e sono state praticate suture interrotte; sono stati prescritti antibiotici e antinfiammatori.

CONCLUSIONE: i pazienti con disostosi cleidocranica richiedono un approccio multidisciplinare. Potrebbe essere necessaria una varietà di tecniche diagnostiche e di trattamento e molti interventi chirurgici. È importante anche la collaborazione tra dentisti e genetisti clinici per ottenere una diagnosi precoce.

ORAL SURGERY

Autologous tooth as an efficient material in the preserving the alveolar ridge

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AIM: During the first six months following tooth extraction the alveolar ridge resorbs by about 50% in horizontal width, and the placement of dental implants and aesthetics are frequently affected. In cranio-maxillofacial surgery, alveolar ridge preservation is a regular treatment that has already recognized as essential. This surgery is carried out to stop bone resorption in order to maintain the pontic site or for a prosthetically optimum location. The tooth matrix, used to replace autologous bone, has osteoconduction and osteoinduction capabilities and is free of antigenic response. This biomaterial is affordable, simple to use, and enables three-dimensional bone repair. The purpose of this review is to summarize and indicate the benefits of tooth grafts in maintaining the alveolar ridge.

METHODS: We conducted a quantitative review of the literature in the Pubmed-Medline registries to gather the necessary data. The inclusion criteria for this systematic review were studies on the cranio-maxillofacial region, human histology results, and publications within the previous five years. Ex vivo, in vitro, and study on animals were exclusion criteria.

RESULTS: The results are obtained from a total of 95 patients with 119 sites treated in a period from 4-12 months. The average mean value for bone loss in the vertical dimension was 0.61 mm, and in the horizontal dimension it was 0.74 mm. 33.9611,38 percent of new bone was formed on average.

CONCLUSION: The information gathered in this analysis shows that autologous tooth matrix appears to be physiologically and clinically an excellent substitute in ridge augmentation that supports the implant's immediate or delayed implantation. With an estimated rate of developing viable bone, this biomaterial delivers encouraging histology results. An autologous tooth graft is a bioactive scaffold that opens up new possibilities for bone regeneration within its limits.

The necessity for standardizing procedures when using mineralized versus demineralized tooth material for bone regeneration. A review

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AIM: In this review, the use of mineralized versus demineralized material in bone regeneration is compared. Noncollagenous proteins such as growth factors (BMPs) can impart osteoinductive capabilities to the dental matrix. Since BMPs alone are extremely soluble and lose efficacy, they are combined with biomaterials to enhance osteoinductive capabilities.

METHODS: A literature search was conducted on PubMed/Medline, Google Scholar and Web of Science.

RESULTS: According to some authors, mineralized dental matrix takes longer to be resorbed and does not stimulate new bone growth. Dental matrix has a greater capacity for regeneration when it is partially demineralized because this does not involve the complete removal of proteins with osteogenic potential. The process of partial demineralization does not remove collagen and BMPs. Osteoblasts adhere better to decalcified surfaces, and decalcification also increases the accessibility of enzymes involved in regeneration to the dentin matrix.

CONCLUSION: Both a mineralized tooth matrix and complete demineralization did not produce good results in bone regeneration. Partially demineralized dentine is a promising way to use tooth graft in bone regeneration.

A comparative study of Beta Calcium Triphosphate and Autogenous Tooth Bone Graft Material for Bone Regenerative Procedure

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AIM: The objective of this study was to compare the long-term clinical outcome of using beta calcium triphosphate as a bone grafting material for maxillary sinus floor augmentation (MFSA) versus autogenous tooth bone graft material.

METHODS: Fifty-seven healthy patients, aged 42 to 58 years, with severe posterior maxillary jaw atrophy with an average residual bone height in the sinus area of 2.8 mm underwent sinus floor elevation. The Piezo-assisted Split-Crest technique was performed with the two-stage implant placement procedure. Original bone was augmented with Compact Bio-bone with use of β -Tricalcium phosphate for the test group (n=28) or with autologous tooth processed by the Toot Transformer (TT) device (control group, n=29). Implants were placed after a healing period of ~6 months.

RESULTS: At 8 years of follow up, both the combination of Compact Bio-bone and of β -Tricalcium phosphate and the use of autologous tooth in the presence of a small amount of residual bone, showed expected results over time, without inflammatory infiltrate, and with an elevated level of mineralization. Both biomaterials restored the function of the physiologically and anatomically replaced part ensuring complete biocompatibility without causing rejection and collaterals.

CONCLUSION: this investigation shows that both biomaterials are suitable for sinus grafting of severely atrophic maxillae.

KEYWORDS: tricalcium phosphate; autologous tooth; bone grafting; biomaterial; jaw atrophy.

Secondary alveolar bone grafting using autologous versus alloplastic material in the treatment of cleft lip and palate patients: systematic review and meta-analysis

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AIM: Secondary alveolar bone grafting (SABG) remains one of the main challenges during interdisciplinary orthodontic management in cases with bone defects. Some of the main advantages of performing a bone graft are to provide osseous support for the teeth near the area of the cleft facilitating eruption of the teeth and to fuse the segments of the maxillary arch and alveolar

ridge, enhancing lip support and improving facial esthetics. A systematic review (SR) assessing autologous versus alloplastic bone for secondary alveolar bone grafting in cleft lip and palate was published in 2011 and included only one randomized controlled trial comparing traditional iliac bone graft to recombinant human bone morphogenetic protein-2 (rh-BMP2). The purpose was to perform a SR with meta-analysis on the use of secondary alveolar bone grafting (autologous bone and rh-BMP2 graft) in order to improve bone volume and height in patients with cleft lip and palate.

MATERIALS AND METHODS: An electronic search was conducted via PubMed/MEDLINE, Cochrane Central Register of Controlled Trials (CONTROL) via Cochrane Library, EMBASE via Ovid, and LILAC for studies published between January 2008 and September 2018. The MeSH terms used were: “secondary alveolar bone graft,” “alveolar bone graft,” “cleft lip,” “cleft palate,” “cleft lip and palate,” “alveolar bone graft cleft,” “autologous bone graft cleft,” “alloplastic bone graft cleft,” “BMP-2 graft cleft,” and “bone graft cleft”. The SR registration number at PROSPERO was 42018085858.

Only RCTs were included. Inclusion criteria were patients with the diagnosis of unilateral cleft lip and palate older than 5 years of age, radiographic evaluation (CT and/or CBCT) of the cleft area, and at least a 6-month follow-up.

Bone formation and bone height by radiographic CT evaluation (preoperatively, after 6 months and after 1 year of follow-up) and length of hospital stay were assessed.

RESULTS: Four studies met strict inclusion criteria. Autologous bone graft showed statistically significant higher bone formation after 6-month follow-up (MD - 14.410; 95% CI - 22.392 to - 6.428; p = 0.000). No statistically significant difference was noted after a 1-year follow-up (MD 6.227; 95% CI - 15.967 to 28.422; p = 0.582). No statistically significant difference in bone height was noted after 6-month (MD - 18.737; 95% CI - 43.560 to 6.087; p = 0.139) and 1-year follow-up (MD - 4.401; 95% CI - 30.636 to 21.834; p = 0.742). Patients who underwent rh-BMP2 graft had a statistically significant reduced hospital stay (MD - 1.146; 95% CI - 2.147 to - 0.145; p = 0.025).

CONCLUSION: The absence of significant differences between autologous bone graft and rhBMP-2 graft assessing bone graft volume and height showed a similar effectiveness of the methods in maxillary alveolar reconstruction in patients with unilateral cleft lip and palate. An additional day of hospital stay for the patients was noted when performing an autologous bone graft. However, the difference may not be considered clinically relevant (moderate level of evidence).

PRF nella gestione post-chirurgica di ottavi complessi: risultati preliminari.

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INTRODUZIONE: Il Platelet Rich Fibrin (PRF) è un emocomponente il cui utilizzo in odontoiatria è regolamentato dal decreto n.2 del 02/11/2015. Il suo maggiore impiego è giustificato dal rilascio di fattori di crescita nel sito di utilizzo fino a 14 giorni dopo l'applicazione. L'obiettivo di questo studio è stato quello di valutare il decorso post-operatorio di pazienti con ottavi complessi con e senza PRF nell'alveolo post-estrattivo.

MATERIALI E METODI: Lo studio è stato condotto secondo il regolamento vigente di Helsinki ed è approvato dal comitato etico locale. Sono stati arruolati 13 pazienti maggiorenni con anamnesi muta, 8 donne e 5 uomini per un totale di 30 ottavi complessi divisi in 15 test e 15 controlli. Per ottavo complesso si intende un elemento totale o parzialmente incluso o la cui anatomia radicolare richiede l'odontotomia. A T0 sono stati registrati la massima apertura con calibro digitale, la presenza di edema secondo il metodo di Amin MM (1983) misurando la distanza trago-pogonion cutaneo e trago commessura, il valore di sondaggio disto-vestibolare e disto-linguale/palatale del settimo. A T1 dopo 48h si sono registrati i precedenti parametri e in aggiunta la scala VAS. Questi ultimi parametri sono stati registrati di nuovo a T2 dopo 7 giorni. I dati sono stati sottoposti ad analisi statistica.

RISULTATI: Sono state analizzate le differenze tra le medie dei singoli parametri nei vari tempi, nello specifico M1-M0 e M2-M0.

- Edema a T1
Distanza trago-pogonion: 0,23 nei controlli e 0,46 nei test.
Distanza trago-commessura: 0,24 nei controlli e -0,29 nei test.
- Edema a T2
Distanza trago-pogonion: -0,42 nei controlli e 0,48 nei test.
Distanza trago-commessura: -0,41 nei controlli e -0,01 nei test.
- Sondaggio a T1
0,47 nei controlli e 0,40 nei test.
- Sondaggio a T2
0,28 nei controlli e 0,21 nei test.
- Trisma (distanza interincisiva in massima apertura) a T1
-3,21 nei controlli e -8,51 nei test.
- Trisma a T2
2,48 nei controlli e 0,92 nei test.
- VAS a T2
-2,35 nei controlli e -3,21 nei test.

CONCLUSIONI: Il parametro della differenze delle medie nei vari tempi di osservazione è più attendibile dell'osservazione della differenza all'interno dei singoli campioni test e controlli poiché valuta la variazione del parametro nella stessa popolazione, abbattendo le differenze dovute al campionamento.

Il PRF è ottenuto attraverso una metodica poco invasiva, rapida e con costi contenuti. Il suo impiego sembra

migliorare il trisma nelle prime 48h post-intervento e l'edema ed il dolore a 7 giorni. Sono necessari ulteriori approfondimenti ed aumento della sample size.

Fibrina Ricca di Piastrine nella Terapia Chirurgica in Odontoiatria. Valutazioni in vitro tramite Biologia Molecolare

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INTRODUZIONE: La Fibrina Ricca di Piastrine (PRF) svolge un ruolo fondamentale nei processi di emostasi, cicatrizzazione e angiogenesi. Il (PRF) appartiene ad un gruppo di concentrati piastrinici ricchi di fattori di crescita. Presenta diversi vantaggi nella pratica chirurgica compresa la facile preparazione e il fatto che non richiede la manipolazione chimica del sangue (eparina, EDTA, trombina bovina o cloruro di calcio). Il preparato è stato utilizzato per la prima volta nel 2000 nel campo della chirurgia orale e maxillo-facciale. L'obiettivo di questo lavoro è finalizzato alla valutazione delle condizioni ottimali per la costituzione del PRF. Allo scopo abbiamo voluto verificare, tramite tecniche innovative di biologia molecolare, le condizioni ottimali (tempo di centrifugazione del sangue) per ottenere un coagulo con la massima concentrazione cellulare, al fine di concentrare a sua volta i fattori di crescita. A tutt'oggi infatti, non esiste nella letteratura un dato evidente sulle condizioni ottimali di centrifugazione/tempo.

MATERIALI E METODI: Il sangue è stato prelevato dal distretto venoso di due pazienti con età compresa tra i 40 e 60 anni. Il campione è stato poi centrifugato a 2700 rivoluzioni per minuto (rpm) a 4°C, utilizzando quattro tempi differenti (8, 12, 16 e 20 minuti). Il coagulo di fibrina di ciascun campione-tempo è stato poi sezionato in 4 parti, a 0-2-3-4 cm dal coagulo di sangue, con lo scopo di valutare la posizione maggiormente ricca di cellule. La concentrazione cellulare è stata valutata dopo estrazione del DNA tramite la tecnica della real time qPCR quantificando le copie del gene della actina. Il conteggio cellulare è stato poi eseguito interponendo i dati sperimentali con una curva standard, costruita con concentrazioni note di leucociti umani (metodo della quantificazione assoluta). In tutti i campioni è stata altresì calcolata la concentrazione del DNA totale libero tramite procedura Qbit, allo scopo di valutare le zone di lisi cellulare.

RISULTATI: I dati ottenuti in laboratorio evincono che i tempi migliori di centrifugazione si rilevano tra i 12 e i 16 minuti utilizzando 2700 rpm, in una zona circoscritta tra 2 e 4 cm dal coagulo di sangue. La massima concentrazione cellulare si osservava a 3 cm dal coagulo, il DNA libero veniva rilevato a 2 cm.

CONCLUSIONI: Dall'analisi dei dati possiamo rilevare delle apparenti incongruenze tra DNA e cellule lungo il

coagulo di fibrina, si può constatare infatti una diversa disposizione del DNA libero rispetto alle cellule dovuta a tempi differenti di centrifugazione, si può ipotizzare che le cellule del sangue durante la centrifugazione sono sottoposte a due differenti forze, una di spostamento lungo il coagulo e una di lisi. In questo contesto l'area a 2-3 cm dal coagulo potrebbe rappresentare quella ipoteticamente più ricca di fattori di crescita.

CONSERVATIVE

Bond strength of universal adhesives to dentine: systematic review

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AIM: The purpose of the project was to conduct a systematic literature review to determine whether the bond strength to dentin of multi-modal adhesives differs significantly between etch&rinse and self-etch protocols.

METHODS: PRISMA guidelines were followed when conducting a systematic literature review. The reviewer conducted a search of three international databases: MEDLINE, Scopus, and The Cochrane Library. Only studies published between 01/01/2012 and 1/06/2021 that evaluated the bond strength of universal adhesives to dentin using the etch-and-rinse and self-etch strategies by in vitro evaluation of TBS and SBS were included.

RESULTS: 9445 potentially relevant articles were identified on databases (identification), 8407 articles were selected for evaluation by title and abstract reading (screening), 64 articles were selected for full-text reading (eligibility), and 26 articles met the inclusion criteria and were included in the review (inclusion). The bond strength (TBS and SBS) of 17 different universal adhesives is evaluated in these 26 articles.

CONCLUSION: The performance of the multimodal adhesives evaluated in the included articles demonstrates that all of the new adhesive systems tested are highly versatile. The adhesion force values are statistically equivalent in the etch-and-rinse ($\mu = 36.7$ MPa) and self-etch ($\mu = 36.2$ MPa) techniques. Despite the theoretical differences between the two ER and SE modalities, our systematic review found that acid etching as a first step (etch&rinse) had no effect on dentin bond strength. Given that the universal

adhesives tested showed no difference in bond strength between the two techniques, the more superficial interaction of these materials with the dentin substrate, as a result of the lower acidity compared to traditional etchant, may reduce the risk of post-operative sensitivity and the possibility of collagen fibrils degrading, compromising bond stability over time.

ENDODONTICS

ENDODONTIC TREATMENT IN A MANDIBULAR FIRST PREMOLAR WITH FIVE ROOT CANALS: A CASE REPORT

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AIM: The main purpose of this case report was to show the endodontic approach in a mandibular first premolar with an uncommon anatomical configuration.

MATERIALS AND METHODS: A 29-year-old woman was diagnosed with symptomatic pulpitis in tooth #44 after experiencing occasional discomfort in the lower right posterior portion of the mouth in a period of approximately three weeks.

RESULTS AND CONCLUSIONS: The Mtwo rotary system was employed to prepare the four root canals (including mesiobuccal, distobuccal-1, distobuccal-2, and distolingual). After two weeks the sealing of the four root canals was performed but a fifth canal, in the buccal side, was discovered. By using CBCT it was determined that this additional canal was the mesiolingual one and that it was curved. Following the the root canal filling, CBCT was used to recreate a three-dimensional scan of the root canal. After a week of monitoring, a composite resin filling was used to reconstruct the tooth.

Thanks to the discovering of an alteration in the tooth's lower part of the canal, after a precise investigation and exploration, it was possible to achieve a successful therapy.

CBCT was the key to confirm the locations of the root canals and find the fifth one when missing root canals were suspected.

Successful root canal therapy requires a deep understanding of the anatomical morphology of the

root canal and its modifications in order to perform the treatment in the most appropriate way.

AN ENDO-PERIO LESION

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AIM: It might be difficult to distinguish between periodontal and endodontic issues, so treating endo-perio lesions is a very tough assignment for dentists. In this study, we analyze the case report of a patient in which endodontic treatment was scheduled before periodontal therapy.

MATERIALS AND METHODS: A 40-year-old male patient, who is a current smoker and who complained of discomfort and pus discharge from the third quadrant is the subject of this case report.

He has M1 mobility, purulent exudate, and spontaneous gingival bleeding on the 3.7 tooth; he has positive familiar anamnesis for periodontal disease. On the distal root, a deep periodontal pocket measuring 10 mm was found, and the furcation was also involved.

An endo-perio lesion may be seen on the radiograph, with an enlarging periodontal pocket and a significant amount of radiolucency in the periapical region of the distal root that extends to the furcation.

The damaged element's pulpal necrosis was verified by the cavitory and cold tests. It was immediately treated with NiTi rotary instruments and warm vertically compacted gutta-percha obturation technique.

Afterward, two sessions of scaling and root planing are completed, followed by the topical application of antibiotics to the periodontal pocket.

RESULTS: A periapical radiograph, taken after a year, reveals that the lesion has healed, the bone defect has mineralized, the periodontal probing depth has improved, and the furcation is no longer involved.

CONCLUSIONS: The correct diagnosis and therapy of the endo-perio lesion led to successful resolution of a complex dental problem.

THE USE OF ULTRASOUND IN ENDODONTICS

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AIM: Since its introduction into endodontics, ultrasound has become increasingly useful in many clinical applications, such as access cavity opening, root canal preparation and obturation, removal of obstructions and intracanal materials, and surgical endodontics. This paper describes the advantages of using ultrasound in endodontics.

METHODS: A literature search was conducted using PubMed and Google Scholar databases.

RESULTS: Ultrasound inserts designed for endodontics are essential for deepening, widening of canals, removal of calcifications and filling material, and in the important action of activation-irrigation. The clinical approach to root canal calcifications is certainly not the easiest. First of all, it is necessary to recognize them. The radiographic aid, in this regard, can be a double-edged sword. Therefore, objective evidence will be diriment: it is essential to visualize the chromatic detachment between the hard tissues, possibly through substances that can enhance these differences. In simplistic terms (since dentin does not always have the same color), a calcification will certainly present a coloration that is not that proper to the hard tissues of the tooth. The therapeutic strategy is ideally to remove the calcification, thus clearing the space previously occupied by pulpal tissue, and then finalize endodontic therapy. As much as calcifications are the intracanal counterpart of chamber calcifications, their removal is different because it virtually always involves gradual erosion of the tissue (and not en bloc removal). Essential is the use of irrigating solutions (sodium hypochlorite, EDTA) and ultrasound. Tissue removal, depending on the case, can be conducted by manual, rotary, ultrasonic, or combined techniques. It will not be necessary, once the obliterated canal tracts are cleared, to remove all calcified tissue before finalizing therapy.

CONCLUSION: The importance of instrumentation has reached strategic levels today: improved quality of ultrasonic sources and the existence of new tips go hand in hand with more refined and continuously improving endodontic techniques.

GNATHOLOGY

Forensic damage assessment and temporomandibular disorder: a review

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AIM: Orofacial lesions are the fifth most prevalent injury in the world. Regardless, some dental traumatic injuries are not classified. Recent studies, in fact, highlight the underestimation of traumatic orofacial lesions and related individual sequelae. For this reason, forensic assessment should not be limited to the detection of dental fractures and traumas: the persistence of painful symptomatology, and functional and muscular limitation, should be marked and considered pathological. This study aims to show if there is a relationship between damage assessment and the development of temporomandibular disorder (TMD).

METHODS: The research for the keywords "damage assessment" and "temporomandibular disorder" joined by the boolean operator "AND", on the search engine PubMed, until February 2022, produced 69 results. There were 5 articles included, that satisfied the question: 4 retrospectives, and 1 prospective study.

RESULTS: All studies included show direct proportionality between severity and type of trauma with soft tissue changes, despite the restitutio ad integrum. The same individual can sustain more than one kind of injury: in fact, diagnostic examination of the temporomandibular joint (TMJ) on both sides of the face regardless of the characteristics of the impact can evidence any eventual indirect damage, because the temporomandibular joint is often subject to involvement by indirect trauma. Thus, orofacial damage is not limited to the teeth and their rehabilitation because can occur in interdental relationship changes, malocclusion, joint dysfunctions, facial and soft tissue lesions, compromise of the mandibular movements, and temporomandibular joint changes in chewing, mastication, and self-perception. Conclusion: This review evidence of the correlation between orofacial damage and the individual sequelae that directly and indirectly involve the temporomandibular joint in a good percentage. Recognition of the extent of the problem is crucial to improve data collection and access to care for all injured people. Consolidation of the damage does not always and necessarily correspond with the restitutio ad integrum, confirmed by the persistence of the painful and functional pathology, at a physical and psychological level. Future studies will clarify the real extent of a traumatic event, as well as its management and treatment.

Oral nonsteroidal anti-inflammatory drugs as treatment of joint and muscle pain in

temporomandibular disorders: a systematic review

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AIM: Temporomandibular disorders (TMD) are a clinical condition of dysfunction often associated with pain involving the temporomandibular joint (TMJ) and masticatory muscles or both. TMD signs and symptoms may include pain during mouth movements localized in jaw muscles, preauricular areas, temples, and face. Pain and maximum mouth opening (MMO) limitation are two reasons patients seek gnathological treatment. According to the multifactorial etiology of TMD, different therapies were proposed.

The first approach, Short-term pharmacological therapy might also be considered as a first approach, or it might be associated with other alternative treatments.

Depending on the therapeutic needs, several categories of drugs are recommended; furthermore, they might also be prescribed in combination with a non-pharmacological treatment. The most used drugs are non-steroidal anti-inflammatory drugs (NSAIDs).

The NSAIDs are the first therapeutic line to achieve analgesia and to treat acute pain and also the related inflammatory process. However, the efficacy of NSAIDs to obtain adequate analgesia is still not clear. For this reason, it may be necessary to use or combine them with other drugs or non-pharmacological treatments. The purpose was to evaluate pain control in patients with joint and muscle pain in temporomandibular disorder (TMD) diagnosis treated with oral non-steroidal anti-inflammatory drugs (NSAIDs).

MATERIALS AND METHODS: The systematic research was conducted via Pubmed, Scopus, Web of Science, Google Scholar, and Cochrane databases.

RESULTS: Four full-text randomized-controlled trials (RCTs) were considered eligible. This systematic review included 164 patients whose VAS scores were assessed before and after therapy. In the selected studies, a strong heterogeneity in the diagnosis and in the use of different types and prescriptions of NSAIDs was highlighted. These limitations had to be considered to understand whether a clinical recommendation could be made. Eventually, all patients treated with NSAIDs showed an improvement in pain.

CONCLUSION: There is moderate certainty of the evidence in the literature regarding oral non-steroidal anti-inflammatory drugs as a first therapeutic approach to treat temporomandibular joint and muscle pain. Three of the four selected RCTs demonstrated the efficacy of NSAIDs treatment in the management of temporomandibular joint and muscle pain. There is no evidence of MMO improvement. Further investigations

are still needed on this topic to define more specific and more reliable therapeutic protocols for joint and muscle pain related to TMDs.

Unilateral fracture of the condylar neck with dislocation in a child: a conservative treatment with functional repositioning of the mandible

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AIM: Unilateral fracture of the condylar neck is the most common between the TMJ fractures: 45.07% in adult patients, and 78% in children. Generally, males are more commonly affected than females. These fractures can be single unilateral or bilateral, and they may occur together with fractures of the mandibular symphysis or corpus or with dentoalveolar injuries. There are two fundamental modalities for the treatment of fractures of the mandibular condyle: a closed reduction, which is a conservative treatment with intermaxillary immobilization (rigid/guiding elastics) followed by functional therapy, and an open reduction with internal fixation, a surgical intervention to reposition and stabilize the fragments.

The aim was to present a case of a unilateral superior condylar neck fracture with dislocation in an 11-year-old female treated with an acrylic splint for functional mandibular repositioning.

MATERIALS AND METHODS: An intraoral examination revealed normal mouth opening with mandibular deviation to the right side observed during opening, closure, and mastication. A computed tomography scan showed a complete superior right condylar neck fracture with medial dislocation of the condyle and lateral dislocation of the ramus. The treatment objectives were to restore the functional repositioning of the mandible and stimulate growth on the deficient side.

An acrylic splint was applied in the upper arch to restore the functional repositioning of the mandible. The splint's height was increased up to 5.5mm on the fractured side to stimulate growth on the deficient side. To correct the mandibular asymmetry, a construction bite was made by 4mm advancing. The total treatment time was 16 months. Long-term five-year follow up showed complete healing. A portion of the ramus appeared lateral with respect to the condylar head, whereas the mandibular deviation to the right side was fully corrected.

RESULTS: After treatment, the facial symmetry improved

with good proportions the TMJ were pain-free, the displacement during jaw opening was resolved and masticatory function was restored. Consolidation of the fragments and a medial alignment were obtained with no ankylosis and disturbance of mandibular or facial growth.

CONCLUSIONS: Conservative treatment may be an appropriate method for selected children, as they have an increased potential for spontaneous regeneration.

Temporomandibular disorders and rheumatoid arthritis: correlation with serology

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AIM: Rheumatoid Arthritis (RA) is a systemic and chronic autoimmune disease with persistent inflammation at the synovial causing morphological deformities and pain influenced by both genetic and environmental factors, which etiopathogenesis is still unknown. Its prevalence is around 0.51 % in the whole population with a higher incidence in females. RA may severely affect the normal functions of temporomandibular joints (TMJ) in a range from 45% to 92.8% of adults.

The main clinical signs of the TMJ involvement with RA are arthralgia, stiffness during mouth opening and joint noises and limited functions upon waking. Early diagnosis, treatment and monitoring of TMJ disturbances should be extremely important for patients' quality of life.

The aim of this study was to evaluate the prevalence of TMJ disorders (TMD) in patients with RA and their eventual correlation with serology.

MATERIALS AND METHOD: The study group consisted of 17 patients (2 males and 15 females) with diagnosed RA aged between 36 and 76 years.

The exclusion criteria were incomplete medical records, congenital or acquired facial anomalies, previous maxillofacial surgery or orthodontics.

A questionnaire was delivered to each patient to ask if they suffered of any TMD (joint sound, locking, or functional limitations). A clinical evaluation was performed and dental casts, panoramic x-rays and serological analysis were collected. In particular, rheumatoid factor (RF), C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), immunoglobulin M-RF, anti-CCP antibody and anti-nuclear antibody (ANA) were evaluated.

RESULTS: The symptoms at the TMJ reported in patients with RA were tenderness/pain in the joint area (arthralgia) in 64,7%, joint sounds in 47,0% and

myofascial pain in 64,7%.

High positive RF showed a significant correlation with the presence of TMD (60%). The anti-CCP antibody and ANA were positive in 40% while CRP and ESR showed high levels in 46,7% of patients with TMJ derangements.

CONCLUSIONS: RA seems to play a role in TMD with a higher frequency of patients' complaints.

Moreover, all the serological tests, in particular the RF, showed a strong correlation with the presence of TMJ disorders. Further investigations should be performed in a wider sample.

Mandibular coronoid process hypertrophy: diagnosis and 20-year follow-up

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AIM: The coronoid process hypertrophy (CPH) consists in an abnormal volumetric increment of the mandibular coronoid process as this process grows gradually, the infratemporal space needed for rotation and translation of mandible is reduced, which results in reduction of the ranges of mouth opening and lateral excursion, limiting mouth opening. The purpose of this case report was to describe a rare case of hypertrophy of coronoid processes with associated temporomandibular ankylosis monitored for over 20 years with CBCT, MRI AND EMG EVALUATION.

MATERIALS AND METHODS: The patient was firstly visited when he had a facial trauma at the age of 4 years. Then he was followed through clinical, functional, instrumental, bi-dimensional and three-dimensional radiological evaluations up to the age of 24. A physical therapy was initiated at the age of 10 years to improve the condition of the masticatory muscles avoiding further mandibular movement reduction, mainly in the mouth opening and at the age of 14 years, Transcutaneous Electrical Nerve Stimulations (TENS) were performed to reduce muscle tension and a bite plane was delivered to control the parafunctional activity of the jaw in the night and self-control instruction for daytime habits.

RESULTS: The coronoid process hypertrophy (CPH) consists in an abnormal volumetric increment of the mandibular coronoid process as this process grows gradually, the infratemporal space needed for rotation and translation of mandible is reduced, which results in reduction of the ranges of mouth opening and lateral excursion, limiting mouth opening. The purpose of this case report was to describe a rare case of hypertrophy of coronoid processes with associated temporomandibular ankylosis

monitored for over 20 years with CBCT, MRI AND EMG EVALUATION.

CONCLUSIONS: Mandibular restriction is found in different diseases; thus, the formulation of a precise diagnosis is more difficult. Complementary exams for clarifying a clinical condition in doubt should be considered significant. Even when the diagnosis is conclusive, it is not always viable to make a recognized therapeutic procedure and a more conservative approach is required, provided that this is duly explained to the patient.

Treatment management in a young patient with temporomandibular disorder and malocclusion: a case report

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AIM: In everyday clinical practice, it is not uncommon to find patients who report with a history of orofacial pain. Thus, a routine TMD examination before the start of orthodontic therapy is essential. This allows to recognize patients suffering from orofacial pain conditions, which, as a general rule, are not ideal candidates to initiate an orthodontic treatment until the pain is managed.

Even if TMD more frequently affects adults, signs and symptoms are observed in a percentage ranging from 7.3 to 30.4% of children and adolescents.

For clinical diagnosis the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) use, by Schiffman et al (2014), is recommended. TMD treatment goals include restoration of function, pain decrease, control of any aggravating or contributing factors, and quality of life improvement. Thus, the purpose of this paper is to report a clinical case of a young patient accompanied with temporomandibular treated with gnathological occlusal splint and fixed orthodontic appliance.

MATERIALS AND METHODS: The patient came with their parents to the Orthodontic Program because they were worried about her orofacial pain and temporal headache and because she was unsatisfied with her smile. The patient was a 10.10 years old girl who was particularly anxious. The clinical evaluation revealed mouth opening reduced (36 mm), normal lateral mandibular movements, joint pain during functions and no clicking sounds in the TMJ. About her symptoms she referred daily temporal headache, weakness upon weaking, myofascial pain, difficulty in mouth opening,

parafunctional activities and anxiety. Moreover, the patient presented a slight tendency to class III skeletal malocclusion, increased lower third of the face, irregular smile arch, crossbite of 1.4-1.5, increased overbite (6 mm), moderate lower crowding and multiple rotations. There was no history of trauma of craniofacial complex. The panoramic x-ray showed the symmetric condyles without any pathological alterations. The main treatment objectives were: gnathological treatment to reduce muscle contraction, parafunctional activity and pain. The appliances used were gnathological occlusal splint, TENS and physical therapy; orthodontic treatment with crossbite correction, vertical growth pattern control, lower crowding correction, alignment, leveling and arch form coordination and overbite correction. The appliances used were a 7-7 multibracket fixed appliance in the upper and lower arch and cusp seating elastics.

RESULTS: The treatment goals were achieved. The occlusal, functional and esthetic results were satisfactory, the patient and her parents were happy of her smile. TMD symptoms were improved, the smile arch was good with no buccal corridors, however the profile appears still biretruded. The upper and lower incisors inclinations were improved and the overbite was corrected.

CONCLUSIONS: The treatment in a patient with TMD and malocclusion should be an interdisciplinary treatment that aimed to improve the function, the occlusion and consequently the patient's quality of life.

Protective masks during the Sars-Cov-2 pandemic: is there a relationship with temporomandibular disorders?

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AIM: The World Health Organization identified the severe acute respiratory syndrome from Coronavirus (SARS-CoV-2) in January 2020 and declared it a pandemic due to the widespread infectivity and high contagion rate. Human-to-human aerosol transmission is the main source of contagion, so wearing masks was requested as mandatory measure to prevent the diffusion with other disposable protective items (DPI). The use of protective masks can be associated with mild discomfort. Thus, the aim of our study was to investigate the possible association between the prolonged use of protective masks and the presence of temporomandibular disorders (TMD) symptoms.

MATERIALS AND METHODS: An online custom-designed survey

was presented to investigate in the general population how and when masks are worn and whether their use causes discomfort since they are regularly worn due to the pandemic. The inclusion criteria were all subjects with an age of ≥ 18 years. Participants were recruited from October 2020 to April 2021 through advertisements posted on different social channels with a link directing them to a questionnaire. The latter was anonymous and included 13 multiple-choice questions in three different sections.

The first part focused on the demographical information, the second part on the use of protective masks, in particular type, duration and modality of wearing during the day. Lastly, the questions were related to the possible presence of TMD. Specifically, respondents were asked about any facial pain, joint noise and headache.

RESULTS: The questionnaire received 664 replies (313 males and 349 females) and reported that 50.3% of subjects referred using mostly the protective mask FFP2, and 87% wore the mask regularly with two elastics behind the ears. A statistically significant association was found between the presence of a pre-existing pain and wearing masks for a total time of 4 - 8 hours ($p = 0.001$).

92.2% of the participants did not report any noise. 253 applicants referred headaches while wearing masks. A significant association was found between the presence of headache when wearing the mask for a period of 4 - 8 hours ($p < 0.001$) and with the use of FFP2 ($p = 0.033$).

CONCLUSIONS: This study highlights the relatively high prevalence of headaches and pain in the anterior region of the ears after wearing FFP2, especially following its prolonged use over time due to the rules to contrast the COVID-19 pandemic.

IMPLANTHOLOGY

The necessity for standardizing procedures when using mineralized versus demineralized tooth material for bone regeneration. A review.

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AIM: In this review, the use of mineralized versus demineralized material in bone regeneration is compared. Noncollagenous proteins such as growth factors (BMPs) can impart osteoinductive capabilities to the dental matrix. Since BMPs alone are extremely soluble and lose efficacy, they are combined with biomaterials to enhance osteoinductive capabilities.

METHODS: A literature search was conducted on PubMed/Medline, Google Scholar and Web of Science.

RESULTS: According to some authors, mineralized dental matrix takes longer to be resorbed and does not stimulate new bone growth. Dental matrix has a greater capacity for regeneration when it is partially demineralized because this does not involve the complete removal of proteins with osteogenic potential. The process of partial demineralization does not remove collagen and BMPs. Osteoblasts adhere better to decalcified surfaces, and decalcification also increases the accessibility of enzymes involved in regeneration to the dentin matrix.

CONCLUSION: Both a mineralized tooth matrix and complete demineralization did not produce good results in bone regeneration. Partially demineralized dentine is a promising way to use tooth graft in bone regeneration.

A comparative study of Beta Calcium Triphosphate and Autogenous Tooth Bone Graft Material for Bone Regenerative Procedure

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AIM: The objective of this study was to compare the long-term clinical outcome of using beta calcium triphosphate as a bone grafting material for maxillary sinus floor augmentation (MFSA) versus autogenous tooth bone graft material.

METHODS: Fifty-seven healthy patients, aged 42 to 58 years, with severe posterior maxillary jaw atrophy with an average residual bone height in the sinus area

of 2.8 mm underwent sinus floor elevation. The Piezo-assisted Split-Crest technique was performed with the two-stage implant placement procedure. Original bone was augmented with Compact Bio-bone with use of β -Tricalcium phosphate for the test group (n=28) or with autologous tooth processed by the Toot Transformer (TT) device (control group, n=29). Implants were placed after a healing period of ~6 months. **RESULTS:** At 8 years of follow up, both the combination of Compact Bio-bone and of β -Tricalcium phosphate and the use of autologous tooth in the presence of a small amount of residual bone, showed expected results over time, without inflammatory infiltrate, and with an elevated level of mineralization. both biomaterials restored the function of the physiologically and anatomically replaced part ensuring complete biocompatibility without causing rejection and collaterals.

CONCLUSION: This investigation shows that both biomaterials are suitable for sinus grafting of severely atrophic maxillae.

KEYWORDS: β -tricalcium phosphate; autologous tooth; bone grafting; biomaterial; jaw atrophy.

Nuovi derivati del resveratrolo stimolano l'attività di cellule del tessuto osseo e dei tessuti circostanti del cavo orale

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INTRODUZIONE: Accelerare il processo di osteointegrazione e soprattutto favorirla in condizioni svantaggiose, quali qualità e quantità ossea ridotta, rimane una sfida nel campo odontoiatrico. Ad oggi le modifiche della topografia di superficie e i rivestimenti bioattivi sono risultate le strategie migliori per favorire le interazioni osso-impianto. In questo contesto le molecole naturali potrebbero rappresentare un'alternativa ai farmaci grazie alla bassa immunogenicità e tossicità. Il resveratrolo (RSV), un composto polifenolico, mostra effetti promettenti, come antiossidante, antinfiammatorio, antibatterico e presenta proprietà osteogeniche. In particolare, nel tessuto osseo il RSV può sopprimere la perdita ossea alveolare inibendo la differenziazione degli osteoclasti e promuovendo la proliferazione degli osteoblasti. Tuttavia, l'applicazione del RSV rappresenta ancora una sfida importante per l'industria farmaceutica, a causa del suo rapido metabolismo, della scarsa solubilità e della bassa

biodisponibilità. Lo studio ha come obiettivo la sintesi di derivati del RSV con migliorate proprietà farmacocinetiche per consentirne l'applicazione clinica.

METODI: Sono stati sintetizzati una serie di 10 derivati del RSV per valutarne la citocompatibilità a diverse concentrazioni (da 5 a 50 μ M) su fibroblasti gengivali (HGF). Le due molecole citocompatibili sono state testate per le proprietà fisico-chimiche tramite analisi HPLC e per ulteriori saggi biologici su tre linee cellulari primarie umane: citotossicità, proliferazione cellulare e morfologia a 48 e 72h su HGF, osteoblasti orali (HOB) e cellule endoteliali (HUVEC); l'espressione di geni chiave relativi alla funzionalità a 48 e 72h su HUVEC e HGF; i livelli di fosfatasi alcalina (ALP), la mineralizzazione e i depositi di calcio a 72h su HOB.

RISULTATI: Tra le 10 molecole, i derivati 1d e 1h hanno aumentato significativamente la vitalità cellulare rispetto al composto di riferimento RSV. 1d e 1h presentano una buona stabilità enzimatica e chimica. Inoltre, entrambi non sono risultati citotossici e a bassa concentrazione (5 μ M) hanno promosso la proliferazione delle tre linee cellulari rispetto al RSV. Le osservazioni morfologiche hanno confermato i risultati ottenuti dall'analisi della proliferazione. I geni chiave della funzionalità di HUVEC e HGF, eNOS e COL1 rispettivamente, risultano up-regolati rispetto al RSV. L'attività dell'ALP è risultata stimolata ed è stato osservato un aumento significativo della deposizione di calcio dopo trattamento con 1d e 1h rispetto al RSV.

CONCLUSIONE: I risultati dello studio potrebbero suggerire una potenziale azione di 1d e 1h per la rigenerazione tissutale e un potenziale utilizzo per la funzionalizzazione delle superfici implantari, tuttavia, sono necessari ulteriori studi per definire il loro meccanismo d'azione a livello molecolare.

Bacterial leakage in tre diverse connessioni implantari

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OBIETTIVO: L'obiettivo di questo studio è di valutare, in

vitro, la microinfiltrazione batterica di 3 differenti connessioni implantari per un periodo di 14 giorni. Sono stati utilizzati 60 impianti dentali (AoN, Grisignano di Zocco, Italy), distinti in tre gruppi da 20, a seconda del tipo di connessione: esagono esterno (EH), esagono interno (IH) e connessione Cone Morse (CM).

MATERIALI E METODI: 10 impianti per ogni gruppo sono stati inoculati con 1,0 µL brodocoltura di *Streptococcus oralis* (SO) e altri dieci con la stessa quantità di brodocoltura di *Pseudomonas aeruginosa* (PA). In seguito, gli abutment sono stati inseriti e gli impianti trasferiti in una provetta contenente brodo nutritivo sterile. Il serraggio degli abutment è stato effettuato seguendo le indicazioni della Casa produttrice; in particolare le connessioni esagonali (IH ed EH) sono state serrate a 30N/cm. A contrario, la connessione CM è stata attivata con la chiave di attivazione a 35 N/cm, che è stata poi rimossa con un torque inverso, e poi la vite passante è stata serata a 25 N/cm.

La microinfiltrazione batterica nella soluzione circostante è stata determinata monitorando la torbidità del brodo e confermata con la semina su terreno di coltura agar. L'osservazione random di 5 campioni di ogni gruppo al microscopio SEM ha permesso di verificare il corretto posizionamento dei monconi.

RISULTATI: Durante i 14 giorni di osservazione, *P. aeruginosa* ha mostrato una maggiore capacità di contaminare tutte le connessioni implantari, rispetto a *S. oralis*.

CM ha mostrato una microinfiltrazione batterica significativamente inferiore nei confronti di IH. In particolare, la contaminazione batterica è stata rilevata rispettivamente nel 45%, 55% e 20% di EH, IH e CM.

LASER IN ODONTOSTOMATOLOGY

Photo-bio-stimulation in bone regeneration

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AIM: The Photo-bio-modulation, also known as Low-Level Laser Therapy (LLLT), is finding ground in many fields of medicine and dentistry, because of the anti-inflammatory and regenerative properties. LLLT provides red and infrared lights that encourage cellular mitochondria to produce energy. Powering energy, cells are able to work efficiently, regenerate and guide the tissue healing process.

The purpose of this review is to point out the efficiency of the LLLT in tissue regeneration with a special focus in hard tissues and bone biomaterials. The study also aims to evidence the effect of different wave lengths in the cells differentiation and proliferation.

METHODS: In order to access relevant articles, an electronic search is performed in Web of science, PubMed/Medline and Google Scholar. This study is focussed on the last ten year papers in English language only to review the use of the LLLT in bone regeneration.

RESULTS: This study has analysed LLLT which uses a red light (600-700)nm and infrared light (770-1200)nm with an energy density from 2 J/cm² to 140 J/cm² in bone regeneration and its capacity to improve the properties of biomaterials used as bone substitutes. The Photo-bio-modulation seems also to get involved with the osseo-integration of implants offering a better adherence on the bone-implant surfaces. Most of the evidences point to the fact that LLLT influences the differentiation and the proliferation of osteoblastic lineage and encourage the deposition of Ca²⁺.

CONCLUSION: The LLLT is a promising therapy in the field of bone regeneration. Despite the fact that many researches have been conducted in different cell lines and animals, further studies focused on human cells are needed to determine the standard protocol.

Orthodontic intrusion of periodontopathic maxillary upper incisors combined with use of diode laser

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AIM: The aim of this study is to illustrate a case of intrusion of severely compromised maxillary periodontal incisors through the application of light orthodontic forces and diode laser without periodontal side effects and with good finalization of the orthodontic treatment.

METHODS: A 37-year-old woman with hypothyroidism, depression, and chronic generalised periodontitis. On intraoral examination the patient presented 21 and 22 with severe vertical bone defect, bleeding on probing and suppuration, grade 2 mobility according to the Mille scale, and severe extrusion and distal tipping of the same.

After periodontal treatment with scaling, root planning and diode laser, fixed orthodontic therapy was carried

out using a straight wire and low friction technique. Orthodontic tooth movements were monitored with diode laser, with a “bone socket sterilisation” programme (0.8 W, fibre 300) and “biostimulation” (0.1 W, fibre 300).

According to the tests of Rey and Caccianiga the combination of diode laser and hydrogen peroxide has demonstrated efficacy on all periodontopathogen bacteria and, from the latest in vitro tests performed, also on antibiotic-resistant *Staphylococcus Aureus* responsible for skin infections in defected patients. The laser is used at 45°, with high frequencies, with high crest powers, up to 3.5 watts but without exceeding the average power threshold of 0.8 W.

The mechanisms of cell destruction during photodynamic therapy are enacted by the singlet oxygen of free radicals causing:

- destruction of the DNA of microorganisms;
- destruction of the lysosomal membrane;
- alteration of mitochondrial functions

Laser decontamination cycles should be repeated until granulation tissue is eliminated (until the pocket is clean and there is no more granulation tissue spillage).

RESULTS: In 11 months of treatment, intrusion and levelling of 21 and 22 were obtained, with improvement of mobility and depth of periodontal pockets, improvement of the appearance of muco-gingival tissue, restoration of the occlusal level and satisfactory aesthetics of the intruded dental elements and of the whole arch, reduction of the distance between the incisal edge and the interdental papilla, no root resorption of the included elements.

It's necessary a periodontal intervention to restore the gingival margin.

Retention with retainers 13 to 23 and Essix per maxillary arch were used.

CONCLUSIONS: The application of light forces associated with the monitoring of bacterial plaque and biostimulation of periodontal sockets using the diode laser allowed the control of the inflammatory state of periodontal sockets preventing their progression.

Due diversi dispositivi led a confronto in combinazione con l'acido 5-aminolevulinico nella terapia fotodinamica

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INTRODUZIONE: La terapia fotodinamica può rappresentare una valida strategia per trattare le parodontiti e le peri-

implantiti. Lo scopo di questo studio era di valutare gli effetti di due diversi dispositivi LED utilizzati per la terapia fotodinamica in combinazione con un gel (ALADENT) a base di acido 5-aminolevulinico (5-ala) al 5%. I due dispositivi LED messi a confronto sono entrambi a luce rossa ed hanno una lunghezza d'onda di 630nm±10 ma differiscono nella forma: TL-01 consiste in un singolo emettitore LED che irradia un sito parodontale per volta ideale per i casi con <3 tasche parodontali da trattare; TL-03 è un dispositivo multi-32-led che permette di irradiare contemporaneamente tutti i siti vestibolari di una singola arcata. I due LED sono stati comparati e valutati sia su colonie batteriche di *E. faecalis* sia su cellule umane della cavità orale quali fibroblasti gengivali (HGFs).

METODI: *E. faecalis* ATCC 29212 in sospensioni batteriche (108 Colony Forming Units (CFU)/mL) e 6000 HGFs sono stati considerati gruppi TEST e trattati secondo il seguente schema: TL-01N, TL-03N, TL-03F. I gruppi TEST sono stati incubati per 45 minuti con ALADENT e di seguito irradiati da TL-01 per 7 minuti o TL-03 per 15 minuti. I gruppi controllo (CTRL) erano cellule non esposte e non trattate. TL-01 irradia una superficie di 380mJ/cm² ed è posto a una distanza N=0.5 mm (TL-01N) dai campioni. TL-03 irradia una superficie di 6mJ/cm² ed avendo la forma dell'arcata vestibolare i led risultano posizionati a due diverse distanze dal campione: distanza N=0.5mm (TL-03N) e distanza F=30.0mm (TL-03F). TL-01 e TL-03 sono stati testati nei seguenti saggi cellulari: (i) saggio di tossicità LIVE/DEAD su *E. faecalis* (ii) saggio di vitalità e proliferazione MTS sulle HGFs (iii) morfologia al SEM delle HGFs. Dato che 5-ala è un precursore della Protoporfirina IX (PpIX) che una volta attivata dalla luce innesca la reazione fotodinamica all'interno della cellula, PpIX è stata quantificata nelle cellule misurandone la fluorescenza.

RISULTATI: Sia TL-01 che TL-03 in combinazione con 5-ala hanno dimostrato una significativa riduzione della carica batterica di *E. faecalis*. TL-01 ha dimostrato una maggiore attività antibatterica, ma non sono state riscontrate differenze significative rispetto a TL-03 indipendentemente dalla distanza N o F della sorgente luminosa. I saggi di vitalità e morfologia hanno mostrato che TL-01 e TL-03 sono entrambi biocompatibili ed hanno entrambi effetti pro-proliferativi sulle HGFs. Il picco di PpIX è stato riscontrato nelle cellule appena dopo il trattamento con 5-ala mentre si riduceva subito dopo l'irraggiamento con i LED.

CONCLUSIONI: Entrambi i dispositivi testati TL-01 e TL-03 hanno avuto effetti simili nel ridurre significativamente la carica di *E. faecalis* e nello stimolare la proliferazione delle HGFs in vitro, e rappresentano un nuovo metodo promettente come trattamento non chirurgico della cavità orale.

DENTAL MATERIALS

Valutazione radiografica delle variazioni dimensionali

dell'innesto eterologo in seguito a rialzo del seno mascellare con accesso laterale e simultanea inserzione dell'impianto: studio retrospettivo su 18 pazienti

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SCOPO: Lo scopo di questo studio è valutare radiograficamente le variazioni della dimensione dell'innesto in seguito all'aumento del seno mascellare mediante l'approccio laterale.

METODI: Diciotto pazienti (sette maschi), con un'età media all'intervento chirurgico di $66,5 \pm 9,8$ (range 52-82) anni, sono stati trattati unilateralmente. Sono stati inseriti trentacinque impianti nella mascellare posteriore simultaneamente all'innesto con biomateriale eterologo. E' stata fatta una analisi radiografica con radiografie intraorali al momento dell'intervento chirurgico, dopo sei mesi e al follow-up più lungo (fino a nove anni dopo l'inserimento dell'impianto). Sono state misurate le seguenti distanze: larghezza mesio-distale dell'innesto, distanza verticale dall'apice dell'impianto al livello più coronale dell'innesto, distanza dall'aspetto mesiale dell'impianto (mesiale) all'estensione mesiale dell'innesto; distanza dall'aspetto distale dell'impianto (distale) all'estensione distale dell'innesto e altezza dell'innesto lungo l'asse dell'impianto. Sono state calcolate le variazioni dimensionali rispetto al baseline, dopo sei mesi e al follow-up più lungo.

RISULTATI: L'altezza media dell'osso residuo mesiale e distale degli impianti era rispettivamente di $3,19 \pm 2,05$ mm e $2,65 \pm 1,60$ mm ($p = 0,38$). La larghezza media dell'innesto al baseline era di $27,95 \pm 5,23$ mm e la riduzione media della larghezza dell'innesto era del $10,2 \pm 12,7\%$ ($2,98 \pm 3,62$ mm) e dell' $11,3 \pm 14,4\%$ ($3,36 \pm 4,08$ mm) a sei mesi e all'ultimo follow-up. La variazione è stata significativa a sei mesi ($p = 0,005$); non ha mostrato ulteriori variazioni significative ($p = 0,11$). Sul versante mesiale e distale, l'estensione media dell'innesto è diminuita di $1,56 \pm 2,67$ mm e di $0,84 \pm 2,71$ mm all'ultimo follow-up. Non è stata trovata alcuna differenza significativa tra cambiamenti mesiali e distali ($p = 0,24$), suggerendo che il biomateriale viene riassorbito in modo omogeneo su entrambi i lati. L'altezza media dell'innesto era di $11,92 \pm 2,53$ mm al basale ed è diminuita del $9,3 \pm 9,05\%$ ($1,11 \pm 1,09$

mm) a sei mesi ($p < 0,001$). Ulteriori cambiamenti non significativi sono stati trovati all'ultimo follow-up ($p = 0,10$).

CONCLUSIONI: Dopo il rimodellamento precoce, i sostituti ossei eterologhi hanno mostrato una buona stabilità dimensionale a medio termine per l'aumento del seno mascellare.

DIGITAL DENTISTRY

The use of Digital Smile Design : working with predictability

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AIM: The use of digital tools offers a new perspective to daily clinical activities. It helps in visual communication and involvement of the patients in their own smile design process, also increasing case acceptance. The aim of this work is to present a case treated using DSD.

MATERIAL AND METHODS: This is the case of a 20- years old girl, who was complaining about her smile with "too much space between teeth". For the analysis and treatment planning of the patient it was taken the complete photograph documentation (extra and intraoral) and the dental arches were scanned in the same appointment for digital planning. With the aid of the software (Keynote-iWork, Apple, USA), lines were drawn to analyze orofacial harmonization. Length of the left central incisor was measured in the width-height ratio in order to calibrate the digital ruler. From the centrals incisors, the final drawing of the contour of the teeth was performed according to the patient's characteristics and guided by the lines drawn in the extra oral photo and by the calculated proportion. Thanks to the mock up the patient could appreciate the final result and 6 veneers were cemented from upper canine to canine (13 to 23) and gingivoplasty on upper lateral and central incisors (teeth 12-11-21 and 22) was done to correct teeth length and gingival zenith harmony.

RESULTS AND CONCLUSION: DSD (Digital Smile Design) is a method used to design and modify the smile of patients

digitally and help them to visualize it creating and presenting a digital mockup of their new smile design before the treatment starts. With the help of these integrated technologies, digital scanner and DSD, it is possible to obtain great predictability of sometimes complex treatments and exceptional communication with the patient who, at last, can follow the therapy from beginning to end, previsualizing the final smile and obtaining great advantages also in terms of time and results.

Reality augmentation and visor use in dentistry

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AIM: evaluate if virtual reality can be a tool anxiety control at all stages of treatment without representing an obstacle for the operator.

MATERIAL AND METHODS: this research analyses two articles about the use of virtual reality in dentistry including only the devices used by patients. Effectiveness of virtual reality as a distraction on anxiety and pain during impacted mandibular third molar surgery under local

Anesthesia, the use of immersive virtual reality for pain control during periodontal scaling and root planning procedures in dental hygiene clinic.

RESULTS AND CONCLUSION: The new technology VR allows to reduce stress, anxiety, and pain, regardless of the age of patients and it could be used in preparing patients before undergoing dental treatment.

PAEDIATRIC DENTISTRY

Interceptive therapy with Amcop's integral device: case report

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AIM: Elastodontic therapy is able to act on the functional disorders responsible for dental malocclusion and to promote correct development of the dental arches through the use of light and biological forces. The aim of this study is to demonstrate the potential of these devices and their ability to intercept malocclusions and to re-establish a eugenic growth in growing patients.

METHODS: In a 9-year-old female patient, in first skeletal class and first dental class, with contraction of the upper jaw due to atypical swallowing and oral breathing, slight left posterior cross-bite, upper and lower dental crowding with absence of space for the eruption of the elements 12, 22, 33 and 43, the AMCOP S INTEGRAL device was applied for 8 months 1 hour during the day and every night. This was followed by a restraining period of another 8 months in which it was recommended to use the appliance only during the night.

RESULTS: The device allowed the restoration of a correct lingual and labial function and the interception of the patient near the growth peak allowed to obtain excellent results in a very short time: reduction of the maxillary contraction with resolution of the posterior cross-bite, re-centering midline, creation of space for eruption of permanent teeth, dental alignment and first molar and canine class.

CONCLUSION: Elastodontic therapy allows to intercept malocclusions as it is capable of creating the ideal functional conditions necessary for the resolution of dental and skeletal problems in a stable manner over time. Furthermore, this case has shown that the application of these devices near the growth peak allows to accelerate their beneficial results.

Diode laser frenectomy in a pediatric patient

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AIM: The purpose of this work is to demonstrate how using the diode laser a less invasive and traumatic surgery can be performed in a paediatric patient thus achieving greater compliance associated with faster recovery.

MATERIALS AND METHODS: A 6-year-old female patient with the presence of a hypertrophic labial frenulum. On intraoral examination, the presence of an upper interincisal diastema due to extension of transseptal fibres at the level of the retroincisal papilla and reduced mobility of the upper lip is observed.

It is decided, with the consent of the parents and the little patient, to perform diode laser frenectomy. After disinfection of the surgical site, an anaesthetic spray (Lidocaine hydrochloride 15%) is applied. By means of 810 nm diode laser with continuous wave (CW) beam at 2 watts after proper preparation of 320-micron fiber, labial roof frenectomy is performed. To decrease symptomatology, cooling with air syringe or ice is provided during beam delivery.

RESULTS: Direct action on the haemoglobin chromophore and thermal effect creates haemostasis with good control of bleeding. No suturing was necessary. Intraoperative and postsurgical symptoms were unremarkable. Tissue healing occurred completely within 10 days.

The little patient overcame the fear of surgery without leaving a bad memory.

CONCLUSIONS: The optimization of the laser systems allowed for a less traumatic treatment by performing the surgery only with the application of a mild topical anaesthetic, without having to resort to the classic plexectomy that frightens the little patient. There was no need for suturing and consequently healing time was much faster and with minimal side effects.

Comparison of two protocols for early treatment of dentoskeletal class III malocclusion: modified SEC III versus RME/FM

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AIM: Class III malocclusion is a great challenge for the orthodontists because of its combined aetiology involving genetic, epigenetic and environmental factors and the consequent uncertainty of long-term stability produced by early treatment of this dentoskeletal disharmony. However, due to the worsening of this malocclusion, a correct diagnosis and early treatment can help to promote a favorable growth environment

reducing the complexity and length of the second phase of treatment, or making less difficult the surgical procedures when orthognathic surgery is still required in adulthood. Early treatments of Class III dentoskeletal disharmonies aim at controlling jaw growth along with dentoalveolar modification and correction of the eventual negative overjet.

The aim was to compare the short-term cephalometric outcomes of the protocols modified splints, Class III elastics, chincup (SEC III) and rapid maxillary expansion and facial mask (RME/FM) for the early treatment of growing subjects with Class III dentoskeletal malocclusion.

MATERIALS AND METHODS: This retrospective observational study included 20 patients (11 males, 9 females) treated with the modified SEC III protocol and 31 patients (16 males, 15 females) treated with the RME/FM one. The sample was evaluated before (T1, mean age 7.9±1.0 years) and at the end of treatment (T2, mean age 9.0 ± 1.0 years). Statistical comparisons between the two groups were performed with independent sample t tests.

RESULTS: Both the modified SEC III and the RME/FM sample groups showed significantly favorable effects in terms of maxillary advancement (SNA +1.3° and +1.5°, respectively), control of mandibular projection (SNB -0.5° and -0.8°, respectively), and intermaxillary relationships (ANB +1.8° and +2.3°, respectively; Wits +3.4 and +1.9 mm, respectively). The modified SEC III group showed a significantly greater control in the intermaxillary divergency (-2.2°). The main limitations of this study are its retrospective nature and the short-term outcomes.

CONCLUSION: Early treatment of growing patients with dentoskeletal Class III disharmonies is efficient using either modified SEC III or RME/FM protocols. However, a higher vertical control is achieved with the modified SEC III.

The relationship between orthodontic treatment need and oral health related quality of life of school children

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AIM: Malocclusion has a large physical, social and psychological impact on individual and society; therefore, epidemiological studies are essential to achieve extensive data for creating public health plans for orthodontic prevention. Malocclusion in itself is neither a disease nor a life threatening condition; nevertheless, the appearance of the mouth and a

person's smile plays a significant role in judgments regarding facial attraction. Thus, malocclusion has large physical, social and psychological impact on the individual and society. The Dental Health Component (DHC) of the IOTN index places patients in five grades from "no need for treatment" to "extreme treatment need".

MATERIALS AND METHODS: This study received approval from the Human Research Ethics Committee of the IAU University of medical sciences. Twelve schools were randomly selected among all high schools in the east, west, north, south, and center of Tehran (Iran) and a random sample of 684 (343 boys and 341 girls) aged between 15 and 17 years attending these schools was selected. Each patient was examined for orthodontic treatment need with IOTN. The examinations were conducted at school during the day, by one trained and calibrated dentist with the help of a tongue blade, mirror, probe and ruler; no radiographs were taken.

RESULTS: Almost none of the subjects with no or little treatment need and borderline treatment need had problem pronouncing words; while 26% of the male students and 30% of the female students of the definite need for treatment group had problem pronouncing words. ($P < 0.001$) About 70% of the female subjects and 43% of the male subjects of the definite need for treatment group felt tense in their life; while, only 5% of the male subjects and 4% of the female subjects of the no or little treatment need group felt tense. Chi-square test showed that all daily activities were significantly affected by treatment need.

CONCLUSIONS: Malocclusion has a negative impact on both physical and psychological aspects of the daily life of subjects who are in definite need for orthodontic treatment. These impacts are similar for both male and female subjects.

POSITIONAL PLAGIOCEPHALY IN THE DEVELOPING PATIENT: STOMATOGNATHIC DISORDERS AND PREVENTIVE MEASURES

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OBIETTIVI: Esplorare la correlazione tra plagiocefalia posizionale infantile e disturbi stomatognatici associati; preparare le linee guida per un sonno sicuro e per la prevenzione della plagiocefalia per gli specialisti della salute in età infantile.

MATERIALI E METODI: È stata condotta una ricerca bibliografica utilizzando PubMed e Google Scholar con le seguenti parole chiave: "plagiocefalia posizionale", "SIDS", "malocclusioni", "dentizione primaria".

RISULTATI: La campagna "Back to Sleep" ha ridotto in modo significativo l'incidenza della SIDS negli ultimi due decenni, ma ha contemporaneamente portato ad un aumento di casi di plagiocefalia posizionale. La plagiocefalia posizionale, le deformità craniche e il torcicollo posturale nei neonati e nei lattanti sono le asimmetrie più frequenti di postura e sono associate a disturbi orofacciali, ortodontici e delle ossa mascellari.

CONCLUSIONI: Al fine di promuovere un corretto sviluppo del sistema stomatognatico e delle sue funzioni correlate, gli odontoiatri pediatrici svolgono un ruolo essenziale nel potenziamento della prevenzione della plagiocefalia. Per una buona prognosi, è essenziale fornire una diagnosi accurata e un percorso di screening della plagiocefalia per ridurre al minimo i fattori scatenanti. È fondamentale che l'odontoiatra pediatrico intercetti e tratti precocemente le conseguenze dento-scheletriche legate a tale condizione.

PREVENTIVE AND SOCIAL DENTISTRY

Short-and long-term responsabile to BNT162b2 vaccination in 230 health staff

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AIM: Evaluate the production of IgG SARS-CoV-2 anti-Spike antibodies after vaccination with BNT162b2 and the protection from symptomatic infections in 230 in health workers, of the Polyclinic of Bari. Were also evaluated the reasons that led to a different antibody response studying the entire lymphocyte line of the 230 candidates enrolled in the study.

PATIENTS AND METHODS: This prospective observational study had as its primary endpoint the assessment of sero-logic response to BNT162b2 at three blood draws: 1st at 60 days after the second dose; 2nd draw at 75 days after the first draw; and 3rd draw at 130 days after the second draw. Overall, the antibody response was assessed in ten months circa after vaccination. Anti-SARS-CoV-2 Spike IgG antibodies were assessed with the LIAISON[®] SARS-CoV-2 TrimericS IgG assay, which can detect the presence of both binding and neutralizing antibodies to the tri-meric Spike

glycoprotein. Subjects were recruited from January 11, 2021 (first dose) and February 3, 2021 (second dose). The occurrence of vaccine-associated viral infections was assessed by RT-PCR on symptomatic/contact cases through September 30, 2021. All enrolled in the study always performed swabs every 15th of the month starting in May 2020.

RESULTS: All the patients responded to the mRNA Pfizer (BNT162b) vaccine with an antispikes IgG level above 500 BAU/ml at the first anti-spike protein Essay (60 days from the second dose); at the second draw (75 days from the first draw) 4 (1.7 % of 230 enrolled) patients showed antispikes IgG level under 500 BAU/ml; at the third draw (130 days from the second draw) 37 (16.1 % of 230 enrolled) patients showed antispikes IgG level under 500 BAU/ml. The data analysis demonstrated that patients belonging to blood group 0, regardless of their rhesus factor, showed the strongest level of antibodies compared to the others groups. While among all other enrolled no one was positive at the various molecular swab controls performed every 15 of the month continuously, although their activity was at high risk because they have carried out medical activities dental, surgical, then with droplets of water vaporized by the effect of turbines, piezosurgery.

CONCLUSION: The vaccination campaign among health workers of the Policlinico of the University of Bari "Aldo Moro" led to a complete serological response and the complete absence of COVID-19 incident cases, so the anti-body response was really excellent.

Rapid and sensitive diagnostic procedure for multiple detection of pandemic coronavirus family members Sars-Cov, Sars-Cov-2, Mers-Cov and Hcov: a translational research and cooperation between the Phan Chau Trinh University in Vietnam and University of Bari "Aldo Moro" in Italy

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AIM: A novel pandemic coronavirus producing coronavirus disease-2019 (COVID-19), first known as 2019-nCoV and then renamed Severe Acute Respiratory Syndrome Coronavirus 2, has been identified (SARS-CoV-2). The COVID-19 denotes the sickness, whereas the SARS-CoV-2 is the virus that causes SARS by a quick contagious ability capable of expanded rapidly over the world. The

increase in the number of infected individuals and deaths is cause for worry, especially when symptoms are ambiguous and comparable to other types of flu infection and corona syndrome infections, which are characterized by fever, tiredness, dry cough, and dyspnea. The diagnosis of COVID-19 must be validated by quantitative reverse transcription polymerase chain reaction (rRT-PCR) or gene sequencing of material taken from throat, sputum, and blood samples, according to the most recent World Health Organization (WHO) standards. However, constraints owing to logistics, as well as low sensitivity and specificity diagnostic techniques now available, have been described as the major reason of a high prevalence of either false-negative or positive findings.

PATIENTS AND METHODS: The increase in the number of infected individuals and deaths is cause for worry, especially when symptoms are ambiguous and comparable to other types of flu infection and corona syndrome infections, which are characterized by fever, tiredness, dry cough, and dyspnea. The diagnosis of COVID-19 must be validated by quantitative reverse transcription polymerase chain reaction (rRT-PCR) or gene sequencing of material taken from throat, sputum, and blood samples, according to the most recent World Health Organization (WHO) standards. However, constraints owing to logistics, as well as low sensitivity and specificity diagnostic techniques now available, have been described as the major reason of a high prevalence of either false-negative or positive findings.

RESULTS: Implementing an efficient and timely method for diagnosing, screening, and checking is critical to reducing and preventing additional transmission. This rRT-PCR-based approach might be extremely useful in definitively validating the outcomes of more traditional diagnostic procedures such as chest computed tomography (CT) imaging and chest ultrasonography.

CONCLUSIONS: This translational diagnostic tool will help emergency and primary care professionals, as well as out-of-hospital providers, manage persons infected with SARS-CoV-2.

Simultaneous detection of human coronaviruses (HCoVs) in 1195 patients by multiplex pcr: a critical asset to fight the pandemic

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AIM: This study aimed to evaluate the ability of rapid and sensitive diagnostic procedures for multiple detections of pandemic Coronaviridae family patented by the University "Aldo MORO" of Bari, collaborating with the University Pham Chau Trinh, Danang City (Vietnam) to detect seven respiratory viruses, SARS-CoV-2, SARS-CoV, MERS-CoV and four HCoVs, in clinical specimens collected from individuals with suspected of COVID-19. We have introduced some modifications to the protocol to stress the test's qualities further. Additionally, we evaluated the stability of the multiplex rRT-PCR Master mix conferred by the enzyme stabilizer.

PATIENTS AND METHODS: A total of 1195 nasopharyngeal swabs were collected from patients suspected of COVID-19, between the 01 July 2021 and 31 January 2022, from several hospitals in Apulia (Italy) and subsequently sent to Genetic and Molecular Epidemiology Laboratory of Experimental Zooprophyllactic Institute of Apulia and Basilicata (IZSPB).

Viral RNA was extracted from nasopharyngeal swabs in virus transport medium (COPAN's Collection & Transport Kits for COVID-19). RNA extraction was performed from 200 μ L of the virus transport medium using the QIAamp 96 Virus QIAcube HT Kit (Qiagen) according to the manufacturer's instructions. To each samples we added 20 μ L of PEDV, a Positive Control (PC) previously diluted in 200 μ L of TE [25], which consist in the intact and inactive virus. This PC was used as external control during the RNA extraction procedure. The extract RNA was used as template to test the assay and then stored at -80°C.

RESULTS: The RNA purified from 1195 nasopharyngeal specimens were tested with the multiplex PCR assay. Overall, the assays showed a percent positive of 69% (835/1195) to SARS-CoV-2. In order to evaluate the stability of the two multiplex rRT-PCR master mix over time, the multiplex rRT-PCR assay was repeated on a total of 321 SARS-CoV-2 positive RNA extracts, stored at -80°C, six months after the first diagnosis. In agreement with this result no statistical significance was found when comparing Ct values between the two sessions ($P > 0.05$).

CONCLUSIONS: The assay has excellent performance and the reagent cost relatively low, make this method ideal for large-scale population screening. One limitation of the assay is the impossibility to identify the variants of viruses detected, because it gives information about the presence or absence of virus in samples tested. No less important is also the advantage of disposing of two multiplex rRT-PCR master mix, which remains stable over time thank to the addition of the enzyme stabilizer. These advantages make the assay rapid and easy to use.

Cavo orale ed endometriosi: l'interdisciplinarietà nella intercettazione e gestione della patologia

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INTRODUZIONE: L'endometriosi è una patologia infiammatoria in cui l'endometrio funzionale è presente in posizioni diverse dal rivestimento interno dell'utero. Colpisce il 10-20% delle donne in età fertile, nel 20-25% dei casi è asintomatica. Alcuni studi evidenziano la condivisione di una comune patogenesi tra malattia parodontale ed endometriosi.

OBIETTIVI: Scopo del lavoro la valutazione delle possibili correlazioni tra l'endometriosi e le malattie parodontali, il ruolo della dieta, l'importanza della fisioterapia delle cavità pelviche e gli effetti sulla qualità della vita delle donne affette. Il progetto di ricerca ha coinvolto diverse figure professionali.

TARGET: Donne affette da endometriosi di età compresa tra i 15 e i 45 anni

MATERIALI E METODI: E' stata condotta una indagine conoscitiva attraverso l'elaborazione di un questionario costituito da 45 domande somministrato a gruppi di donne affette da endometriosi iscritte a community dedicate, su Fb. All'indagine hanno aderito 4079 donne. Le domande sono state strutturate per ottenere informazioni sull'endometriosi, sul tipo di terapia, su eventuali segni e sintomi orali (percezione dello stato di salute orale, problemi parodontali) e altre patologie su base immunitaria. Sono state indagate le abitudini di igiene orale e alimentari, l'attività fisica e la qualità di vita. I dati sono stati raccolti dal mese di Aprile a Giugno 2021.

RISULTATI: L'analisi dei dati ha evidenziato che il 45,9% delle donne affette ha ottenuto una diagnosi di endometriosi oltre il 7° anno dalla comparsa della sintomatologia, il 49,7% è al IV stadio della patologia. Per le manifestazioni orali il 34,9% delle pazienti, da quando soffre di endometriosi, ha notato problematiche a livello del cavo orale peggiorate o non risolte (gengivite, parodontite, sanguinamento gengivale, afte, secchezza della bocca). I risultati hanno mostrato altresì, una scarsa consapevolezza da parte di odontoiatri e igienisti dentali, sulle possibili correlazioni tra le due patologie.

CONCLUSIONI: Il ritardo diagnostico è la causa del peggioramento dell'endometriosi e degli effetti ad essa correlati. Questa indagine ha messo in forte evidenza la scarsa consapevolezza della relazione tra endometriosi e manifestazioni orali tra gli stessi professionisti con conseguente scarsa considerazione dei sintomi riferiti dalle pazienti.

SPECIAL DENTISTRY

Orthodontic treatment in cancer survivors: an overview

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AIM: Some cancer therapies can have an impact on the craniofacial growth and the development of teeth. Aplasia, enamel disruption, early apical closure, and halted root growth are common side effects of cancer treatment. For these reasons, this category of patients often presents the need for orthodontic treatment. There are no well-defined guidelines regarding precautions to be taken during orthodontic treatment of patients after cancer even if the risks of problems during orthodontic treatment are particularly high for cancer patients, so understanding them is crucial. The purpose of this search is to identify some recommendations for the orthodontic care of cancer survivors and to comprehend treatment options available to these patients.

METHODS: A literature search was conducted on PUBMED and Google Scholar database using the following keywords were used: orthodontics, oncological patients, pediatric cancer survivors, antineoplastic treatment, and childhood cancer. Studies that examined orthodontic treatment plans for cancer patients were analysed.

RESULTS: Before starting orthodontic treatment in a patient who has a history of a neoplastic disease it is crucial to consult an oncologist since the patient's health state and prognosis should be taken into account in his treatment. In the literature there can be found recommendations to start orthodontic treatment at least 2 years after cancer therapy has finished, when the patient's oncological disease is in a condition of permanent remission. In order to reduce the danger of root resorption, it is advised to apply light forces, use simple mechanical treatment and finish the orthodontic treatment in a short period of time. Furthermore, a two to three month respite from therapy after the first six months of active treatment has also been shown to lower the risk of advanced root resorption. These patients should be encouraged to practice excellent oral hygiene since their decreased salivary flow makes them more vulnerable to infection and caries. In addition, children cancer survivors have an increased risk of ulceration due to mucosal atrophy; so non-irritating orthodontic

appliances should be taken into consideration. Another caution is to use one should consider the use of aesthetic brackets without metal components in patients undergoing periodic MRI examinations so as to avoid artifacts during imaging examinations.

CONCLUSION: Patients with cancer should have the same access to orthodontic care as children in good health, but orthodontists may need to take additional care in treatment planning. To prevent negative orthodontic treatment outcomes in these individuals, a thorough intervention plan must be used.

Prosthetic and orthodontic management of patients with ectodermal dysplasia

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AIM: Ectodermal dysplasia is a rare congenital disease that affects the ectodermal structures, including teeth, nails, hair, and sweat glands. Here we present the case of a young patient treated both with orthodontic and prosthetic solution to improve speech, masticatory function and facial esthetics.

MATERIAL AND METHODS: Hypohidrotic ectodermal dysplasia is the most common type, with oligodontia being the most striking dental feature. This is a case report of a 12-year-old Italian girl with oligodontia caused by ectodermal dysplasia. The patient's intraoral examination revealed that only ten teeth were present (upper primary second right molar, upper permanent first molars, upper permanent canines, upper permanent central incisors, lower primary right canine, and lower permanent canines). Her upper permanent incisors had a history of dental treatment with two big restoration to make them look like ideal central incisors for aesthetic reasons. But they presented a big diastema yet. The patient exhibited a deep overbite and thin atrophic knife-edge alveolar ridges with loss of vestibular height, especially in the mandibular arch. Radiographic investigations included a panoramic radiograph that revealed the absence of other dental elements.

The treatment started with a small orthodontic phase to close the big diastema between elements 11 and 21. A sectional appliance included aesthetic brackets from 11 to 21 was used and a 0,016 NiTi archwire was engaged for 2 months. Then a 0,016 x 0,022 NiTi archwire was

used with an elastic chain that was activated 4 times. The two elements were splinted with a fix retainer and Complete dentures were constructed for the patient by a conventional approach.

RESULTS AND CONCLUSION: Orthodontic treatment and Prosthetic rehabilitation in children with ectodermal dysplasia is an important step toward improving their overall quality of life. Significant improvement in speech, masticatory function and facial esthetics was achieved. Removable prosthodontics can provide an acceptable solution to esthetic, functional and psychological rehabilitation in patients with this congenital disease.

Schinzel-Giedion syndrome and orthodontic treatment: a case report

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OBIETTIVO: L'obiettivo di questo case report è quello di valutare il quadro clinico, la necessità di trattamento ortodontico, il successo e le complicazioni dello stesso in una paziente affetta da sindrome di Schinzel-Giedion, malattia genetica rara a trasmissione autosomica dominante, causata dalle mutazioni nel gene SETBP1 (18p21.1) e caratterizzata da dismorfismi facciali, idronefrosi, grave ritardo nello sviluppo, malformazioni scheletriche, anomalie genitali e cardiopatie. Prevalenza: <1 / 1.000.000.

MATERIALI: Paziente di 11 anni presenta all'esame obiettivo una II classe dentale con cross-bite di 63 e 22, tendenza all'inclusione canina superiore, affollamento moderato superiore e inferiore, palato ogivale, deglutizione atipica. La sindrome genetica di cui è affetta si associa ad un quadro di piastrinopenia con conta piastrinica inferiore a 70.000 unità. Ipersensibilità orale e selettività alimentare per consistenze. Da un punto di vista neuro-cognitivo la paziente presenta una disabilità intellettiva di grado lieve-moderato, disturbo del linguaggio e della coordinazione motoria. Si effettua indagine radiografica mediante ortopantomografia e telecranio latero-laterale per valutazione della fase di permuta e analisi cefalometrica.

RISULTATI: Dall'analisi cefalometrica si evince una I classe scheletrica caratterizzata da una retrusione mascellare e una retrusione mandibolare. Iperdivergenza scheletrica con piano occlusale in postrotazione e piano bispinale in normorotazione. Normoinclinazione

degli incisivi inferiori ed una vestibolo-inclinazione degli incisivi superiori. OVJ nella norma e un OVB ai limiti dei parametri di normalità. Profilo concavo con normoposizione del labbro superiore e del labbro inferiore. Dalla valutazione della fase di permuta si evidenzia un'asimmetria nell'eruzione degli elementi permanenti per avulsione precoce degli elementi decidui resa necessaria dalla presenza di un pregresso ascesso odontogeno. Ritardo nel tragitto eruttivo dei canini superiori. Parametri predittivi di inclusione secondo Ericson e Kurol: elemento 13 con angolo di 19,4°, distanza piano occlusale-cuspide 25,5 mm, settore 4; elemento 23 con angolo di 15,7°, distanza piano occlusale-cuspide 23,5 mm, settore 3.

CONCLUSIONI: Il quadro clinico di ritardo di eruzione dei canini e di affollamento moderato dell'arcata superiore e inferiore suggerisce una prima fase di espansione ortopedico-ortodontica del mascellare superiore. La sindrome di Schinzel-Giedion rappresenta tuttavia un'incognita per definire la predicibilità del trattamento e le possibili complicazioni anche associate alla piastrinopenia di cui è affetta la paziente. Non sono ancora disponibili conclusioni esaustive poiché la paziente è tutt'ora in fase iniziale di terapia. Ulteriori risultati saranno pubblicati con il procedere del piano di cura.

Multidisciplinary management of cleft lip and palate: case report

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AIM: Cleft lip and palate (CLP) is the most common congenital malformation of the craniofacial region due to genetic and environmental factors. A lack of fusion of the maxillary, palatine and frontal-nasal processes, causes an abnormal development of the maxillofacial region. These patients frequently have dental anomalies, including agenesis, supernumeraries, and transpositions, especially in the cleft region. The aim of this work is to demonstrate how this type of pathology requires a multidisciplinary approach.

METHODS: In order to improve her smile, a 16-year-old female patient with unilateral right CLP was referred to the dental department of Policlinico of Bari. When she was 6 and 24 months old, she underwent primary lip repair and palatoplasty, respectively. She comes to our attention with a constricted upper

arch, significant lower crowding, transposition of 1.3, palatinization of 1.4, inclusion of 2.3, and agenesis of 2.5. From the clinical and cephalometric evaluation it is clear that she is in the first dental and skeletal class with a tendency toward the third.

Orthodontists and surgeons planned the following procedures after the evaluation of RX-OPT, T-LL, and TC CONE BEAM: cementation of a lingual arch welded on molar bands and extraction of teeth 3.4 and 4.4 to alleviate lower crowding with maximum anchorage; alignment and leveling of the upper arch following the extraction of the impacted canine and the use of a palatal expander with fan screw.

RESULTS: The surgery was performed under general anesthesia. A trapezoidal flap was incised and the osteotomy was performed to access the included 2.3 and extract it. The flap was then repositioned on the bone gap and sutured with a horizontal mattress suture technique. At the same time 3.4 and 4.4 were also extracted. PRP was applied to all surgical sites to facilitate healing.

CONCLUSION: Individuals born with CLP are complex patients in their management. The timely approach in these cases is essential and it is advisable that a team of experts follow the patient from birth to adulthood in order to improve his quality of life, facial and dental aesthetics and often compromised stomatognathic function.

Caratteristiche orofacciali in due fratelli affetti da neurofibromatosi di tipo 1

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OBIETTIVO: La neurofibromatosi di tipo 1 (NF1) è una malattia genetica autosomica che può colpire diversi organi, tra cui il distretto orofacciale. Le manifestazioni più frequenti della malattia sono caratterizzate da neurofibromi multipli, che sono tumori benigni della guaina nervosa, noduli di Lisch, noti anche come amartoma dell'iride, e aree di pelle pigmentata in modo anomalo, tipicamente localizzate nella zona ascellare e inguinale, chiamate macchie caffè-latte. La NF1 è anche associata a lesioni ossee, anomalie dentali e malocclusioni, carie e manifestazioni parodontali. Si osservano spesso deformità delle mascelle e allargamento del canale alveolare inferiore, associati a un'augmentata attività osteoclastica e allo sviluppo di neurofibromi plessiformi. Lo scopo di questo lavoro è

illustrare e confrontare le manifestazioni orofacciali della patologia in due fratelli con NF1 afferiti al reparto di odontoiatria del Policlinico di Bari.

METODI: Due fratelli, una femmina di 12 anni e un maschio di 8 anni, affetti da NF1, con alterazioni del sistema nervoso centrale e periferico, lentiggini ascellari e inguinali, e macchie caffè-latte, sono stati visitati nel reparto di Odontoiatria dell'Università di Bari.

Per entrambi i pazienti è stata eseguita una radiografia panoramica, è stato riscontrato l'allargamento del canale mandibolare, un ritardo nell'eruzione dei denti permanenti assenze di agenesie o denti soprannumerari e le teste condilari della femmina appaiono più sottili del normale. Sono stati valutati parametri clinici quali anomalie ossee e cutanee evidenti, la salute parodontale, dimensioni trasversali e verticali, relazione molare secondo la classificazione di Angle, malocclusioni dentali, overjet e overbite.

RISULTATI: l'esame extraorale di entrambi i pazienti ha rivelato sulla pelle del viso e del collo la presenza di 5/6 macchie caffè-latte >15 mm, e non è stata riscontrata alcuna evidente deformità facciale.

L'esame intraorale di entrambi i pazienti ha evidenziato indice di placca elevato, punteggio di sanguinamento elevato, iperplasia gengivale, una maggiore predisposizione allo sviluppo della carie, macroglossia, deglutizione atipica, un grave affollamento dentale, e maggiore probabilità di avere inclusione dei canini superiori.

La paziente femmina ha una seconda classe dentale, con morso aperto e overjet aumentato, mentre il maschio ha una tendenza alla terza classe dentale, con denti frontali testa a testa e morso crociato posteriore unilaterale destro.

CONCLUSIONE: nei pazienti con NF1 è importante la collaborazione tra dentisti e genetisti clinici per ottenere una diagnosi precoce, al fine di coordinare e attuare i trattamenti terapeutici nei tempi più idonei.

ORTHODONTICS

Corticotomy and aligners for fast and aesthetic orthodontic treatment

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AIM: The purpose of our study is to encourage patients for orthodontic treatment by limiting the duration and improving aesthetics.

MATERIAL AND METHOD: A 37-year-old man with bilateral tooth class I (molar and canine), deep bite, moderate inferior crowding, and a midline deviated 2mm to the right. The man had a healthy periodontium on objective examination and unresorbed inferior alveolar bone on CBCT examination. A combined treatment of corticotomy and aligners was proposed. The attachments were placed before the surgical procedure. The surgical procedure was performed after opening a full-thickness flap, and interproximal corticotomy cuts were extended through the entire thickness of the cortical layer, barely penetrating the medullary bone. Immediately after surgery, an orthodontic force was applied.

Each aligner was worn for 22 hours daily and changed every 4 days.

RESULT: The alignment was completed in 4 months due to the corticotomy, which significantly accelerated the treatment duration.

CONCLUSION: We can say that the combination of corticotomy and aligners encourages the patient to have an effective, fast, and aesthetic treatment.

Surgical-orthodontic recovery of a buccally included upper canine with low-friction technique and expansion of the arches

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AIM: To demonstrate by means of a clinical and radiographic diagnosis the correct position of the included canine in order to use the most effective surgical-orthodontic technique for repositioning the dental element in the dental arch obtaining a more stable result.

MATERIALS AND METHODS: Patient T.G., 15 years old, with vestibular inclusion of 1.3 and slight upper and lower tooth crowding, presented with Class II skeletal malocclusion and deep bite teeth. On the initial orthopantomography X-ray, specific angular and linear predictive parameters were measured in order to define the position of the malpositioned canine. The following were analysed: overlap sector s , angle α , and distance d according to Ericson-Kurol. The bonding of the two arches was then carried out using the Low-Friction technique. In the initial stages, tooth alignment was carried out with 0.14 Cu.Ni.Ti arches. After removing

the deciduous 5.3, and through vestibular surgical incision and bone operculum, the canine 1.3 was visualised and bonded. The 0.14 arch was replaced with 0.16x0.25 Cu.Ni.Ti and then 0.18 S.S. to take full advantage of the anchorage concept and at the same time the canine was traced with 0.13 Cu.Ni.Ti arch in the arch. Once the eruption of the canine had taken place, we then continued with the classic arch sequence until the correct occlusion was achieved.

RESULTS: According to our study using the Ericson-Kurol scheme: the crown of the impacted canine is in sector 1. The angle α between the long axis of the canine and the interincisive midline is 12° . The perpendicular distance of the vertex of the cusp of the impacted canine is 21 mm to the occlusal plane. The data obtained (the position of the sector, the distance d , and the alpha angle of less than 15°) are favourable, according to Ericson-Kurol, for the surgical-orthodontic recovery of the included canine and its dental stability in the arch.

CONCLUSIONS: Through a correct diagnosis being able to predict and prevent the inclusion of the permanent maxillary canine in late mixed dentition is of extreme importance as it reduces the complexity of the treatment plan, in terms of devices used, time and cost of therapy.

The effectiveness of neuro-occlusal rehabilitation treatment in II class-deep bite

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AIM: The study's goal was to assess the effectiveness of neuro-occlusal rehabilitation utilizing Planas devices to treat a deep bite malocclusion of II dento-skeletal class in growing patients, and to compare the results in hyperdivergent and hypodivergent participants.

MATERIAL AND METHODS: 11 individuals were recruited from the Polyclinic of Bari's Department of Orthodontics and other private clinics. The subjects, whose ages range from 8 to 14 years old, had a deep bite and a dento-skeletal II class, and they received Planas device treatment. Pre and Post latero-lateral radiographs were taken for each patient; cephalometric data were made: SNA, SNB, ANB, SN-GoGn, Intermaxillary angle, and linear Co-Gn. The sample was split into the hypo-divergent and hyper-divergent groups. The follow-up was at 18-24 months.

RESULTS AND CONCLUSION: After employing Planas' device,

the hypodivergents' SNA decreased, meanwhile in the hyperdivergents' slightly increased. In both groups, SNB rose. ANB was mostly decreased in hypodivergents. The amount of Co-Gn increased. While SN-GoGn increased in the hypodivergent group, it drastically dropped in the hyperdivergents. The intermaxillary angle showed a statistically significant difference, increasing in hyperdivergents and decreasing in hypodivergents. Maxillary sagittal relations improved as a result of the therapy. Therefore, Planas appliances are effective for treating hyperdivergent individuals as well as growing patients with deep bites and II class.

Skeletal maturity estimation in orthodontics: comparison between the third finger middle phalanx and cervical vertebral method

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AIM: This study compared the cervical vertebral maturation method (CVM) with the third finger middle phalanx (MPM) maturation analysis to determine whether there was any diagnostic agreement between the various maturation phases, notably in the assessment of the growth peak.

METHODS: A lateral cephalogram and an X-ray of the middle phalanx of the third finger were taken for each of the 55 patients (28 F and 27 M, ages 8, 0 to 17, 6), who were awaiting orthodontic treatment at the orthodontic division of the Polyclinic of Bari. Fishman, Hagg, Taranger, Rajagopal, Kansal's MPM index and Baccetti et al. CVM's analysis were both registered. Each patient was given a stage of the CVM method and the matching stage of the MPM method, with the patients being split by gender. The mean, maximum, and average ages at which each CVM and MPM maturation stage occurred in both sexes were computed, and then their distributions were compared. The concordance between the six MPM and CVM maturation phases was assessed. The stages were divided into three groups: prepubertal (MPS1-MPS2, CS1-CS2), pubertal (MPS3-MPS4, CS3-CS4), and postpubertal (MPS5-MPS6, CS5-CS6).

RESULTS: The findings demonstrated an 88.9% diagnostic agreement between CVM and MPM with a concordance index of $K=0,899$ and a 92.72 % agreement between the growth stages of prepubertal, pubertal, and

postpubertal development.

CONCLUSION: For analyzing pubertal spurt (MPS3-MPS4) in orthodontic diagnosis, the MPM approach could take the place of the CVM method.

Surgical-orthodontic treatment of a enclosed mandibular canine

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AIM: This paper documents a case of inclusion of the mandibular right canine in the arch with orthodontic surgical treatment.

MATERIAL AND METHODS: Some of the causes of canine bone inclusion are: failure to resorb the deciduous canine, obliteration of the gubernaculum dentis with loss of eruptive guidance, lack of space in the arch, ect. In a patient aged 11.5 years, the absence of permanent canines and retention of deciduous canines is found in the dental arches. After an evaluation with orthopantomographic radiographs a dental inclusion of the 4.3 element with the crown inclined towards the apices of the lower incisors 4.1 and 4.2 is shown.

An X-ray CBCT was also performed for correct planning of the operation, the location of the dental elements and anatomical structures.

After local anaesthesia the avulsion of the deciduous element (8.3), the execution of a full-thickness flap with a mesial vertical incision at 4.1 to expose the cortical bone and the crown of 4.3 was performed. Using an adhesive technique, an orthodontic button was placed on 4.3 to which a metal ligature was attached for traction in the arch and finally, non-absorbable sutures were applied.

RESULTS: Correct repositioning in the dental arch was achieved 8 months after surgery and orthodontic traction of the included canine.

CONCLUSIONS: The success of the orthodontic surgical therapy of the included canine depends on an early and accurate diagnosis made with dedicated clinical and radiological examinations such as rx OPT and CBCT considering some predictive factors of the dental eruption such as the axis of eruption of the included canine, persistence of the corresponding deciduous tooth, necessary space in the dental arch.

MARPE: the digital workflow

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AIM: A digital workflow is a useful tool in determining the most accurate treatment strategy for young, borderline patients with transversal discrepancies. In this case report, the digital plan helps the clinician in most phases of treatment. The digital diagnostic setup of the outcome was used as a guide to assess the amount of expansion needed to minimize dental side effects. With Cone Beam CT (CBCT) examination, the staging of the palatal suture was evaluated to choose the most adequate treatment plan, and with a CAD-CAM guide for miniscrew insertion designed digitally, the clinical procedure has been shown reliable and predictable. This case report shows the correction of the transversal discrepancy using miniscrew- assisted rapid palatal expander (MARPE).

MATERIAL AND METHODS: This is a case report of a 10+6 year old female patient who had menarche six months before therapy began. She had permanent dentition, an ogival-shaped palate, a transversal discrepancy, crowding upper and lower arch, presence of dental compensation. First of all, we realized the digital setup of the final result, removing all the dental compensation and correcting the crowding; using the digital setup we calculated the amount of skeletal expansion needed and it was about 6 mm.

Then we did the midpalatal suture morphology stadiation with CBCT scan (Angelier et al); the patient results in stage C, in which fusion of the suture already has occurred partially or totally, and so it is suggested to perform surgically assisted RME.

Therefore, we used a hybrid rapid palatal expander on 2 miniscrews, giving 5 turns at the moment of insertion, and then 1 turn per day for 20 days.

RESULTS: We achieve a skeletal maxillary expansion of 6 mm, avoiding dental compensation on first molars, which is the negative side effect of traditional rapid maxillary expansion.

CONCLUSION: In borderline cases the digital setup, supported by midpalatal suture stadiation through CBCT scan can help the decision making, most of all .

Effectiveness of orthopedic treatment in class III malocclusion in growing patients with Rapid maxillary

expansion modified followed by facemask

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AIM: Combined treatment with Rapid Palatal Expander followed by Delaire face mask is a valid therapeutic approach for correcting skeletal Class III malocclusion in mixed dentition. Exspansion and actives circummaxillary suture promoting maxillary advancement effectively IF FACEMASK IS APPLIED IMMEDIATELY AFTER RPE activation.

MATERIALS AND METHODS: Patients aged 6 to 10 years with class III malocclusion characterized by maxillary retrognathism and narrow palate. The patients were treated with two activations of RPE every day for twenty days and after with facemask for eight months. The cephalometric parameters analysed: SNA, SNB, ANB, the inclination of lower incisor on the mandibular plane (IMPA) and the inclination of upper incisor on the bispinal plane.

RESULTS: By cephalometric analysis, in both two cases result an increase of upper incisor inclination on byspinal plane (1,5 degree) and SNA (about 2 degree) improving ANB. A decrease of SNB (1,5 degree) and IMPA (about 1 degree) are recorded while the other parameters remain the same.

CONCLUSIONS: The combined treatment of rapid palate expander and immediately application of the facemask, results more effective than conventional protocols for the correction of Class III by maxillary deficiency. Growth's age and stage are fundamental for the timing of treatment.

Anterior crossbite treatment in 8 years old patient with Amcop appliance: case report

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AIM: This case report wants to describe the elastodontic therapy with Amcop appliance to solve a functional anterior crossbite in an 8 years old patient.

MATERIALS AND METHODS: An 8 years old patient was referred to our clinic with I class malocclusion with crowding of the upper and lower arch, anterior crossbite, and anterior displacement of an inferior central incisor, with poor hygiene and some decay on primary teeth. The patient needed before starting orthodontics a better hygiene and the resolution of dental problems. Motivation for improving oral hygiene and some extraction and fillings of primary teeth were done before starting orthodontic therapy. During the first week the patient was asked to wear AMCOP OS3 integral during the day for 1 hour and not during the night to better tolerate the appliance at the beginning.

After 1 week the patient started to wear the AMCOP for 1 hour during the day and during all the night. After 8 weeks the crossbite was almost solved, hygiene quality was better and the lower incisor started to retrocline and improved its position.

After some months the upper and lower arches were more aligned, less contracted, and it was necessary to do some selective enamel reduction on the primary left lower canine to help anterior crossbite resolution.

RESULTS: After 6 months the patient was instructed to wear the AMCOP appliance only during the night and anterior crossbite and crowding were solved. It was evident how solving the lower incisor displacement its periodontal tissues were improved too.

CONCLUSION: This case report showed how with little collaboration AMCOP can be very helpful to treat malocclusion in growing patients with anterior dental crossbite.

A case report about the hybrid therapy for correcting premolar rotation

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AIM: Mesiodistal tipping is the dental most predictable movement to do with aligners instead rotation is one of

the most difficult movements to obtain. Here we present a clinical case treated using both aligners and braces to solve the mesial rotation of tooth 35.

MATERIAL AND METHODS: This is a case report of a 25 years old female patient with class I malocclusion and upper and lower crowding. Tooth 35 was 45° mesial rotated. The treatment started with aligners and the patient wore each aligner 22/24h per day for 10 days.

After 10 aligners, tooth 35 did not move as predicted in the initial clincheck, so the decision was to improve the distal rotation using conventional braces.

Sectional appliance included brackets from tooth 36 to tooth 33 and a 0,014 NiTi archwire was engaged. After 6 weeks a 0,016 NiTi archwire was engaged .

Last phase of the treatment was completed with a set of 12 aligners. The patient wore each aligner 22/24h per day for 10 days.

RESULTS: After three months of fixed appliance, the mesial rotation of the element was corrected and the case was completed with 12 additional aligners to solve the anterior crowding.

The rotation of tooth 35 and, subsequently, a good outcome of the therapy were made feasible by combining both the conventional multibraces treatment and aligners. Therefore, after using a first set of aligners for 4 months and then the traditional braces for 2 months, the patient had to use the second set of aligners for only 3 months.

CONCLUSION: The combination of both traditional multibraces treatment and aligners made it possible to obtain the rotation of tooth 35 and, consequently, a rapid positive outcome of the therapy and less discomfort for the patient.

Arch changes evaluation after rapid maxillary expansion and two different transpalatal arches in mixed dentition

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AIM: Rapid maxillary expansion (RME) is a dentofacial orthopedic treatment often used to treat patients with narrow palate and transverse maxillary growth deficiency. This treatment leads to correction of posterior dental crossbites, coordination of the upper and lower arches and gain of arch perimeter. To maintain the results obtained with RME and to limit or avoid the relapse, the use of Transpalatal Arch (TPA) is recommended. The aim of this retrospective study is to evaluate the short-term maxillary changes in patients

treated with RME followed by TPA without or with palatal arms evaluated on digital dental casts.

MATERIALS AND METHODS: A total of 30 patients, 16 females and 14 males (ranged between 9 and 12 yrs, mean age: 9.7 yrs) with Class II malocclusion and maxillary constriction were included. They were treated with Hyrax- type expander that was followed by two different types of TPA without or with anterior arms extended to canines (TPAa). Dental casts were collected for each patient before treatment (T0), after maxillary expansion (T1) and after the use of TPA or TPAa (T2).

The intercanine, interpremolar and intermolar widths, arch length and perimeter were measured on digital casts using Viewbox software. The level of statistical significance was set at $P < 0.05$ for all statistical tests. Intra- and inter-examiner method of error was calculated to avoid any performance bias for each measurements.

RESULTS: No statistical differences were found at T0. After maxillary expander (T1), all transverse measurements were significantly increased with no statistical significant differences between two groups. The comparison between the two groups between T1 and T2 showed significant differences with higher stability of TPAa in the transversal widths while TPA group showed significant relapse ranging between 1.72 and 4.13 mm. No differences were found between groups at T2 in arch length and perimeter.

CONCLUSION: At the end phase of expansion, teeth showed a significant decrease after TPA treatment.

The use of modified TPA with arms to canines showed higher stability than conventional TPA. Thus, results confirm the hypothesis that TPA with arms may allow maintaining dental transverse dimensions better. Statistically significant differences in dental measurements were found between TPA with arms and conventional TPA. The change in A-P length and arch length was not significant. TPA with arms up to the canines allows us to maintain and also to improve the results obtained during the expansion treatment.

Corticotomy and aligners for fast and aesthetic orthodontic treatment

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Aim: The purpose of our study is to encourage patients for orthodontic treatment by limiting the duration and improving aesthetics.

Material and method: A 37-year-old man with bilateral tooth class I (molar and canine), deep bite, moderate inferior crowding, and a midline deviated 2mm to the right. The man had a healthy periodontium on objective examination and unresorbed inferior alveolar bone on CBCT examination. A combined treatment of corticotomy and aligners was proposed. The attachments were placed before the surgical procedure. The surgical procedure was performed after opening a full-thickness flap, and interproximal corticotomy cuts were extended through the entire thickness of the cortical layer, barely penetrating the medullary bone. Immediately after surgery, an orthodontic force was applied.

Each aligner was worn for 22 hours daily and changed every 4 days.

Result: The alignment was completed in 4 months due to the corticotomy, which significantly accelerated the treatment duration.

Conclusion: We can say that the combination of corticotomy and aligners encourages the patient to have an effective, fast, and aesthetic treatment.

Functional treatment of unilateral posterior cross bite with elastodontic device: case report

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AIM: Cross bite is a type of malocclusion resulted from a negative transverse discrepancy between the maxilla and the mandible. Functional unilateral crossbite is characterized by mandibular shift toward the cross side leading to a midline deviation. Patient with this malocclusion may develop face asymmetry due to a decreased development on the cross bite site and a greater growth on the other. Early treatment is important to avoid long-term effects on normal growth of jaws. This case report shows the treatment of a unilateral cross-bite in early mixed dentition with elastodontic device.

MATERIALS AND METHODS: Male patient, 6.5-year-old, with unilateral right crossbite, right lower midline deviation, contraction of the upper arch, lack of space for the eruption of elements 1.2 and 2.2 and mild class II malocclusion. The treatment plane involved the use of the bioactivator A.M.C.O.P.[®] Integral S which has a flat occlusal plane. The patient used the device overnight

and 1 hour during the day.

RESULTS: After 18 months of treatment, there was upper arch expansion, correction of the unilateral crossbite and crowding resolution in the anterior sector. The harmonization of the two arches, a correct intercuspation and the coincidence of the upper and lower median lines were also achieved.

CONCLUSIONS: Treatment with the A.M.C.O.P.[®] device has shown to be efficient in solving patient's malocclusion requiring minimal collaboration and management. Elastodontic therapy allows to prevent, intercept, and treat malocclusions at an early age favouring the healthy growth of tooth-skeletal systems and restore normal muscular activities rebalancing the perioral, oral and lingual musculature.

Surgical-orthodontic recovery of a buccally included upper canine with low-friction technique and expansion of the arches

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AIM: To demonstrate by means of a clinical and radiographic diagnosis the correct position of the included canine in order to use the most effective surgical-orthodontic technique for repositioning the dental element in the dental arch obtaining a more stable result.

MATERIALS AND METHODS: Patient T.G., 15 years old, with vestibular inclusion of 1.3 and slight upper and lower tooth crowding, presented with Class II skeletal malocclusion and deep bite teeth. On the initial orthopantomography X-ray, specific angular and linear predictive parameters were measured in order to define the position of the malpositioned canine. The following were analysed: overlap sector s , angle α , and distance d according to Ericson-Kurol. The bonding of the two arches was then carried out using the Low-Friction technique. In the initial stages, tooth alignment was carried out with 0.14 Cu.Ni.Ti arches. After removing the deciduous 5.3, and through vestibular surgical incision and bone operculum, the canine 1.3 was visualised and bonded. The 0.14 arch was replaced with 0.16x0.25 Cu.Ni.Ti and then 0.18 S.S. to take full advantage of the anchorage concept and at the same time the canine was traced with 0.13 Cu.Ni.Ti arch in

the arch. Once the eruption of the canine had taken place, we then continued with the classic arch sequence until the correct occlusion was achieved.

RESULTS: According to our study using the Ericson-Kurol scheme: the crown of the impacted canine is in sector 1. The angle α between the long axis of the canine and the interincisive midline is 12°. The perpendicular distance of the vertex of the cusp of the impacted canine is 21 mm to the occlusal plane. The data obtained (the position of the sector, the distance d , and the alpha angle of less than 15°) are favourable, according to Ericson-Kurol, for the surgical-orthodontic recovery of the included canine and its dental stability in the arch.

CONCLUSIONS: Through a correct diagnosis being able to predict and prevent the inclusion of the permanent maxillary canine in late mixed dentition is of extreme importance as it reduces the complexity of the treatment plan, in terms of devices used, time and cost of therapy.

The simultaneous use of twin block and multibrackets therapy in a patient with ii class malocclusion affected by hypogonadism: case report

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AIM: aim of this case is to report the effects of II class orthodontic treatment with twin block combined with multibrackets therapy during growth hormone (GH) administration in a 13-year-old patient affected by hypogonadism.

MATERIALS AND METHODS: A 13-year-old patient, female, in complete permanent dentition, showed a dental II class division 2 malocclusion, severe deep bite and scissor bite of 1.4. The patient was affected by hypogonadism in therapy with growth hormone (GH) and estrogen. Cephalometric findings revealed skeletal class II (SNA 80° SNB 74,2° ANB 5,8°), retrusion of the mandible with a short corpus and a hyperdivergent facial pattern. After a phase of alignment of the superior dental arch, multibrackets treatment was associated with twin block appliance for 12 months. Afterwards, lower arch was bonded and the therapy continued only with multibrackets.

RESULTS AND CONCLUSIONS: According to the literature the administration of human GH seems to induce the cartilage-mediated growth of the mandibular condyle.

In the reported case therapeutic targets were achieved with the resolution of II class II division malocclusion (SNA 81°, SNB 78°, ANB 3°). The twin block can be used simultaneously with the fixed appliance to improve the mandibular advancement and reduce the treatment time and patient's compliance.

Accuracy of interproximal enamel reduction during clear aligner treatment

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AIM: The aim of the present study was to compare the accuracy of the actual space obtained through interproximal enamel reduction (IPR) compared to the amount of IPR planned through the digital setup during clear aligner treatment (CAT).

MATERIALS AND METHOD: A total of 10 orthodontists were randomly recruited using the Doctor Locator by Align Technology (San José, California). Patients were recruited according to the following inclusion criteria: adults with full permanent dentition, non-extraction orthodontic treatment with CAT, use of composite attachments, treatment plan including IPR (between 0.1 mm and 0.5 mm per tooth), and no visible anomaly of enamel. For each clinician, four consecutive patients treated with CAT and manual stripping were selected for a total of 40 subjects and 80 dental arches. Each arch was considered individually. Mesiodistal tooth dimensions were obtained according to the following procedure: as a first step, an operator defined the tooth long axis with a plane, then the software measured the distance from this plane to the farthest points mesially and distally on the tooth. Then for each arch, the mesiodistal teeth dimensions were measured from second to second premolar before and after IPR.

RESULTS: No method errors were identified. In 25 cases, stripping was planned and performed in both arches; in 4 cases only in the upper arch and in the remaining 7 cases only in the lower arch. The difference between planned IPR and performed IPR was on average 0.55 mm (SD, 0.67; P = 0.022) in the upper arch and 0.82 mm (SD, 0.84; P = 0.026) in the lower arch. The accuracy of IPR was estimated to be 44.95% for the upper arch and 37.02% for the lower arch.

The mean of Little's irregularity index was reduced after treatment and the difference was statistically significant in both arches. The initial amount of crowding evaluated by Little's index, gender and their interactions were not factors that influenced the accuracy of IPR performed.

CONCLUSION: Overall, this study showed that the amount of enamel removed in vivo did not correspond with the amount of IPR planned. In most cases, the performed IPR amount was lower than planned. This study revealed that the accuracy of IPR during clear aligner treatment was of 44.95% in the upper arch and 37.02% in the lower arch. When considering these percentages as an actual amount in millimeter the differences may not be considered clinically relevant.

Salivary micro-ribonucleic acids (micro-RNA) as new molecular markers in cleft lip and palate: a new frontier in molecular medicine

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AIM: CLP growing patients are subjected to many treatments as bone grafting jaw, orthodontics, surgery, aesthetics treatments, pharyngoplasty and speech therapy. All therapeutic approaches are usually based only on the patient's clinical analysis and diagnosis. Thus, it should be interesting to identify the different response to the treatment to modulate the clinical approach also through the epigenetic characterization. This goal may be achieved in the light that several biomarkers are present in a simple saliva sample. Among them microRNA (miRNA) are endogenous non-coding RNA of about twenty-two nucleotides that regulate gene expression through post-transcriptional control. The aim of the present study was to identify and describe the salivary miRNA in CLP patients compared with a control healthy group.

MATERIALS AND METHODS: miRNA extraction was performed using Mirvana Paris Kit (ThermoFisher Scientific, MA, USA). Single-stranded cDNA was synthesized from total RNA samples. Then, cDNA targets were preamplified to increase the quantity of desired cDNA for gene expression analysis. The presence of each target was detected in real time through cleavage of TaqMan probe by the polymerase 5'-3' exonuclease activity. To validate the results of the array cards, the differences in expression of miRNA was independently evaluated by real-time PCR. cDNAs were synthesized and the profile of individual miRNA was determined using pre-designed probe-primer sets from Life Technologies. The expression of each miRNA was normalized by the $\Delta\Delta C_t$ method, that was used also to quantify the miRNA. The descriptive statistical analysis was performed on proportions calculations, measures of central tendency and variability for socio-demographic and clinical

aspects. Genes containing the miR-binding site(s) in the UTR were obtained using the TargetScan program.

RESULTS: 131 miRNA in the saliva of CLP and control samples were extracted and purified with the Mirvana PARIS Kit. 29 miRNA resulted significantly differentially expressed between the two groups. 3 miRNAs were selected: miR-141, miR-324-3p and miR-223. Results showed that miR-141 was down regulated in 11 patients with CLP. Instead miR-223 was up regulated, always in 11 patients, except in patient number 5, validating the results obtained with microarray. In both cases the decreased and increased expression was statistically significant compared to the mean in healthy controls ($p < 0.05$). The presence of miR-324-3p was recorded only in 6 patients, resulting up regulated compared to microarray analysis. The binding of miR-324-3p e miR-223 to the 3'-UTR of MTHFR was predicted by the TargetScan analysis. These 3 selected miRNA were the regulators of the following genes correlated to CLP development: MTHFR, SATB2, PVRL1.

CONCLUSIONS: This work showed that salivary miRNA could be easily isolated and identified in CLP patients. The most significant differences were found in the expression of 3 miRNA: miR-141, miR-223 and miR-324-3 that may be salivary biomarkers of the CLP malformation and treatment dynamic response indicators. The present study is the first one investigating the role of salivary miRNA expression in CLP.

Severe impacted canine: high risk or great challenge to overcome? A case report

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AIM: Impaction is defined as the failure of tooth eruption at its pre-determined site in the dental arch within its normal period of growth due to an obstacle in the eruption path or ectopic position of the tooth germ. Maxillary canines are the second most frequently impacted teeth after the third molars, with a prevalence ranging from 0.9 to 5% and involving around 2% of orthodontic patients.

Early diagnosis and intervention are extremely important.

In the literature different treatment approaches are described: extraction of the primary canine, allowing spontaneous eruption of the impacted permanent tooth; extraction of impacted canine followed by implant placement on the site or orthodontic closure of the

space; orthodontic traction of impacted canine, with or without the need for previous surgical exposure; autotransplantation of impacted canine. This case report demonstrates the management of a maxillary canine impaction of a young patient.

MATERIALS AND METHODS: A female patient, 13.5 years, came to the Orthodontic Program already undergoing an orthodontic treatment in the previous 2 years in a private office with upper and lower fixed appliances. Her request was to attempt the disinclusion of the upper right canine for which the extraction with subsequent implant-prosthetic rehabilitation has had previously planned by the colleague.

The panoramic x-ray showed 1.3 impaction so, analyzing in more detail the canine position, the angle formed between the axis of the canine and the midline was increased compared to the norm value, and the vertex of the canine cusp was positioned in sector 1 according to the classification of Ericson and Kurol, that corresponded to Lindauer's sector IV, and the distance from the occlusal plane was high - 15 mm.

The main treatment objectives were: surgical exposure and orthodontic repositioning of 1.3, correction of the upper midline and correction of the slight lower crowding. The active treatment was carried out with a prodigy-type fixed self-ligating device, transpalatal arch, miniscrews, auxiliary sectionals, class III and intercuspation elastics.

Moreover, the coronoplasty of 1.2 and 2.2 was performed during the recovery of the upper space.

The exposure of the canine was carried out with a full thickness palatal flap, positioning of a button on the exposed surface and a metal wire .011 intertwined with eyelets. The traction of the canine was carried out with a lever in TMA .017x.025 attached to the transpalatal arch with an activation of 45 ° and distal and extrusive direction.

Consequently, to a slight loss of anchorage in the upper right arch, with an initial displacement of the occlusal plane, it was decided to use an orthodontic miniscrew positioned in the lower arch between 4.4. and 4.5.

RESULTS: The treatment goals were achieved. The canine was repositioned on arch and skeletal relationship was controlled with a nice facial profile. The occlusal, functional, and esthetic results were satisfactory, and therefore the patient and her family were happy of her smile.

CONCLUSION: Canines play important functional and esthetic and altered eruption of these teeth is an important patient concern.

Comparison between tooth-bone and tooth-bone-borne palate expanders: a comprehensive review

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AIM: The purpose of this comprehensive review was to compare the effects of the rapid maxillary expansion achieved with conventional tooth-borne (TB) or hybrid tooth-bone-borne (TBB) rapid maxillary expander (RME) in the treatment of growing patients.

MATERIALS AND METHODS: An electronic search was performed via Pubmed, Scopus, Embase, Cochrane Library databases up to September 2020. The inclusion criteria were full-text articles published in the previous ten years which compared the results of the treatment with TB or TBB RME in patients of any sex and age lower than 18 years. Titles and abstracts obtained from the search were screened by two reviewers. Considering the inclusion criteria, after duplicate study selection, data extraction, the risk of bias assessment was done with the Cochrane tool.

RESULTS: From the initial 1464 articles, a total of 5 randomized clinical trials and 1 observational retrospective study were considered eligible according to the selection criteria.

The following initial and post-treatment records after expansion were collected from a total of 274 patients (53,2% female): cone-beam computed tomography (CBCT) (Gunyuz Toklu et al 2015; Bazargani et al, 2020), Latero-Lateral cephalometry (LLcef) (Ngan et al 2015), dental casts (Canan and Senisik 2017), questionnaire (Feldman and Bazargani 2017) and rhinomanometry registration scores (Bazargani et al, 2017) were assessed. Three studies also consider a post-retention period (6 months, Canan and Senisik 2017; 3 months, Gunyuz Toklu et al 2015; 1 year after expansion, Bazargani et al 2020). Only one retrospective observational study compared the data with an untreated control group (Ngan et al 2015).

CONCLUSION: Current scientific literature indicates that using hybrid TBB RME might show some advantages as significantly higher nasal airway flow, lower nasal resistance values, less buccal tipping of the first premolar, and minimize the sagittal and vertical side effects encountered by TB RPE appliance when used in association with Face-Mask. No significant differences were found regarding skeletal maxillary width.

Eruption problems solving in patients with crowding

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AIM: To evaluate short- and long-term mandibular dental arch changes in patients treated with a lip bumper during the mixed dentition followed by fixed appliances, compared with a matched control sample.

MATERIALS AND METHODS: Dental casts and lateral cephalograms obtained from 31 consecutively treated patients before (T0) and after (T1) lip bumper, after fixed appliances (T2), and a minimum of 3 years after fixed appliances (T3) were analysed. The control group was matched as closely as possible. Arch width, arch perimeter, arch length, (Fig. 2) and incisor proclination were evaluated.

Repeated measures ANOVA was used to analyse changes in measurements over all four time points between treatment and control groups.

RESULTS: For the dental cast measurements, interreliability was ICC 5 0.99 CI 95% (0.97, 0.99). It emerged a strong statistically significant differences between the control and treatment groups (p<.01). However, for cephalometric measurements based on IMPA, no statistical significance was found (p<.05). There were differences in measures between treated and control groups at baseline, thus the results were adjusted for all ANOVA models. In particular, arch widths and crowding were always significantly different except at T2 -T1. At T1-T0, only crowding decreased 3.2 mm while inter-canine, inter-premolar, and intermolar widths increased by 3.8, 3.3, and 3.9 mm, respectively. Changes at T3-T2 showed a significant decrease of 2.1 mm for crowding and an increase of 3.5, 2.9, 2.7, and 0.8 mm for inter-canine, inter-premolar, and intermolar widths and arch perimeter, respectively. Finally, at T3-T0, the reduction in crowding of 5.03 mm was significant and clinically important in the treated group. The differences between inter-canine, inter-premolar, and intermolar widths were also significant (2.1, 3.8, and 3.6 mm, respectively). All those differences favoured the treated group.

CONCLUSIONS: Mandibular dental arch dimensions were significantly changed after lip bumper treatment. At follow-up, all arch widths were slightly decreased, generating an increase of 0.4 mm in crowding, considered clinically irrelevant³. Overall the changes remained stable after an average 6.3 year follow-up.

Early functional approach of patient with juvenile idiopathic arthritis: a case report

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AIM: Juvenile idiopathic arthritis (JIA) is the most common chronic rheumatic disease in childhood and adolescence. The prevalence is reported as 0.07-4.01 new cases per 1000 children; the frequency is higher in females with a F:M ratio of 2:1. It may involve one or more joints with symptoms persisting for more than 6 weeks and onset before 16 years of age; etiology is not well-known. Temporomandibular joint (TMJ) can be interested in children with JIA from 17% to 87% depending on several factors as subtype, diagnostic criteria and ethnicity. Typical craniofacial alterations in JIA patients are mandible micrognathia, skeletal open bite, facial asymmetries in case of unilateral joint involvement due to altered condyle growth pattern and, as consequence of these anomalies, various types of malocclusion can be reported.

MATERIALS AND METHODS: A 8 yrs old girl presented knees pain and swelling, negative test for rheumatoid factor, VES and TAS normal values. Clinical examination revealed mouth opening with left side deflection and at same side joint pain at palpation. The patient also showed a convex profile, skeletal class II with mandible retrognathia and hyperdivergency growth pattern, facial asymmetries with chin left deviation and open bite with a tongue thrust. The OPT confirmed an important asymmetry of the condyles. The MRI showed the joint effusion like an area of high signal intensity inside the articular space. The first aims were to reduce joint pain, prevent the development of TMJ diseases and spur the condylar growth recovering what inflammation had limited. Other treatment objectives for this patient were correct the skeletal class II, reduce anterior openbite and, as much as possible, profile and smile improvement.

RESULTS: The patient was treated in 2 steps: first phase provided a hybrid functional appliance made by double bite on the longest condyle side to obtain dento-alveolar intrusion and controlateral condyle distraction. Left side of appliance was made by buccal and lingual shields to avoid cheeks and lingual interference and allow dento-alveolar extrusion; a lingual grid was add to control tongue thrust. The second phase included a fixed appliance. At the end of the treatment the patient had asymptomatic TMJs, good occlusion and a better profile.

CONCLUSIONS: Early funtional intervention in JIA patient is important to protect and improve both growth and activity of the TMJ and also to achieve a proper occlusion and a better aesthetic.

Dento-skeletal class III treatment with mixed anchored palatal expander: a systematic review

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AIM: New bone-anchored devices for treating dento-skeletal Class III malocclusions have recently appeared to reduce the dentoalveolar effects caused by conventional tooth-borne devices, while maximizing the orthopedic effect in growing patients. This systematic review aimed to evaluate the skeletal changes after Class III treatment using mixed anchored palatal expander and to compare the outcomes with those obtained using tooth-borne anchorage in interceptive treatment of skeletal Class III malocclusions.

MATERIALS AND METHODS: An electronic search was performed via Pubmed, Scopus, Embase, Cochrane Library databases yielded 350 papers using the following keywords: Class III malocclusion, mixed anchored palatal expander, skeletal anchorage, interceptive treatment, systematic review, bone anchorage devices. Titles and abstracts obtained from the search were screened by two reviewers. The criteria for eligibility were patients who had undergone orthodontic treatment with mixed anchored palatal expander and different maxillary protraction devices.

RESULTS: After initial abstract selection, 65 potentially eligible articles were screened in detail, resulting in a final number of 9 articles included in this review. Of the 9 studies, one was a randomized clinical trial, 5 were case-control studies and 3 was cohort studies. In 6 studies, a group of patients treated with bone-anchored palatal device was compared with a control group. Another was treated with combined tooth and bone-borne appliances. In 2 studies, the control groups were treated with tooth-borne appliances and facemask, in another the control group was treated with hybrid Hyrax and mentoplate. The patients' cephalometric values in the selected studies showed skeletal and molar Class III malocclusion, anterior crossbite and/or edge-to-edge occlusion, all in the growing period.

CONCLUSION: It can be concluded that in the short-term the combined tooth-borne and bone-borne appliances for rapid maxillary expansion might be recommended in protocols of treatment of dento-skeletal Class III patients to obtain more skeletal effects and reducing side effects on the maxillary.

Congenitally missing maxillary lateral incisors. Space closure and digital workflow: a case report

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AIM: The upper lateral incisor is the third most common congenitally missing tooth after third molars and lower second premolars, representing about 20% of all tooth agenesis. The most appropriate treatment option depends on type of malocclusion alveolar process characteristics, patient's age, dental and gingival display at smile, and color and shape of maxillary cuspids. The two main treatment options are the space closure or the space opening. Both options were challenging to achieve the desired aesthetic and the functional outcomes.

Nowadays there is no consensus among specialists regarding the optimal treatment plan for patients with missing upper lateral incisors, despite the guidelines by the Angle Society of Europe, as well as for other orthodontic and dental/medical disturbances. In 2013 Ludwig et al. proposed a skeletally anchored mesializer "Mesialslider" to meet anchorage requirements in canine substitution, trying to overcome disadvantages of this treatment option. The purpose of this paper is to describe a clinical case of a young patient characterized by bilateral congenitally missing upper lateral incisors treated with Mesialslider and fixed orthodontic appliances.

MATERIALS AND METHODS: The patient, a 12-year-old girl, came with their parents to the Orthodontic Program with the chief complaint to improve her smile aesthetic. She was in late mixed dentition with a dento-skeletal class II tendency, a hypodivergent pattern and unilateral crossbite.

The first objective was to correct the anterior crossbite during transition. For that reason, a removable acrylic splint with an active coil was placed to push buccally the 2.3. At this point, the progress of the orthodontic treatment could be performed with a full permanent dentition.

After the extraction of the deciduous canines, the appliances used were a 7-7 self-ligating multibracket fixed appliance in the upper and lower arch, class II and cusp seating elastics, and a mini-screw supported mesializer to close the spaces.

The Mesialslider is activated by pushing the activation locks mesially. Follow up controls are scheduled every 4-6 weeks. The Mesialslider was realized following the Easy Driver protocol.

RESULTS: The treatment goals were achieved. The occlusal, functional, esthetic results were satisfactory. A class II relationship on both sides was obtained with a correct overjet and overbite, centered midline and a good alignment. The panoramic x-ray showed the optimized space closure with bodily mesialization of posterior teeth and good root parallelism on both arches.

CONCLUSIONS: Treatment of adolescence patients with bilateral agenesis of lateral incisors is among the most difficult challenges for orthodontists. The key points determining the success of the treatment were good interdisciplinary cooperation (orthodontist, periodontist, and esthetic dentistry specialist) and the parent's and patient's collaboration. It was important to begin the orthodontic treatment as soon as possible to improve the

quality of the patient's present and future life.

Orthodontic management of maxillary tooth transposition: a case report

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AIM: Dental transposition is the interchange of the position between two permanent teeth and it can be incomplete or complete. In the complete one, both the crowns and the entire root structures are parallel in their transposed positions. In the incomplete transposition, the crowns may be transposed but the roots remain in their normal positions. The prevalence of transposition is about 0.5% in the general population and presented no gender predilection.

In the upper arch, the most frequent transposition is between the canine and the first premolar, instead in the lower arch, the most common transposition is between the canine and the lateral incisor. From an orthodontic perspective, the treatment can be extraction or non-extraction. In the extraction option, either the transposed tooth is extracted, whereas, in the non-extraction option, the transposed teeth are aligned in their normal positions or in their transposed positions. This case report demonstrates the management of maxillary tooth transposition, canine-first premolar of a young patient.

MATERIALS AND METHODS: A male patient, aged 10.10 years old, came to the Orthodontic Program with his parents with a complaint of having an ugly smile. Intraoral examination revealed molar class III relationship bilaterally. The maxillary left permanent canine was partially erupted in an ectopic position, buccally to the first premolar. He had widespread diastemas, crossbite from 1.2 to 1.5 and 2.2, with OVB and OVJ of 0 mm. The panoramic x-ray showed an incomplete transposition of the crowns and the roots of the 2.3 and the 2.4. The lateral cephalometric analysis revealed that in this patient there was a skeletal class III relationship, upper and lower incisors compensation.

The main goal was to control the skeletal class III relationship and to achieve aligned and leveled teeth without compromising soft tissue and periodontal structure. Based on patient's age and diagnosis, the best treatment option was an interceptive treatment with the following orthodontic correction treatment of the transposition. The interceptive treatment was carried out with modified SEC III protocol with rapid palatal expander (RPE) on four bands, and a lower splint with class III elastics, and a chin cup. In the second phase,

7-7 upper and lower multibracket fixed appliances were used in the upper and lower arches.

RESULTS: The treatment goals were correctly achieved. Skeletal relationship was controlled with a nice facial profile. The occlusal, functional, and esthetic results were satisfactory, and therefore the patient and his family were happy of his smile. The patient presented class I molar and canine relationship and good intercuspation. The upper and lower dental midlines were coincident with good OVJ and OVB. From a periodontal point of view, all the upper and lower teeth were well-positioned with no supporting dental tissue complications.

CONCLUSIONS: Dental transposition is a very challenging condition in terms of treatment planning and management. The early diagnosis plays a significant role, along with considering esthetics and function factors to decide on which treatment strategy should be followed.

Correlation between ii class malocclusion and occlusal plane inclination

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AIM: This study compares the skeletal models of patients with II class malocclusion and those with normal occlusion, considering alterations in the occlusal plane and upper dentition. The relationship between these two factors and the skeletal pattern in Class II, as well as the posterior and anterior occlusal planes, were investigated.

MATERIALS AND METHODS: The following inclusion criteria were used to compare the two groups: age between 8 and 14 years before or during the peak growth period, patients with first class (control group) and second molar class (study group), patients with second molar class and increased overjet (OJ) on intraoral objective examination. The study excluded patients who don't have latero-lateral telerradiography, patients with dental class III, and uncooperative patients. The nature of the occlusal plane was assessed in eight research group participants with a steep occlusal plane (P-OP>18).

RESULTS AND CONCLUSIONS: A steep posterior occlusal plane and a significant occlusal curvature in the upper teeth were seen in half of the participants with class II. The curvature of the posterior occlusal plane is associated with a small retruded and clockwise-rotated jaw and increased vertical growth of the second lower premolars; hence, the verticality of the occlusal plane is

related to skeletal class II malocclusion.

Case report on early class II orthodontic treatment with functional orthopedic simoes network 3 dental appliance

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AIM Early functional orthodontic treatment for the correction of skeletal Class II dysgnathia is recommended by scientific literature for children with psychological and social problems, related to their dental aspect.

METHOD AND MATERIALS The study included a 9-year-old, with Class II Division 1 malocclusion, overjet 7.5 mm, labial incompetence, bottle-feeding and pacifiers for the first 4 years of life. The treatment was carried out using the Simões Network (SN3) appliance.

CONCLUSIONS AND RESULTS After 7 months, we analyzed the extraoral photos, which revealed a correct OVJ, labial competence, improved mandibular projection and nasolabial angle, centred midlines and increased palatal transverse diameters. The early functional therapy, in a growing class II patient, restores neuro-muscular balance, has psychological effects and improves the quality of life.

Trattamento dell'affollamento dentale lieve mediante allineatori Invisalign® in pazienti con esigenze specifiche

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SCOPO: Evidenziare la validità e la predicibilità del trattamento di affollamenti dentali lievi mediante allineatori Invisalign® in pazienti con esigenze specifiche, assecondandone le abitudini con il fine di preservare l'acquiescenza alla terapia.

MATERIALI E METODI: Paziente n°1, maschio, 29 anni, lavoratore fuori sede con ridotte possibilità di controlli regolari. Diagnosi riportata in Tabella I. Il trattamento ha previsto una fase primaria di venti coppie di allineatori (2 mm di IPR per arcata) ed ulteriori dieci di rifinitura (senza attacchi) per risolvere la presenza residua di triangoli neri. Alla fine del trattamento è stata consegnata la contenzione Vivera®.

Paziente n°2, maschio, 13 anni, molto attivo nello sport per cui i genitori hanno richiesto una soluzione confortevole e sicura durante le sue attività. Diagnosi in Tabella II. Il trattamento ha previsto un'unica fase di quattordici coppie di allineatori con gli ultimi due allineatori inferiori passivi. Anche in questo caso è stata fornita la contenzione Vivera®.

RISULTATI E CONCLUSIONI: Tutti gli obiettivi sono stati raggiunti con un numero limitato di allineatori. Per il paziente 1 il numero di appuntamenti è stato esiguo e circoscritto alle sedute dove era necessario eseguire la riduzione inter-proximale in modo da ridurre al minimo gli spostamenti dalla città, sede dell'attività lavorativa. La fase di rifinitura è stata dettata dal desiderio del pieno raggiungimento delle esigenze estetiche del paziente, sebbene, dal punto di vista dell'armonizzazione delle arcate, il risultato era già stato raggiunto nella prima fase di trattamento. Gli allineatori trasparenti Invisalign® possono quindi essere considerati una buona scelta quando si tratta di combinare semplicità e comfort per i pazienti, mantenendo alti i livelli di risultati e soddisfazione generale.

PARODONTICS

How the clinical status of chronic periodontitis is improved by the use of probiotics. A review

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AIM: Periodontitis chronica (CP) is a disease that affects people all over the world and results in bone loss. CP can be a part of a complicated systemic disorder that frequently co-occurs with metabolic syndrome and obesity. In this case, the balance between pro- and anti-inflammatory reactions is crucial since local bacteria are in charge of it. Oral dysbiosis is a highly inflammatory condition linked to a persistent infection that causes pain and constitutes an important but underappreciated CP key factor. The overexpression of members of the tumor necrosis factor (TNF) superfamily, such as nuclear factor kappa B (NF-κB), or the reduction of vital commensal strains, like Lactobacillus, due to the high concentration of aggressive pathogens typical of a dysbiotic environment, are some of the proposed mechanisms of the pro-inflammatory response. In this study, we analyzed the data regarding probiotics' effectiveness in the treatment of periodontitis because they are considered as a new tool in the fight against infectious diseases.

METHODS: The keywords used in electronic databases were: "periodontitis", "periodontitis", "probiotics", "prebiotics", "bifidobacterium", and "lactobacillus". Only randomized controlled trials (RCTs) were included in the current analysis.

RESULTS: In general, oral administration of probiotics reduces periodontal pathogen levels while improving clinical signs of chronic and aggressive periodontitis, such as bleeding on probing, probing pocket depth, and attachment loss. These advantages are maintained with ongoing probiotic administration, particularly with Lactobacillus species.

CONCLUSIONS: Probiotics taken orally can be an efficient and secure addition to traditional mechanical treatment for periodontitis. Their use could improve the clinical condition and lessen the requirement for antibiotics.

The impact of Gaseous Ozone Therapy on Salivary Markers of Oxidative Stress in Patients With Periodontitis

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AIM: The purpose of this trial was to determine the effects of gaseous ozone therapy on the oxidative stress in patients with moderate periodontitis.

METHODS: A total of 87 patients were included in the study and were randomly divided to receive standard periodontal treatment plus the gaseous ozone therapy (Test Group, n= 43) or conventional periodontal therapy alone (Control group, n= 44). A two-tailed Mann-Whitney two-sample rank-sum test was conducted to examine whether there were significant differences in parameters of oxidative stress between the levels of treatment. A Spearman correlation analysis was conducted the parameters of oxidative stress and periodontal parameters was conducted. Cohen's standard was used to evaluate the strength of the relationship.

RESULTS: The result of the correlation was examined based on an alpha value of .05. There were significant correlations between any pairs of variables. Serum activities of GSH and MDA concentrations were comparable between the study groups at baseline (p > 0.05). A significant decreased levels of NO and MDA were registered at 3 months and the concentration of GSH were found to be significantly increased in test group when compared with control group.

CONCLUSION: Short-term supplementation with ozone therapy mitigates salivary oxidative stress in patients with periodontitis.

KEYWORDS: oxidative stress; periodontitis; periodontal therapy; gaseous ozone therapy; reactive oxygen species.

The effects of Gaseous Ozone Therapy on Candida spp. in Periodontal Pockets of patients with type 2 diabetes: a randomized clinical trial

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AIM: Candida spp. are commonly detected in the oral cavity of diabetic patients, and Candida albicans is the most common single species isolated. The aim of this study was twofold: firstly, to estimate the prevalence of Candida spp. in periodontal pockets of patients with type 2 diabetes mellitus; then, to detect the occurrence of Candida spp. after non-surgical periodontal treatment plus gaseous ozone therapy vs conventional periodontal therapy.

METHODS: A double blinded, randomized, controlled trial was conducted between May 2020 and February 2021. Eighty-seven diabetic patients diagnosed periodontitis were enrolled. PCR-based method was used to direct detection and identification of Candida spp. Patients with positive culture for Candida spp. were randomly divided into two groups, to receive the standard periodontal treatment plus gaseous ozone therapy (Group A, n= 38) or periodontal treatment (Group B, n=38).

RESULTS: Out of 87 positive PCR specimens, 76 showed positive cultures for Candida species. C. albicans was the most prevalent species (48%) 27 of which showed a colony count of $\geq 1 \times 10^3$ and 12 with a colony count of $\geq 1 \times 10^3$ colony forming units (CFU)/mL, followed by C. tropicalis (11.5%), and C. glabrata (14.5%). The group A and gaseous ozone therapy showed a statistically significant reduction of colony count of Candida spp.

CONCLUSION: The gaseous ozone therapy may be effective to reduce the count of Candida spp. in periodontal pockets of diabetic patients.

KEYWORDS: Candida spp.; diabetic patients; periodontitis.

The effect of periodontal treatment on plasma levels of Asymmetric Dimethylarginine: a randomized controlled clinical trial

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AIM: Endothelial dysfunction is one of the early pathogenic events of the atherosclerotic process. Severe periodontitis is considered to be an independent contributing risk factor for the pathophysiology of endothelial dysfunction. High blood concentration of

asymmetric dimethylarginine (ADMA), an L-arginine analogue that inhibits nitric oxide (NO) formation, has emerged as one of the most powerful independent risk predictors of cardiovascular disease. Abrogation of periodontal inflammation might have clinical relevance, affecting the ADMA. Insufficient clinical evidence exists for drawing clear conclusions regarding the long-term effects of periodontal disease on endothelial function, and even less evidence is available specifically on ADMA concentrations and their relationship with periodontitis. The objective of this study was to evaluate the effects of intensive periodontal treatment in modulating the endothelial function via the assessment of plasma ADMA concentration in patients diagnosed severe periodontitis.

METHODS: This was a 6-month randomized controlled trial, including 140 patients between 41 and 63 years old who were diagnosed with severe periodontitis, free from cardiovascular disease (CVD), and had traditional cardiovascular risk factors. All patients underwent a complete medical and clinical periodontal examination, a laboratory analysis of ADMA, and an ultrasound assessment of FMD of the right brachial artery. After the screening, they were randomly assigned to receive either intensive periodontal treatment (test group, n = 70) or community-based periodontal care (control group, n = 70). A full examination was carried out at baseline, 3 and 6 months after the periodontal treatment.

RESULTS: A total of 236 individuals diagnosed with periodontitis were screened. One hundred forty participants were enrolled. No statistically significant difference was observed over the time in ADMA concentration after the intensive periodontal treatment within the test group. No differences were revealed between the groups in the ADMA concentration at baseline and during follow-up.

CONCLUSIONS: Intensive periodontal treatment does not affect the plasma levels of ADMA in patients without any risk for cardiovascular disease.

KEYWORDS: endothelial dysfunction; periodontitis; periodontal disease; periodontal therapy; oxidative stress; biomarkers.

Wilckodontics - fast track tooth movement

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INTRODUCTION: Wilckodontics is also known as Periodontally Accelerated Osteogenic Orthodontics (PAOO). The periodontium is a dynamic tissue and regulation of its remodelling gives an edge in the traditional orthodontic treatment. In 2001, Wilcko and Wilcko, using the earlier concept of regional acceleratory phenomenon (RAP) by Frost, expanded on it and showed transient demineralization-

remineralization process of PAOO, called Wilckodontics. **REVIEW OF LITERATURE:** Periodontally Accelerated Osteogenic Orthodontics is a clinical procedure which includes corticotomy (a surgical technique in which the bone is cut, perforated or mechanically altered), particulate bone grafting and orthodontic force application. Monocortical tooth dislocation ligament distraction technique includes both vertical and horizontal microsurgical corticotomies to eliminate cortical bone resistance with piezosurgical microsaw. After immediate application of forces, it causes rapid dislocation of roots and bone together.

CONCLUSION: Periodontally Accelerated Osteogenic Orthodontics aims at reducing treatment time and risks of root resorption. Periodontally Accelerated Osteogenic Orthodontics is an interdisciplinary treatment modality involving orthodontic as well as periodontic treatment approaches. Periodontally Accelerated Osteogenic Orthodontics facilitates faster treatment results. With proper case selection and treatment planning, PAOO can definitely be a stepping stone in the future of orthodontic treatment.

Treatment of gingival recessions with lateral closed tunnel technique and cgf membrane

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AIM: The purpose of this work was to demonstrate the possibility of restoring the physiological festooning of the gingival margin in the presence of medium-grade gingival recessions, using the lateral closed tunnel technique, a surgical-periodontal and minimally invasive technique, associated with the use of an autologous membrane of concentrated growth factors (CGF), obtained by centrifugation with peripheral venous sampling of the patient.

MATERIALS AND METHODS: A 24-year-old male patient with a thin biotype, following orthodontic treatment with expansion of the upper jaw, manifested a few years later, Miller class I and II gingival recessions from 23 to 26 associated with dentin sensitivity. After adequately treating the exposed root surfaces with scaling and root planning, a surgical-periodontal technique, named lateral closed tunnel technique, was chosen. A full-thickness flap was performed from 23 to 26, also ungluing the interdental papillae, avoiding sectioning them, so that the flap could be slid occlusally. An autologous CGF membrane, obtained by centrifugation of the patient's peripheral venous blood and then sutured with Vicryl 4-0 to the flap, was used as the graft to be affixed directly to the bone surface by

inserting it into the mucosal tunnel. The CGF membrane is elastic, durable, highly biocompatible, and suturable in addition to having anti-inflammatory and anti-edemigenous properties.

RESULTS: Complete healing of the mucosal tissues, along with physiological festooning of the gingival margin, was achieved in 30 days, in the absence of pain and edema.

CONCLUSIONS: In the treatment of medium-sized gingival recessions (Miller class I and II), it was seen that combining an autologous CGF membrane graft, rich in growth factors, with a minimally invasive periodontal surgical technique, such as the lateral closed tunnel technique, resulted in greater control of inflammatory processes and rapid tissue healing in the absence of postoperative pain.

Efficacy of Non-Chirurgical Periodontal Treatment for Non-Alcoholic Fatty Liver Disease: a multicentre randomized study

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AIM: Periodontitis represents a concomitant cause in the onset and/or the progression of several chronic systemic diseases, including Non Alcoholic Fatty Liver Disease (NAFLD). In addition to endotoxiemia and spread of inflammatory mediators from oral cavity to systemic circulation, increasing evidences focus on the role of oral dysbiosis induced by *P. gingivalis*, hypothesizing the emerging of oral-gut-liver axis. Consequently, restoration of the oral health could be a new therapeutic strategy for the treatment of systemic disease and, for instance, of NAFLD.

The aim of this trial is to reveal if a non-chirurgical periodontal treatment is efficacy for the progression of ultrasound liver damage in NAFLD.

STUDY DESIGN: In this multicentre prospective randomized study we will enrol almost 30 adult patients suffering both NAFLD and periodontitis from Complex Operative Unit of Odontostomatology, University of Bari Medical School and Internal Medicine Unit, PTA Trani. Patients with probing pocket depth ≥ 3.5 mm at oral examination

and equivalent steatosis grade ≥ 1 at abdominal US will be included. Patients affected by other clinical conditions determining liver steatosis will be excluded. Eligible patients will be randomly assigned to the treatment group consisting in root planing and scaling and to the control group. All patients will be advised to follow hypocaloric Mediterranean diet and a correct oral hygiene [4]. Patients will be re-evaluated with abdomen US at 16 weeks and 24 weeks, in order to reveal a possible regression of steatosis grade in the treatment group compared to the control group.

ATTENDING RESULTS: This study should prove for the first time if local periodontal treatment improve US pattern in NAFLD. Oral health should not be forgotten in the treatment of systemic diseases.

Gingival recessions and periodontal status after 2yr-retention post orthodontic treatment: clinical and digital evaluation

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AIM: To assess gingival recessions and periodontal health in a group of patients previously treated with non-extraction orthodontic treatment and retention at a follow up of minimum two years after the end of active treatment.

MATERIALS AND METHODS: Data from patients aged between 16 and 35 years with a previous non-extraction orthodontic treatment and at least 2 years of retention and full orthodontic records (extra and intraoral photographs, lateral cephalograms and dental casts) before and after treatment were collected. The casts were digitalized using the 3Shape TRIOS[®] intraoral scanner and the Viewbox4 software was used for the measurements.

The following parameters were scored: inclination of the lower and upper incisors (IMPA and I[^]SN) and anterior crowding through the Little index (Figure 1). At the start of treatment, patients had a mean age of 11.11 years and showed the following Angle malocclusion class: 7 patients with Class I, 11 patients with Class II (of which 2 with class II, 2 division), 2 patients with Class III. The included patients were recalled for a clinical periodontal follow up examination and the following parameters were evaluated: buccal and lingual GR (mm) of incisors and canines, bleeding of probing score, plaque score, gingival phenotype. On the data collected, a descriptive statistical analysis was performed with calculation of the mean and standard

deviation. Data analysis was undertaken using SPSS software. The significance was set at a P value < 0.05. **RESULTS:** The digital cast analysis showed a mean Little index of 7.78 (SD 5.83) and 1.39 (SD 0.79) respectively before and after treatment. The initial and final cephalometric analyses showed a I[^]SN of 103.53° and 105.78° (SD 7.21) and IMPA of 91.3° and 95.1°, respectively. At the follow-up periodontal visits, the patients showed an overall low oral hygiene with bleeding at probing in 66.6% and plaque in the anterior area in 76.2% of patients. From the total examined 240 teeth of the frontal sextants, three patients had GR (from 1 to 6.5 mm): in the upper arch 2 at canines and 1 at central incisor, whereas in the lower arch 2 at central and 1 at lateral incisors.

The gingival phenotype was “thick” in 55% of cases. The lingual lingual-to-lingual retainers at follow-up were present in the 61.9% of patients while the others wear removable appliances.

CONCLUSIONS: Our results, within the limitations of the study, showed that a non- extraction orthodontic treatment performed with controlled forces and correct biomechanics, seems to not affect the development of buccal and lingual GR or the periodontal health after at least two years of retention.

Efficacy of ozone gel with chlorhexidine gel in periodontitis patients - a randomized controlled double blind clinical trial

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BACKGROUND: Periodontitis is an inflammatory and infectious disease of periodontal tissues. Scaling and root planing (SRP) is the cornerstone for treatment of chronic periodontitis but used alone it may not be effective, so adjunctive use of antimicrobials agents is essential. Chlorhexidine (CHX) though considered as gold standard but even low concentrations of CHX may be toxic to gingival fibroblasts. Ozone is now being regarded in dentistry as an alternative as it has effective antimicrobial activity.

MATERIAL AND METHOD: The aim of the present in-vivo study is to evaluate and compare the efficacy of Ozone with Chlorhexidine gel clinically as well as microbiologically as an adjunct to SRP. Thirty patients with chronic periodontitis with a probing depth ≥5 mm was enrolled for the split mouth study, where one quadrant was randomly allocated to the SRP and ozone therapy and the other quadrant to SRP and CHX therapy.

RESULTS: Plaque index, Gingival index, probing depth, clinical attachment loss along with subgingival plaque samples were assessed for E.coli. Both groups demonstrated significant intragroup reduction for all

the clinical parameters.

CONCLUSION: Ozone gel can be regarded as a possible alternative as an adjunctive chemical plaque control agent for periodontal diseases.

Silver nanoparticles in dentistry: an emerging trend

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BACKGROUND: Silver the transitional element has been used as a medicinal agent since a long spell owing to its antibacterial, antifungal and antiviral activity. The use of silver in dentistry has been documented since 1840, mainly in prevention and treatment of caries. Initially it was used as silver nitrate and then in association with fluorine. In the 2000s, its application as silver amalgam is also an age-old phenomenon. In the 20th century, the study of nanomaterials started a new field in health sciences, then named nanotechnology.

REVIEW OF LITERATURE: The American physicist Richard Feynman introduced the concept of nanotechnology in 1959. Nanotechnology is science, engineering and technology conducted at nanoscale which is about 1-100nm. Silver nanoparticles are (AgNPs) are one of the most vital and fascinating nanomaterials among several metallic nanoparticles. They have been extensively studied for their antimicrobial properties which provides an extensive applicability in dentistry like restorative and endodontics, prosthodontics and implantology, orthodontics and periodontics. Ag NPs incorporation into dental biomaterials aims to avoid or at least to decrease the microbial colonization over dental materials, increasing oral health levels and improving life quality.

CONCLUSION: There are certainly potential benefits to patient outcome from the use of AgNPs in dentistry. This presentation provides an overview of AgNP in the dental field.

Free gingival grafts: a review

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INTRODUCTION: The objectives of mucogingival surgery have been improved as a result of patient’s rising interest in aesthetics. A free gingival graft is a simple, predictable technique for increasing the zone of

attached gingiva. A graft can be placed directly on the denuded root, as first described by Sullivan & Atkins (1968).

REVIEW OF LITERATURE: Both the practitioner and the patient frequently deal with gingival recession. It is defined as apical displacement of gingival margin from the cemento-enamel junction. The main indication of root coverage includes aesthetics, root sensitivity, management of root caries and cervical abrasion.

DISCUSSION: Indications and contraindications have been established, but the decision regarding the adequacy of the attached gingiva remains one of clinical judgement. The clinician must evaluate several variables, including the width of the attached gingiva, the patient's age, recession history, oral hygiene practices, teeth involved, and dental records. A free gingival graft usually should not be used in areas of inadequate attached gingiva when root coverage is indicated. Other techniques are more predictable and yield a more esthetic result.

CONCLUSION: FGG yields positive outcomes and improvements in recession, probing depth, and gingival attachment width. Although case and site selection, operator competence, and experience all affect treatment outcomes.

KEYWORDS: Free gingival graft, gingival recession, width of attached gingiva.

NUOVI APPROCCI PER LA RIGENERAZIONE DEI TESSUTI PARODONTALI: EFFICACIA IN VITRO ED IN VIVO DELLA BIORIVITALIZZAZIONE COLLAGENICA

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INTRODUZIONE: Nell'ultimo decennio, grazie ai progressi compiuti dalla ricerca nel campo della biologia è emerso un ruolo centrale del collagene nell'architettura di vari tessuti, tra cui quelli dell'apparato stomatognatico. A tal riguardo, è stato dimostrato che le alterazioni delle fibre di

collagene e della matrice extra-cellulare dei tessuti molli gengivali sono implicate nell'eziopatogenesi della parodontite e peri-implantite. Inoltre, è noto che il collagene svolge un ruolo chiave nel fenomeno di osteointegrazione, favorendo, insieme ai tessuti molli, la

stabilità dell'impianto.

SCOPO: Sulla base di tali premesse, uno degli obiettivi principali di questo studio è quello di fornire nuove conoscenze sui meccanismi d'azione di un innovativo protocollo di "biorivitalizzazione collagenica" che combina l'utilizzo di un medical device a base di collagene e sostanze ancillari con la fotobiomodulazione (LED a lunghezze d'onda di 630-880 nm). Nello specifico, tale soluzione collagenica sarebbe in grado di modulare efficacemente il meccanismo fisiopatologico che provoca l'invecchiamento, promuovendo la sintesi di nuovo collagene, l'idratazione ed il tono dei tessuti molli parodontali. Contemporaneamente, la fotobiomodulazione stimolerebbe alcuni distretti cellulari, favorendo la rigenerazione dei tessuti e riducendo l'infiammazione e lo stress ossidativo.

METODI: In particolare, nel nostro studio, sono state valutate la vitalità a 24h, 48h, 72h, 7 e 14 giorni, la proprietà di wound healing a 3h, 6h, 12h, 24h e 48h, la mineralizzazione ossea a 14 giorni e l'adesione delle cellule a diverse superfici implantari rivestite da collagene su colture cellulari primarie (fibroblasti gengivali umani, osteoblasti orali e cellule endoteliali) in presenza di collagene, sottoforma di coating o soluzione, e di LED 640nm. Inoltre, sono stati valutati gli effetti della terapia locale infiltrativa sui tessuti molli orali di pazienti in trattamento ambulatoriale.

RISULTATI: I risultati preliminari in vitro mostrano come l'utilizzo di tale trattamento consenta un significativo aumento della vitalità di tutte le tipologie cellulari ed anche del wound healing, della deposizione di matrice ossea e dell'adesione di queste cellule a diverse superfici implantari. Inoltre, gli effetti della terapia infiltrativa in vivo dimostrano di promuovere la neosintesi di collagene, l'idratazione e il mantenimento del tono del parodonto sia nella fase pre- che post-implantare.

CONCLUSIONE: In conclusione, benché ulteriori studi saranno necessari, i dati ottenuti suggeriscono l'efficacia di tale trattamento nel promuovere la rigenerazione dei tessuti parodontali e nel mantenimento a lungo termine dell'area peri-implantare.

ORAL MEDICINE AND PATHOLOGY

Lingua Nigra Villosa atipica: l'importanza dei test laboratoriali nella diagnosi differenziale

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INTRODUZIONE: La Lingua Nigra Villosa (BHT) è una

condizione benigna, caratterizzata da una colorazione e allungamento delle papille filiformi, nel dorso linguale. Fumo, consumo eccessivo di tè nero, caffè, alcool, droghe, scarsa igiene orale, radioterapia nel distretto testa-collo, utilizzo prolungato di collutori ossidanti possono causare BHT. La punta e i margini linguali non sono affetti e la colorazione può variare dal nero, giallo, bruno, ma anche colorazioni verdi e biancastre sono documentate in letteratura.

MATERIALI E METODI: Una paziente di 62 anni giungeva alla nostra attenzione con una storia clinica di diverse malattie sistemiche e presentava all'osservazione un allungamento delle papille filiformi e colorazione bianca non nel dorso linguale. Dall'anamnesi emergeva reflusso gastro-esofageo, lieve ipertensione, emorroidi, tiroidite di Hashimoto, insufficienza venosa, dermatite atopica e intolleranza al lattosio. All'esame obiettivo, presentava in entrambi i lati della lingua delle aree bianche con lieve ipertrofia delle papille filiformi. La paziente riferiva una lieve sensazione di bruciore nelle aree bianche. La prima diagnosi (temporanea) era stata di una variante bianca di BHT o di leucoplachia capelluta associata a virus di Epstein-Barr. Erano state dunque effettuate delle analisi del microbiota linguale attraverso la biologia molecolare. Il prelievo era stato effettuato mediante un brush sterile, strofinandolo nelle aree colpite per circa due minuti ed in seguito inviato in laboratorio per escludere la presenza dell'EBV.

RISULTATI: i risultati dell'analisi biomolecolare avevano evidenziato la presenza rilevante di patogeni parodontali del complesso rosso quali: *Porphyromonas endodontalis*, *Fusobacterium nucleatum*; del complesso arancione: *Rothia denticariosa*; e del complesso verde: *Eikenella corrodens*. Non era stata rilevata alcuna traccia di DNA dell'EBV, per cui era stata confermata la diagnosi di una particolare forma di lingua villosa bianca localizzata nei margini laterali della lingua, piuttosto che nella parte posteriore, come avviene solitamente in questa patologia.

CONCLUSIONI: i test microbiologici effettuati sono stati importanti nell'esclusione di patologie con una diversa e ben più seria eziologia virale, evitando inoltre una biopsia maggiormente invasiva. Inoltre, non sono stati precedentemente riportati in letteratura dei casi con questa particolare conformazione di BHT. Verranno effettuati ulteriori studi per avere un maggior riscontro.

L'infezione da EBV trattata con successo con il probiotico *S.Salivarius K12*

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INTRODUZIONE: Il virus Epstein Barr (EBV) è un herpes virus che si trova in diverse lesioni orali di tipo

infiammatorio ed è considerata un'infezione benigna nella maggior parte delle persone sane. Tuttavia diversi studi hanno riconosciuto il ruolo dell'EBV in diverse patologie quali: periodontiti, lichen planus orale, leucoplachia capelluta e sindrome di Sjogren. L'infezione da EBV è presente nel 30-40% di pazienti affetti da linfoma di Hodgkin e nel 100% dei pazienti affetti da carcinoma nasofaringeo non cheratinizzato.

MATERIALI E METODI: Descriviamo il caso di un uomo sano (maschio, 54 anni) con infezione da EBV orale rilevata clinicamente e con indagine biomolecolare. Il paziente è stato trattato tramite batterioterapia (ceppo probiotico *S. salivarius K12*). Il paziente accusava un lieve e costante bruciore localizzato sulla punta della lingua per almeno due mesi, la valutazione clinica aveva evidenziato l'assenza di lesioni. Durante l'anamnesi il paziente ci aveva informato che la moglie e il figlio soffrivano di herpes orale ricorrente, mentre lui non aveva mai manifestato nessun segno di infezione. Si era deciso di eseguire un tampone linguale di controllo per HSV1, HSV2 e EBV attraverso un test molecolare real time qPCR. Al paziente erano state raccomandate le corrette manovre di igiene orale domiciliare e l'assunzione del probiotico, *Streptococcus salivarius*, una compressa al giorno tra i pasti per un mese.

RISULTATI: L'esame di laboratorio inizialmente aveva rilevato la presenza di EBV DNA ma non di HSV1 e HSV2 DNA. Dopo 30 giorni, alla visita di controllo, il paziente presentava la scomparsa dei sintomi. Era stato effettuato un secondo tampone di controllo effettuato con la stessa modalità che aveva dato esito negativo per l'EBV DNA.

CONCLUSIONI: Lo *S. salivarius* è un batterio commensale del microbiota orale, colonizza l'epitelio ed è presente nel dorso della lingua. Mentre il ruolo dello *S. salivarius* nel trattamento dell'alitosi è stato ampiamente documentato, i suoi benefici contro le infezioni erpetiche invece non sono ben ancora caratterizzate, infatti non sono stati trovati studi che abbiano utilizzato in precedenza probiotici contro l'EBV. Ulteriori studi sono necessari per valutare la correlazione tra il bruciore della lingua senza la presenza di altri segni clinici e l'importanza di eseguire un tampone per la ricerca di EBV DNA di routine nei pazienti con questo sintomo. In aggiunta nei pazienti positivi la batterioterapia tramite probiotici orali potrebbe rappresentare una terapia vincente in questi casi, infatti gli studi in letteratura suggeriscono il trattamento, generalmente con antivirali, su pazienti affetti da infezione cronica correlata a lesioni e non in soggetti paucisintomatici.

Lingua villosa refrattaria in un paziente diabetico trattato con successo con la combinazione di diversi probiotici orali: case report

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INTRODUZIONE: La lingua Nigra Villosa (BHT) è una condizione caratterizzata da una colorazione e allungamento delle papille filiformi nel dorso linguale. Questa condizione affligge l'11% della popolazione ed è correlata all'uso di alcool e farmaci per via endovenosa, eccessivo consumo di caffè, scarsa igiene orale, debilitazione generale.

Il Diabete Mellito (DM) è un disturbo metabolico caratterizzato dalla presenza cronica di iperglicemia accompagnata in misura maggiore o minore da alterazioni del metabolismo glucidico, proteico e lipidico. Precedenti lavori hanno evidenziato delle manifestazioni orali in pazienti diabetici e tra queste potrebbe rientrare anche la BHT. Vogliamo riportare un caso di BHT resistente alle convenzionali terapie topiche ed antibiotiche in un paziente diabetico, trattato successivamente con la combinazione di due probiotici, non ancora documentato in letteratura.

MATERIALI E METODI: una paziente di 50 anni di sesso femminile giunge alla nostra osservazione, per una lesione chiara e sintomatica nella lingua, presente da un anno. L'anamnesi era positiva per Diabete di tipo 1 compensato e tiroidectomia per una piccola lesione maligna avvenuta 4 anni prima. Dall'esame clinico si evince la presenza di lingua villosa. Il paziente riferisce di aver eseguito degli sciacqui con bicarbonato di sodio, perossido di idrogeno e di pulire regolarmente la lingua. È stato eseguito un test microbiologico con l'ausilio della biologia molecolare per determinare la presenza di batteri patogeni o un'elevata carica fungina. La mucosa linguale è stata spazzolata per due minuti con un brush con movimenti rotatori senza distaccarlo dalla mucosa. È stato posto poi in un contenitore ermetico e inviato per l'analisi microbiologica (eseguita da Biomolecular Diagnostic s.r.l., Firenze, Italia).

RISULTATI: dai risultati del test biomolecolare è stata rilevata la presenza di una carica maggiore rispetto alla norma di *Filifactor alocis* e *Rothia denticariosa*. Sono state rilevate inoltre tracce di DNA batterico appartenente a *Porphyromonas endodontalis* e *Cardiobacterium ominus*. Non sono state rinvenute tracce di funghi e virus. Pertanto, è stato deciso di sottoporre il paziente a una terapia antibiotica con Amoxicillina + Acido Clavulanico da 1000 mg per due volte al giorno per sette giorni e Metronidazolo da 500mg per due volte al giorno per sette giorni, come suggerito dal biologo molecolare che ha eseguito l'analisi del campione. Tuttavia, al follow-up eseguito nella settimana successiva non sono stati riscontrati dei miglioramenti. Si è optato per la somministrazione giornaliera di un probiotico in compresse orosolubili, nello specifico una combinazione di *Lactobacillus plantarum* e *Lactobacillus brevis* (ProlacSan, CMS Dental, Copenhagen, Denmark). Ogni compressa contiene un totale di 1,2 miliardi CFU di *L. Brevis* 7480 CECT, e *L. plantarum* 7481. La paziente ha assunto una

compressa al giorno dopo aver eseguito le manovre di igiene orale domiciliare e trenta minuti prima di mangiare o bere. Dopo 5 giorni, la paziente si presenta al controllo e abbiamo potuto osservare un importante miglioramento della lesione linguale e non presentava sintomi per la prima volta dopo un anno.

CONCLUSIONI: l'utilizzo del test molecolare e la terapia probiotica può essere considerata un'importante strategia per il controllo dei casi refrattari di BHT.

Angioma capillare ulcerato correlato ad un particolare micro trauma in un paziente con storia di cancro: case report

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INTRODUZIONE: Le malformazioni vascolari sono lesioni proliferative benigne relativamente comuni originarie del tessuto vascolare e connettivale. Le cause scatenanti includono mutazioni genetiche o molecolari relative a sindromi, traumi; possono, inoltre, far parte di altre malattie sistemiche. La maggioranza di queste lesioni è congenita o si presenta in giovane età e mostra un basso potenziale di crescita. Alcune lesioni regrediscono spontaneamente, altre invece richiedono un trattamento. I siti della cavità orale più affetti sono le labbra, la lingua, la mucosa geniana, le gengive e il palato. Clinicamente possono essere estremamente eterogenee, e possono anche causare importanti dubbi diagnostici. La glossite migrante, anche chiamata lingua a carta geografica, è una condizione immunologica benigna in cui il dorso linguale presenta erosioni, talvolta circondate da un bordo biancastro, che possono spostarsi da una sede all'altra nell'arco di settimane, giorni o ore.

MATERIALI E METODI: Riportiamo il caso di un angioma ulcerato che coinvolge la punta della lingua in una donna caucasica di 54 anni con una storia di adenocarcinoma intestinale trattato con radio e chemioterapia cinque anni prima. A causa della sua insolita presentazione abbiamo dovuto riconsiderare la nostra conoscenza sull'eziopatogenesi e la sua inclusione clinica nella diagnosi differenziale. L'esame obiettivo orale ha mostrato una unica lesione esofitica, bianca e ben circoscritta, di circa 1 cm di diametro e di consistenza teso-elastica alla palpazione. In più, un reperto molto interessante è stato il ritrovamento di una lingua a carta geografica su tutta la superficie linguale, inclusa l'area dove è insorta la lesione. La paziente non ha riferito dolore e sostiene di aver sviluppato la lesione in circa 4 settimane. Alla palpazione non erano presenti linfonodi tumefatti ingrossati. Gli esami radiografici non sono stati eseguiti dato che la massa era palpabile e

collocata entro i tessuti molli. La donna ha riportato di aver subito un lieve trauma con un ago da cucito sulla lingua. A causa della sua storia medica, le metastasi sono state incluse nella diagnosi differenziale, per cui è stata pianificata una biopsia incisionale per l'esame istologico circa due settimane più tardi. Vista la modalità di presentazione della neof ormazione e l'ipotesi di lesione dall'eziologia reattiva, fibroma, granuloma periferico a cellule giganti e granuloma piogenico sono stati inclusi nella diagnosi differenziale. Inoltre, per via della forte predisposizione familiare, sono state anche incluse malformazioni vascolari acquisite. L'analisi istopatologica ha rivelato una diagnosi di un inusuale angioma capillare ulcerato. I controlli ad una, a quattro settimane e a sei mesi hanno mostrato l'integrità della mucosa e nessun segno di ricaduta.

RISULTATI E CONCLUSIONI: Seguendo la diagnosi istopatologica e interrogando la paziente, è emerso che la donna era solita cucire per molte ore durante la giornata. Perciò è stato supposto che il microtrauma che ha causato il danno vascolare è stato il costante tagliarsi e inumidirsi del filo tra i denti anteriori e la punta della lingua.

Lesioni orali da Herpes Simplex Virus 1: utilizzo dell'approccio in qPCR in un paziente trattato con terapia Fotodinamica

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INTRODUZIONE: L'Organizzazione Mondiale della Sanità (OMS) stima che, allo stato attuale, w diversi milioni di persone sono infette da herpes simplex orale. La diagnosi è spesso esclusivamente di tipo clinico, ma soltanto con la valutazione in tempo reale possiamo identificare il tipo di virus. La terapia fotodinamica (PDT) consiste nell'emissione di una luce che, ad una frequenza d'onda particolare, attiva una specifica molecola chiamata fotosensibilizzante. Questa procedura terapeutica innovativa viene ultimamente utilizzata nel trattamento delle malattie infettive e nelle neoplasie. La PDT determina la produzione di radicali liberi (ROS) all'interno delle cellule, in grado di inattivare sia i virus o le cellule neoplastiche. Un aspetto vantaggioso di questa procedura è che non determina farmacoresistenza, al contrario degli antivirali o antibiotici tradizionali. Altro aspetto non secondario riguarda il trattamento topico che minimizza gli effetti sistemici del fotosensibilizzante.

MATERIALI E METODI: In questo lavoro, presentiamo un caso trattato con una singola sessione di PDT, con una luce laser a diodi con una frequenza di 660 nm e una potenza di 100 mW (Helbo, Bredent Medical, Senden, Germany) e come fotosensibilizzante il cloruro di

fenotiazina all'1%. Dopo il trattamento il paziente ha avuto immediato sollievo dal dolore. Immediatamente prima della PDT (T0), dopo 30 secondi dal trattamento (T1) e dopo 5 minuti dal trattamento (T2), è stato preso un campione di saliva con un tampone e immesso in un semplice tubo Eppendorf e successivamente ghiacciato a -80 °C fino all'esame molecolare. Di ciascun campione è stata eseguita l'estrazione del DNA tramite procedura Qiagen. Il test molecolare è stato eseguito mediante la tecnica della qPCR real time in grado di rilevare sia L'HSV-1 sia L'HSV-2, attraverso una curva standard di regressione e' stato possibile risalire alla carica virale, espressa come genomi/ul.

RISULTATI: I risultati dei test molecolari hanno dimostrato una riduzione della carica virale di HSV-1 approssimativamente tra 100 e 150 volte rispetto al campione non trattato. Alla fine, la guarigione completa della lesione è avvenuta 4 giorni dopo l'unica sessione di PDT.

CONCLUSIONI: In conclusione, possiamo affermare che la terapia fotodinamica è efficiente nella risoluzione immediata dei sintomi, dei tempi di guarigione ma soprattutto della carica virale.

Infezione da SARS CoV-2 e Disbiosi Orale. Risultati di Follow-up Clinico e di Laboratorio

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INTRODUZIONE: Il microbiota orale è la seconda comunità microbica più grande dopo quella intestinale e può influenzare l'insorgenza e la progressione di diverse malattie sistemiche. La flora microbica orale è composta da batteri con diverso status di patogenicità da commensali a opportunisti, che in condizioni di Eubiosi convivono in uno stato di omeostasi con i tessuti dell'ospite. L'alterazione dell'equilibrio microbico chiamata disbiosi può incrementare i Phyla batterici con un potenziale di virulenza, alterando il microbiota e di conseguenza la sua potenzialità patogena. La disbiosi può essere causata da molteplici fattori quali abitudini di vita, terapie e infezioni ricorrenti. Recentemente la comunità scientifica sta riportando casi di disbiosi batterica dovute a sovrainfezioni virali, per esempio a livello intestinale. In questo studio viene valutato lo status del microbiota orale durante l'infezione da SARS-CoV-2 in tre pazienti seguiti durante un follow-up medio di 7 giorni post infezione.

MATERIALI E METODI: La valutazione dello stato Eubiotico/Disbiotico del microbiota orale è stata effettuata

mediante analisi metabolomica dell'aria espirata, valutando le sostanze solforate volatili (VSC), quali H₂S e CH₃S. Questi composti sono il risultato delle proteasi di batteri anaerobi orali, opportunisti o patogeni, quali il *Fusobacterium nucleatum*.

I VSC e il titolo % del *F. nucleatum* sono stati valutati su tre pazienti positivi per SARS-CoV-2 e 5 soggetti sierologicamente negativi. I gas solforati sono stati misurati tramite gas-cromatografo Oral-Croma su 0.5 mL di aria. Su tamponi linguali per 5-9 giorni dalla positività ogni giorno è stato estratto il DNA, successivamente su ciascun estratto sono stati valutati i genomi di *F. nucleatum* e dei batteri totali conteggiando il gene 16S rRNA con metodica real time qPCR. Lo stato di infezione COVID e' stato monitorato tramite esame molecolare da tampone nasale, utilizzando il kit genesig[®] Real-Time PCR assay.

RISULTATI: Le concentrazioni del CH₃S raggiungono valori decisamente più elevati rispetto alla soglia limite durante il periodo di positività SARS-CoV-2, per poi tornare durante la negativizzazione a valori compatibili con una condizione di normalità. Parallelamente abbiamo osservato che *F. nucleatum*, rispetto al gruppo dei controlli, dimostri valori in % più elevati nei soggetti affetti da COVID-19. Infatti, la % dei genomi di *F. nucleatum* nei controlli è risultata essere sempre inferiore al 10%.

CONCLUSIONI: È stato possibile osservare come esista una associazione tra disbiosi orale e l'infezione da SARS-CoV-2. Tuttavia, non è chiaro se l'infezione da SARS-CoV-2 possa alterare l'omeostasi locale del microbiota orale, rappresentando dunque una causa attiva di disbiosi oppure se le alterazioni innescate da minime perturbazioni della microflora residente possano in qualche modo aumentare la suscettibilità individuale all'infezione da SARS-CoV-2.

Acido 5-aminolevulinico (5ala) e terapia fotodinamica (pdt) in combinazione con inibitori dell' ABCG2 nell'oscc

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INTRODUZIONE: Il cancro orale è il tumore più frequente della regione oromaxillofacciale, con l'istologia più comune data dal carcinoma orale a cellule squamose (OSCC). Il 5ALA induce la produzione della

Protoporfirina IX (PpIX), fotosensibilizzante endogeno coinvolto nella via biosintetica dell'eme. La PDT è basata sulla reazione tra la PpIX attivata dalla luce e l'ossigeno molecolare che conduce alla morte cellulare dovuta ad un aumento intracellulare dei livelli delle specie reattive dell'ossigeno (ROS). La somministrazione di 5ALA esogeno incrementa la produzione di PpIX da parte delle cellule tumorali, aumentando il tasso di mortalità cellulare. ABCG2 è il trasportatore del membro 2 della superfamiglia ATP-binding cassette ed è una pompa di efflusso coinvolta nella ritenzione della PpIX da parte delle cellule tumorali.

MATERIALI E METODI: Saranno impiegati in combinazione con 5ALA-PDT gli inibitori dell'ABCG2 gefitinib, lapatinib, sunitinib. Saggi funzionali quali MTS, apoptosi, ciclo cellulare, ROS, sono stati effettuati sulla linea cellulare di OSCC CAL27. Le CAL27 sono state incubate con 5ALA in diverse concentrazioni: 0.23mM, 0.92mM, 1.84mM, 3.45mM, 4.6mM, 6.9mM per 2, 3, 4, 8h. Le cellule sono state poi irradiate con un device a LED (TL-01) con lunghezza d'onda di 630nm ± 10nm. Gli effetti citotossici di 5ALA-PDT sono stati misurati mediante saggio MTS. I risultati sono stati comparati con le cellule non trattate con il 5ALA e non irradiate. Per valutare la tossicità selettiva di 5ALA-PDT gli stessi saggi sono stati effettuati su cellule normali di cheratinociti (HaCat). Le cellule saranno poi trattate con gefitinib, lapatinib, sunitinib per identificare quale di essi sia più adatto a potenziare l'efficacia di 5ALA-PDT. Xenotrapianti da OSCC saranno stabiliti dalle linee cellulari iniettate per via sottocutanea nei topi. La combinazione del 5ALA-PDT con l'inibitore selezionato sarà poi somministrata per via sottocutanea nei topi.

RISULTATI: Il saggio MTS ha dato il tasso più alto di mortalità per le CAL27 trattate con 5ALA-PDT a 1.84mM per 8h (79.28%). L'effetto citotossico non è stato osservato sulle cellule non trattate con 5ALA e non irradiate. La vitalità cellulare delle HaCat diminuisce al 45.6% quando trattate con 5ALA a 1.84mM per 8h mentre al 39.2% quanto trattate con 5ALA a 0.23mM per 4h. Il saggio dell'apoptosi mostra il miglior risultato dopo 8h alla concentrazione di 1.84mM nelle CAL27. Infine nelle CAL27 dopo trattamento si osservano alterazioni del ciclo cellulare e alti livelli di ROS.

CONCLUSIONI: I risultati ottenuti hanno dimostrato che il 5ALA-PDT influenza la crescita delle CAL27. Ciò rappresenta una premessa per l'ottenimento di nuovi protocolli terapeutici volti a migliorare l'esito clinico dei pazienti affetti da OSCC.

DENTAL HYGIENE & PREVENTION

Attività antifungina di 16 collutori orali verso ceppi multiresistenti di candida albicans

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INTRODUZIONE: La candidosi orale è un'infezione causata da lieviti saprofiti presenti naturalmente nella bocca. Uno squilibrio dell'omeostasi tissutale può determinare l'eccessiva proliferazione di questi microrganismi. In questo contesto *Candida albicans* è il patogeno orale più rappresentativo, inoltre l'infezione di questo microrganismo sta preoccupando il mondo medico-odontoiatrico a causa della comparsa di ceppi multiresistenti ai farmaci (MDR). Per questo motivo è fortemente richiesto lo studio di nuovi medicamenti antifungini come collutori o altri preparati per l'igiene del cavo orale. Esistono diversi fattori che possono contribuire allo sviluppo della candidosi: scarsa igiene orale, terapie antimicrobiche prolungate, condizioni di immunodepressione come HIV, chemioterapia, radioterapia, diabete mellito, carenza di vitamina B12, xerostomia. Attualmente non sono disponibili studi in vitro su un vasto range di prodotti commerciali, lo scopo di questo lavoro è valutare l'attività antimicrobica verso un ceppo orale MDR di *C. albicans*, utilizzando i principali collutori in uso in Italia.

MATERIALI E METODI: Sono stati testati 16 prodotti commerciali contenenti diversi principi attivi in singolo o in combinazione, tra cui: oli essenziali, enzimi, fluoruro amminico, fluoruro stannoso, cloruro di zinco, oli ozonizzati, sali di sodio e alcol. La valutazione in vitro è stata eseguita seguendo i protocolli del Comitato Europeo per i Test di Suscettibilità Antimicrobica (EUCAST), in particolare è stato utilizzato il metodo di Kirby-Bauer. 1*10⁶ cellule di *C. albicans*, provenienti da un isolato orale MDR, sono state seminate sulla superficie di una piastra di Petri contenente un terreno agarizzato (Sabouraud Agar). 50 µl di ciascun formulato sono stati disposti in un pozzetto previamente creato sulla superficie dell'agar. Dopo incubazione della piastra a 37°, l'attività antimicrobica era evidenziabile dalla presenza di un alone di inibizione attorno al pozzetto e quantificata in mm come diametro Ø di inibizione.

RISULTATI: 10 su 16 formulati mostravano attività in vitro contro *C. albicans* con aloni di inibizione compresi tra 40 e 10 mm. In questo contesto un preparato a base di enzimi: amiloglucosidasi, glucosidasi, lattoperossidasi, lysozima si è dimostrato particolarmente attivo. Inoltre, una buona attività antifungina è stata osservata con i preparati a base di cloruri e fluoruri di zinco.

CONCLUSIONI: Considerando il problema gravoso della candidosi multi-resistente (in particolare agli Azoli) il medico orale dovrebbe utilizzare e consigliare presidi di igiene realmente attivi contro questo patogeno. Questa ricerca ha lo scopo di fornire ai clinici dati oggettivi, spendibili per il trattamento delle infezioni fungine orali, in particolare quelle sostenute da ceppi di *Candida* spp. refrattari ai comuni antimicrobici.

Studio in vivo split-mouth su perossidi a bassa

concentrazione: risultati preliminari

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INTRODUZIONE: L'utilizzo dei perossidi per il trattamento di sbiancamento conosce diverse applicazioni in odontoiatria. Tale studio si pone l'obiettivo di confrontare l'effetto di due prodotti sbiancanti a base di basse concentrazioni di perossidi in mono e bicomponente.

MATERIALI E METODI: Lo studio è stato condotto secondo il regolamento vigente di Helsinki ed è approvato dal comitato etico locale.

Sono stati arruolati pazienti sani volontari, con assenza di restauri o manufatti protesici sugli elementi 1.1 e 2.1. È stato rilevato il colore dei suddetti elementi con spettrofotometro SpectroShade[®], utilizzando la valutazione tramite scala Vita[®] Classical digitale applicata globalmente sulla corona dell'elemento analizzato.

Sono stati applicati prodotti sbiancanti a base di perossido di carbamide al 16% in bicomponente (Test 1, BlancOne[®] Click) e di perossido di idrogeno al 6% monocomponente (Test 2, Mentadent[®] Pen pro) in maniera randomica sugli elementi 1.1 e 2.1 dello stesso paziente.

Ciascun prodotto è stato attivato separatamente con la propria lampada con un ciclo da 12 minuti, rispettivamente lampada BlancOne[®] con potenza di 600mW/cm e lampada Mentadent EasyLampPlus con potenza 2600mW/cm. Al termine del ciclo di fotocatalizzazione, si è proceduto alla rimozione del gel e alla registrazione del colore mediante scala Vita Classical digitale ed acquisiti con spettrofotometro.

I dati sono stati sottoposti ad analisi statistica.

RISULTATI: Sono stati arruolati 20 pazienti per un totale di 40 incisivi centrali superiori, di questi 20 presentavano una valutazione di partenza di grado A1 o B1 o C1, rispettivamente 10 per ciascun prodotto sbiancante. I restanti 20 elementi hanno mostrato un miglioramento del valore.

Non sono state riscontrate differenze statisticamente significative tra le due molecole in esame.

CONCLUSIONI: I valori di partenza spesso già elevati hanno costituito un bias per l'analisi dello studio, poiché le variazioni post trattamento non vengono registrate tramite scala Vita[®] Classical, seppur acquisite in via digitale. Dai presenti risultati preliminari non sono evidenti differenze statisticamente significative tra prodotti a base di diversi perossidi e la formulazione in mono o bicomponente non sembra essere rilevante ai fini della riuscita del trattamento.

L'igienista dentale nell'intercettazione delle manifestazioni orali legate al consumo professionale

del vino

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SCOPO DEL LAVORO: Scopo dello studio: verificare gli effetti del vino nella cavità orale nei pazienti enologi. Obiettivo primario: analizzare dati clinici presenza/ assenza di manifestazioni orali. Obiettivo secondario: impostare un piano preventivo e/o terapeutico che permetta il mantenimento della salute orale

MATERIALI E METODI: A tal fine è stato condotto uno studio osservazionale caso controllo su 30 pazienti reclutati presso la clinica odontoiatrica del policlinico di Bari, suddiviso in due gruppi:
- Gruppo test A (n=20): professionisti enologi da più di 5 anni, età superiore ai 25 anni, assunzione di almeno 35 g di vino al giorno.

- Gruppo controllo B: non professionisti enologi (n=10). La raccolta dei dati ha previsto la somministrazione di un questionario preventodontico e rilevamento di specifici indici per la valutazione dello stato di salute orale: PCR, DMFT, BEWE, Air Blast Test, PSR, GBI, test salivare (quantitativo e del pH), "PTC status" (Indice di percezione del gusto amaro) e presenza dei VSC (composti solforati volatili) responsabili dell'alitosi.

RISULTATI: Lo studio osservazionale ha permesso di verificare nel gruppo test la presenza di ipersensibilità dentinale, carie, alitosi, afte, lesioni alla lingua, alterazioni del gusto, basso indice di PSR e GBI ed alto PCR.

Nel gruppo controllo sono stati riscontrati in quantità minore ipersensibilità dentinale, afte ed alterazioni del gusto. La correlazione tra alti valori di GBI, PSR e PCR risulta invece direttamente proporzionale.

Analisi CIE Lab di sbiancanti a bassa concentrazione

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INTRODUZIONE: La rilevazione del colore è un processo fondamentale nella valutazione di metodiche di sbiancamento dentale. La scala più utilizzata è la scala Vita[®] Classical, in formato analogico o digitale attraverso lo strumento dello spettrofotometro. Tale strumento, tuttavia, permette una sub-analisi molto più accurata fondata sul sistema CIE Lab dove si indagano il

valore (L), il croma (a) e la tinta (b) di singoli punti scelti dall'operatore. La diminuzione del parametro b è quella più significativa per un trattamento sbiancante, poiché corrisponde alla diminuzione del giallo. La differenza tra questi tre parametri è sintetizzata dal valore di Σ : quando è $\geq 2,14$ la variazione del colore è visibile per l'occhio umano.

MATERIALI E METODI: Lo studio è stato condotto secondo il regolamento vigente di Helsinki ed è approvato dal comitato etico locale.

Sono stati arruolati pazienti sani volontari, con assenza di restauri o manufatti protesici sugli elementi 1.1 e 2.1. È stato rilevato il colore dei suddetti elementi con spettrofotometro SpectroShade[®].

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Ciascun prodotto è stato attivato separatamente con la propria lampada con un ciclo da 12 minuti, rispettivamente lampada BlancOne[®] con potenza di 600mW/cm² e lampada Mentadent EasyLampPlus con potenza 2600mW/cm².

Al termine del ciclo di fotocatalizzazione, si è proceduto alla rimozione del gel e alla registrazione del colore mediante spettrofotometro.

Le immagini sono state analizzate in tre punti (terzo cervicale, medio, incisale) registrando i valori del Lab e del Σ prima e dopo il trattamento. Infine, sono stati sottoposti ad analisi statistica.

RISULTATI: Sono stati arruolati 20 pazienti, 40 incisivi centrali superiori, per un totale di 80 immagini prima/dopo.

Il Σ medio è risultato $> 2,14$ nell'85% del Test 1 e nel 100% del Test 2, tale differenza non è risultata statisticamente significativa ($p = 1,37$)

La media dei valori massimi di b nel Test 1 è di $2,921 \pm 1,274$, mentre nel Test 2 è di $3,806 \pm 2,085$, tale differenza è statisticamente significativa ($p = 0,018$).

CONCLUSIONI: L'analisi del Lab è sensibile anche a piccole variazioni dei parametri e fornisce una valutazione molto più accurata della scala Vita[®] Classical digitale. Sebbene non esista una differenza significativa tra i valori di σE dei due prodotti, il Test 1 ha mostrato una maggiore riduzione della tinta.

PROTESIS

Baltic denture system

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AIM: The Baltic Denture System process opens a new way of producing total dentures in a digital workflow. Combining the work steps in the dental office and the processes in the laboratory in a single workflow means quality and economy, in fact this type of processing allows us to be more competitive and offering maximum quality while reducing manual labor.

MATERIALS AND METHODS: With the Baltic Denture System, the objectives are clearly defined. The way it is clearly shown, from the impression to the final result. However, the processes leading to the result have now been greatly simplified. The dental procedure in the Baltic Denture System involves taking the impression, recording the bite, and transferring the key data to the digital laboratory system. Load is a milling blank in which the dental arches are integrated in a functional and aesthetic configuration. Load's CNC milling process ensures both a high precision fit and a high-quality total denture material.

The Baltic Denture System procedure in the dental laboratory involves data acquisition, design, CNC processing, and finishing.

The data acquisition of the mandible is done by 3D scanning.

This data is used for CAD design of prostheses with CAD Creator PLUS software. By means of the KEY Set used by the dentist, the position of the dental arches can be brought to exactly match the patient-specific alignment from the practice in the software.

The denture base for the aligned dental arches is generated in the software in just a few steps. After transferring the data to the CAM software to calculate the milling paths, the CNC milling process can begin. Finishing of the dentures is done in significantly fewer steps than conventional dental procedures using milling and polishing.

After CAD creation of total dentures in Creator PLUS, the data are transferred to an appropriate CAM module in an stl file format for partially automated calculation of milling paths.

To define the milling strategy for machining Load in a 3 + 2 axis milling procedure or in a 5 axis simultaneous milling procedure.

RESULTS AND CONCLUSIONS: This new prosthesis fabrication technique provides an extremely efficient workflow. Our clinical experience has been very positive. There is a short learning curve that can be easily mastered. Patients have been enthusiastic about the results. There has been minimal adjustment, excellent stability and ridge adaptation. Above all, there is a reduction in chairside sessions, also reducing the risks for SARS-

COV-2 infection nowadays and having an excellent aesthetic and functional result immediately.

Obturator Prosthesis Rehabilitation after Maxillectomy: Functional and Aesthetical Analysis in 25 Patients

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AIM: The number of patients undergoing maxillary resection for oncological reasons is constantly increasing, the most common complication of which remains the communication between the oral and nasal cavities. Based on the data that emerged from the literature regarding the treatment options of post-surgical maxillary oncological defects, the obturator prosthesis remains the most widely used worldwide, followed by reconstructions using microvascularized surgical flaps.

MATERIALS AND METHODS: 25 patients with oro-nasal communication after maxillary resection for oncological reasons (with a follow-up of at least 1 year) rehabilitated with an obturator prosthesis were included, carrying out an objective and subjective evaluation and masticatory function measured by chewing a two colors chewing-gum. Following 50 masticatory cycles, the more the color of the two chewing gums was homogeneous, the better the masticatory function, while in cases where the colors of the two chewing gums remained well distinguished it was a deficit of masticatory function: the patients were divided into 4 categories according to their masticatory functionality.

RESULTS: Among the patients in our study, 72% scored higher for stability and retention than for aesthetic appearance, as confirmed by the Kapur score evaluated by the doctors. The two-color chewing gum test showed excellent similar results, since only one patient had insufficient masticatory function, while 72 % demonstrated a homogeneous mixing of the two colors, demonstrating proper chewing function.

CONCLUSIONS: Interestingly, no correlation was found between chewing function and residual dentition and the type of jaw defect, confirming that the obturator prosthesis remains a predictable solution in these patients, regardless of the anatomical alterations following surgery.

Monolithic zirconia prosthetic single crowns on natural dental abutments in the posterior sectors: retrospective study of 40 cases

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AIM: Among the recently used prosthetic materials, zirconia, in particular in monolithic form, immediately distinguished itself for the best ability to coincide excellent biomechanical and acceptable aesthetic properties, moreover the monolithic zirconia allows to overcome the drawbacks related to double layered restorations. This study consists of a short- and long-term retrospective quality evaluation of the status of monolithic zirconia single prosthetic crowns on posteriors natural dental abutment.

MATERIALS AND METHODS: For the quality evaluation of the prosthetic maintenance status over time, it was adopted the systematics of the California Dental Association (C.D.A.), based on color, surface, anatomical shape and marginal integrity, furthermore each prosthetic product was defined such as “Excellent”, “Acceptable” and “need to be redone”.

RESULTS: These 40 clinical cases considered in this experimental study show a follow-up ranging from 8 to 78 months. The clinical cases subjected to this experimental study turned out to be “Excellent” in 32 cases (80%); “Acceptable” in 7 cases (17.5%); and in only 1 case (2.5%) “Need to be redone”. The 7 cases defined as “Acceptable” have in common the clinical evidence of partial impairment of a single evaluation parameter. In only 1 case (about 15% of acceptable cases) the “b” concerns the “color”; in only 1 case (about 15% of acceptable cases) the “b” concerns the “surface”; in 3 cases (about 40% of acceptable cases) the “b” concerns the “anatomical shape”; and, in 2 cases (about 40% of acceptable cases) the “b” concerns “marginal integrity”. The single clinical case that “Need to be redone” presents a long marginal exposure of dentin (TMD) or base (TMB).

CONCLUSIONS: The experimental study shows, on the basis of the % survival data, both in the short and long term (more than 5 years), the evidence of the high level of reliability of monolithic zirconia, used as a restorative material for single prosthetics rehabilitation on natural dental abutment, thus proposing itself as a valid alternative to conventional bilayers materials.

Corone protesiche singole in zirconia monolitica su pilastri dentali naturali nei settori posteriori: studio retrospettivo di 40 casi.

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OBIETTIVI: Tra i materiali protesici di recente impiego, la zirconia, in particolare in forma monolitica, si è sin da subito distinta per la migliore capacità di coincidere ad ottime proprietà biomeccaniche una resa estetica accettabile, seppure non eccellente, al tempo stesso riuscendo a superare gli inconvenienti correlati a restauri bilayers. Questo studio consiste in una valutazione retrospettiva, a breve e a lungo termine, dello status qualitativo di corone protesiche singole in zirconia monolitica su pilastri dentali naturali, nei settori latero-posteriori.

MATERIALI E METODI: Per la valutazione dello status di mantenimento protesico nel tempo, è stata adottata la sistemática della California Dental Association (C.D.A.), quindi basandosi su colore, superficie, forma anatomica ed integrità marginale, ciascun manufatto protesico è stato definito con i termini “Eccellente”, “Accettabile” e “Da rifare”.

RISULTATI: I 40 casi clinici considerati in questo studio sperimentale presentano un follow up variabile da 8 a 78 mesi. I casi clinici sottoposti a studio sperimentale si sono rivelati “Eccellenti” in 32 casi (80%); “Accettabili” in 7 casi (17,5%); ed in 1 solo caso (2,5%) “Da Rifare”. I 7 casi definiti “Accettabili” presentano in comune l’evidenza clinica di compromissione parziale di un singolo parametro di valutazione. In 1 solo caso (circa il 15 % dei casi accettabili) la “b” riguarda il “colore”; in 1 solo caso (circa 15 % dei casi accettabili) la “b” riguarda la “superficie”; in 3 casi (circa 40% dei casi accettabili) la “b” riguarda la “forma anatomica”; e, in 2 casi (circa 40% dei casi accettabili) la “b” riguarda l’ “integrità marginale”. Il singolo caso clinico “Da rifare” presenta un’esposizione della dentina (TMD) o della base (TMB) lungo a livello marginale.

CONCLUSIONI: Lo studio sperimentale mostra, sulla base dei dati % di sopravvivenza, sia a breve che a lungo termine (5 anni), l’evidenza dell’alto livello di affidabilità della zirconia monolitica, impiegata come materiale da restauro per la progettazione e realizzazione di corone protesiche singole nei settori latero-posteriori su pilastri dentali naturali, proponendosi, dunque, come valida alternativa ai bilayers convenzionali.

Riabilitazione Protesica Otturatrice dopo Maxillectomia: Analisi Funzionale ed Estetica in 25 Pazienti
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Obiettivi: Il numero di pazienti sottoposti a resezione mascellare per motivi oncologici è in costante aumento, la cui complicità più comune rimane la comunicazione tra cavità orale e nasale. Sulla base dei dati emersi dalla letteratura riguardo alle opzioni di trattamento dei difetti post-chirurgici oncologici mascellari, la protesi otturatrice rimane la più utilizzata a livello mondiale, seguita dalle ricostruzioni mediante lembi chirurgici microvascolarizzati.

Materiali e Metodi: Sono stati inclusi 25 pazienti con comunicazione oro-nasale dopo resezione mascellare per motivi oncologici (con un follow-up di almeno 1 anno) riabilitati con protesi otturatrice, effettuando una valutazione oggettiva e soggettiva e della funzionalità masticatoria misurata attraverso un test di masticazione di chewing-gum a due colori. In seguito a 50 cicli masticatori, più il colore delle due chewing-gum risultava omogeneo, migliore era la funzionalità masticatoria, mentre nei casi in cui i colori delle due chewing-gum rimaneva ben distinto si trattava di un deficit di funzionalità masticatoria: i pazienti sono stati distinti in 4 categorie secondo la loro funzionalità masticatoria.

Risultati: Tra i pazienti del nostro studio, il 72% ha ottenuto un punteggio più alto per la stabilità e la ritenzione che per l'aspetto estetico, come confermato dal punteggio Kapur valutato dai medici. Il test della chewing-gum a due colori ha mostrato ottimi risultati simili, poiché solo un paziente aveva una funzione masticatoria insufficiente, mentre il 72% ha dimostrato una miscelazione omogenea dei due colori, dimostrando una corretta funzionalità masticatoria.

Conclusioni: È interessante notare che non è stata trovata alcuna correlazione tra la funzionalità masticatoria e la dentatura residua e dalla tipologia del difetto mascellare, confermando che la protesi otturatrice rimane una soluzione predicibile in questi pazienti, indipendentemente dalle alterazioni anatomiche successive all'intervento.

CASE REPORTS

Management of Self-Mutilating Habit In Lesch-Nyhan Syndrome: A Case Report

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INTRODUCTION: Lesch-Nyhan syndrome firstly described

by Lesch and Nyhan in 1964. it is a x-linked recessive disease caused by deficiency of enzyme hypoxanthine guanine phosphoribosyl transferase, that leads to the overproduction of purine and affects uric acid metabolism and central nervous system function. child is appear to be normal at birth but after 3 months they are unable to lift head or sit up. They also show hypotonia, lack of muscle tone, mental retardation, spastic cerebral palsy and self-mutilating habits which appears after 1 year of age. Perioral self-mutilating behaviour is thought to begin with the eruption of teeth; patients then begin to bite themselves. This leads to partial or total destruction of perioral tissue especially the lower lip, fingers and toes. various types of approaches are made to venture the restriction of this destructive/mutilating habits such as hand restraints, dental mouth guards, and dental extractions

CASE REPORT: A two and half year old male child reported to Dept. of Pediatric and preventive dentistry with complain of self-mutilating habits and injuries to perioral tissues. On examination there were laceration on lower lip and both the thumbs. well-defined, deep ulcer with ragged margins and some scarring was present over the lower lip. After recording the history from the parents, it was revealed that the child had developed the habit of self-biting at 10 months of age roughly coinciding with eruption of teeth. Patient was referred to the physician and after multiple neurologic and serologic assays the child was diagnosed with LNS. Immediate management was planned. The treatment plan included the prevention of the further trauma to the perioral soft tissue including fabrication of a mouth guard. Laceration injuries of the lip cleaned with the help of betadine and suturing was done using vicryl 3-0. Upper and lower alginate impression made using perforated impression trays. Study model was made using dental stone and acrylic occlusal splint was fabricated. This occlusal splint was cemented on the lower occlusal surface using zinc phosphate cement. patient was recalled after every 3 months for follow up.

CONCLUSION: This is a 'x-linked' recessive disease so only affects males. LNS is a rare disorder but it can easily be diagnosed. Diagnosis is suspected when psychomotor delay occurs in a patient with elevated uric acid in blood and urine. There is no permanent treatment for this syndrome, So as a Pediatric dentist it is our duty to do management for the self-mutilating habits for the prevention of the further trauma to the perioral tissues.

DENTAL REHABILITATION OF DONOHUE SYNDROME: A CASE REPORT

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INTRODUCTION: Insulin resistance syndromes (irs) are a group of genetic disorders caused due a functional defect in chromosome 19p13. It is an autosomal recessive condition. Depending on the severity of the mutation, there are many variations of this syndrome, of these five main variations have been described in literature. It ranges from Donohue syndrome (DS) (a complete loss insulin receptor [IR] function) to milder phenotypes such as Rabson-Mendenhall Syndrome (RMS) and Type A insulin resistance. Donohue Syndrome was initially described by Donohue and Uchida in 1948 and 1954, a case of sisters born to parents with a first-degree consanguineous marriage. Some of the important and notable facial features included flat nasal bridge, thick lips, low-set large ears, and hypertelorism of the orbits. Clinical features include lipoatrophy, acanthosis nigricans, organomegaly, hypertrichosis, hirsutism, and postprandial hyperglycemia. Neurological abnormalities include delayed milestones and severe growth retardation. Endocrine anomalies include hyperplasia of the islet cells of Langerhans with altered carbohydrate metabolism.

CASE REPORT: Hereby, Presenting a Case report of 8 year old female who came to the Department of Pedodontics with a chief complaint of severe pain, with upper and lower right back quadrants of the jaws. She had carious 16, 26, 36, and 46.

Other intraoral features included crowded and dysplastic dentition, narrow maxillary arch, anterior open bite, palatally placed 12 and 22, and hyperplastic gingiva, Macroglossia was seen with enlarged filiform papillae and vertical furrows. She was referred to the department of pediatrics for a general examination as well as medical fitness and also sent for blood investigations. Due to delayed mental faculties it was not be manageable on the dental chair, and Given her condition, it was decided to reduce the multiple appointments to one appointment therefore, it was decided that she would be taken under general anesthesia for dental Rehabilitation.

The dental procedures that were carried out were oral prophylaxis, restorations, and extractions of severely carious teeth. Owing to the patient's condition, it was imperative to Reduce the bacterial load as much as possible. The patient was kept in postoperative care on the surgery floor for about 3-4 h. Her vital signs and sugar levels were kept closely monitored. The patient was kept on electrolytes and the insulin drip along with injection Glargine to maintain Her electrolyte and sugar levels and Postoperative Antibiotic coverage was Provided.

CONCLUSION: Dental Rehabilitation treatment was necessary for this child to relieve her Pain and Discomfort and also to improve her Nutritional status with Masticatory Functions.

DENTAL AND MEDICAL MANAGEMENT OF CEREBRAL

PALSY AND ITS CONSEQUENCES: A CASE REPORT

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INTRODUCTION: Special children are of great concern to the family as well as to the society. When disability in children are concerned, about a quarter of chronic childhood problems are neurological in origin. Cerebral Palsy (CP) is a leading cause of neuromotor disorder which affects the development of movement, muscle tone and posture. The prevalence of CP for all live births ranges from 1.5 to 3 per 1,000 live births. Children with CP are at increased risk of developing dental problems. This can cause deleterious health effects which can further deteriorate their quality of life. Dental manifestations in CP may include development of malocclusion, traumatic dental injuries, bruxism, dental caries, sialorrhea as a consequence of dysfunction in the coordination of swallowing mechanisms, dental erosion and poor oral hygiene maintenance. Providing dental care to these children are of great importance and requires a skilled approach.

CASE REPORT: Presenting a case of 5 year old male patient from Jalgaon, Maharashtra, India, diagnosed with Cerebral palsy with an ASA category IV and Hippocampal sclerosis reported to the Dept. of Paediatric and Preventive Dentistry with the complaint of multiple decayed teeth. The child was unable to speak with impaired motor and cognitive skills. A full mouth rehabilitation was carried out under General Anesthesia with due consent from the patient's parents. A thorough medical review and fitness consent were taken from the Pediatrics and Anaesthesia department before starting the treatment. Orotracheal intubation was performed and after the patient was confirmed stable, the intraoral dental procedures were carried out. Pulpectomies followed by Stainless steel crowns, extractions, restorations and complete oral prophylaxis were carried out under general anaesthesia as required. Complications arised when the patient's reversal didn't occur due to laryngeal edema after extubation, his SpO2 dropped rapidly. Patient was reintubated and was shifted in PICU. After about 5 hours, reversal occurred and extubation was done by the Paediatrician and Anaesthetist. The patient was closely monitored for the next 24 hours in PICU and then was shifted to the ward after his vitals were under control. Careful monitoring for pain, swelling or any bleeding from extraction sockets postoperatively were checked. After complete evaluation and monitoring by the Pediatrician and Pedodontist, the patient was discharged to avoid any risk of hospital acquired infections. The patient was recalled after 3 months for follow up.

CONCLUSION: Good team work is extremely important

in treating such cases. It is one's great privilege to contribute to the wellbeing of our society and treat such children who are neglected from our society. Although there were complications postoperatively, the end results made it worth taking the risks to restore the oral health of the child. As a Paediatric dentist having proper medical and dental knowledge to find the cause for such complications and efficiently managing them is of utmost importance. In this poster the various causes for such complications and how to manage them will be discussed.