

COMBINED USE OF PRF AND BUCCALU FAT PAD FOR CHRONIC MAXILLARY SINUSITIS SECONDARY TO PERI-IMPLANTITIS WITH OROANTRAL COMMUNICATION: A CASE REPORT

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Background: chronic maxillary sinusitis secondary to peri-implantitis associated with oroantral communication (OAC) represents a complex condition requiring infection control and reliable defect closure.

Case report: a female patient presented with persistent left hemimaxillary pain. Panoramic radiography and cone-beam computed tomography revealed peri-implantitis of maxillary implants associated with chronic sinusitis and OAC.

Treatment: surgical management included removal of the affected implants and thorough debridement of infected tissues. Concentrated Growth Factors (CGF) were applied to the surgical site to enhance tissue regeneration and healing. Oroantral

communication was closed using a pedicled buccal fat pad (Bichat's fat pad) flap, providing well-vascularized and stable defect coverage.

Results: postoperative follow-up showed complete resolution of symptoms and progressive healing, with no recurrence of sinus infection. The patient is currently under periodic clinical monitoring.

Conclusions: the combined use of CGF and buccal fat pad flap appears to be a reliable and minimally invasive approach for managing chronic maxillary sinusitis secondary to peri-implantitis with OAC, ensuring effective infection control, biological support, and stable closure of the communication.

GLIOMA: HISTOPATHOLOGICAL FEATURES AND CLINICAL MANAGEMENT INSIGHTS FROM A SYSTEMATIC REVIEW AND CASE REPORT

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Background: oral glomus tumors are rare perivascular neoplasms often misdiagnosed due to nonspecific clinical features and their low incidence. Their rarity has led to inconsistent terminology and limited understanding of their clinicopathological behavior.

Methods: this systematic review followed PRISMA 2020 guidelines and was registered in PROSPERO (ID 1175198). PubMed, Scopus, and Web of Science were searched (1954-2024) for English-language case reports and series of histologically confirmed oral glomus tumors. Extracted data included demographics, site, size, histology, treatment, recurrence, and follow-up.

Results: from 740 records, 31 studies met inclusion criteria,

reporting 34 cases. Patients ranged from 8 to 85 years, with slight male predominance. The lip was the most frequent site, followed by tongue and palate. Tumor size ranged from 0.3 to 4.5 cm. Conventional glomus tumor was most common; glomangiomyoma was rare, with one case of glomangiosarcoma. Surgical excision was curative in most cases. Recurrence was uncommon and no metastases were reported.

Conclusions: oral glomus tumors are benign, well-circumscribed lesions with excellent prognosis after complete excision. Diagnosis requires histopathological and immunohistochemical confirmation due to overlap with other mesenchymal tumors. This review summarizes current evidence on their clinical and pathological features.

PERIODONTAL IMPROVEMENT AFTER MANDIBULAR TRANSVERSAL DISTRACTION

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Aim: evaluation of the periodontal conditions of compromised 3.1 in heavy crowded dental arches was performed pre and post mandibular curved distraction with malocclusion resolution.

Methods: maxillo-Mandibular distraction in heavy crowded malocclusion in both dental arches was performed. Hybrid tooth borne and bone borne distractor device was adopted for the upper jaw, while a double level distraction technique was adopted for the lower jaw with immediate basal bone widening followed by a curved distraction for the lower dental arch. Two plates connected by a sagittal screw acting as a hinge were used for immediate basal bone widening; an acrylic plate with a jackscrew with two hinges and a curved bar was adopted for a curved bone regeneration at the dental level. In this way new alveolar bone was regenerated in a curved fashion following

the natural lower incisors alveolar bone shape. Repositioning of the 3.1 root in the alveolar bone was possible after bone distraction.

Results: periodontal impressive improvement was detected at the periodontal chart examination and by CT evaluation three years after distraction with complete crowding resolution, with class I occlusion, posterior cross bite resolution and Tmj dysfunction resolution.

Conclusions: to our knowledge this is the first case when a mandibular distraction is achieved with a curved fashion reproducing natural alveolar bone shape with a double level distraction. With this technique new alveolar and basal bone is achieved, allowing root repositioning, avoiding extractions with aesthetic, functional and periodontal nice results.

CAD-CAM TECHNOLOGY FOR CUSTOM SPLINT FABRICATION IN MAXILLOMANDIBULAR ORTHOGNATHIC SURGERY

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Aim: Orthognathic surgery (OGS) has undergone significant advancements due to technological evolution, particularly with the introduction of 3D digital imaging and CAD/CAM technology. These innovations enable a personalized surgical approach through the fabrication of custom-made surgical splints, improving accuracy and reducing invasiveness. At the University Maxillofacial Surgery Unit, the combined use of CAD/CAM technology and Piezosurgery® allows optimization of surgical planning and the execution of targeted osteotomies with minimal impact on soft tissues. The aim of this study is to evaluate the application of CAD/CAM custom-made technology in the treatment of maxillofacial deformities.

Methods: the study involved 24 patients, of whom 10 (7 females and 3 males, aged 21-28 years) underwent orthognathic treatment using CAD/CAM technology for the fabrication of customized surgical splints. All patients completed a preoperative orthodontic phase, including clinical examinations, digital analysis, cephalometry, and Cone Beam CT imaging.

Results: results from the 10 treated patients showed a 10% reduction in operative time and improved maxillary stability. These findings suggest the effectiveness of the technologies used, particularly digital imaging and CAD/CAM systems.

Conclusions: advancements in orthognathic surgery, especially digital imaging and CAD/CAM systems, improve surgical accuracy, reduce operative time, and enhance stability.

SURGICAL STRATEGY IN MAXILLARY SINUS ELEVATION USING A LATERAL APPROACH: PRESENTATION OF A CLINICAL CASE

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Objective: this case report describes the surgical management of severe posterior maxillary atrophy using a lateral sinus lift approach followed by implant-prosthetic rehabilitation.

Materials and methods: a 63-year-old patient presented with severe vertical bone deficiency in the posterior maxilla (regions 1.5-1.7), with a residual bone height of 3-4 mm as assessed by CBCT. A lateral window sinus lift procedure was performed using heterologous bone graft material and fibrin. After healing, tooth 1.5 was extracted due to mobility and periapical pathol-

ogy. Implant placement was subsequently carried out in sites 1.5, 1.6, and 1.7.

Results: five months after sinus augmentation, CBCT evaluation demonstrated an increase in bone height to 8-10 mm. Implant placement was successfully performed, achieving adequate primary stability.

Conclusions: the lateral sinus lift approach combined with heterologous graft materials provided predictable vertical bone regeneration, allowing successful implant-supported rehabilitation.

VOLUMETRIC ANALYSIS OF JAW REPOSITIONING IN ORTHOGNATHIC SURGERY ASSISTED BY CUSTOM CAD/CAM SURGICAL SPLINTS

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Aim: to assess the clinical applicability of custom-made CAD/CAM technology in orthognathic surgery for the treatment of maxillofacial dysmorphisms, with particular regard to presurgical planning, surgical accuracy, and postoperative stability.

Methods: the study population included 24 patients, of whom 10 (7 females and 3 males, aged 21-28 years) underwent orthognathic surgery using customized CAD/CAM surgical splints. All patients underwent a standardized presurgical orthodontic protocol, including clinical examination, digital aesthetic analysis, cephalometric evaluation, and Cone Beam computed tomography. Dental arch scans were integrated into a virtual planning workflow using Dolphin Maxillofacial software, which enabled the design of intermediate and final splints for accurate repositioning of the maxillary and mandib-

ular segments. Piezosurgery® was employed to perform selective osteotomies while minimizing soft-tissue trauma. Postoperative orthodontic treatment and radiographic follow-up were carried out to evaluate treatment stability over time.

Results: the adoption of a digital CAD/CAM workflow improved surgical precision and intraoperative safety, facilitated accurate skeletal repositioning, and reduced operative time by approximately 10%. Follow-up assessment also showed improved maxillary stability in the treated patients.

Conclusions: custom-made CAD/CAM technology represents an effective adjunct in orthognathic surgery, enhancing treatment planning, surgical accuracy, and postoperative stability. Nevertheless, further investigations on larger patient cohorts are required to validate these preliminary findings.

COCAINE-INDUCED LESIONS: AN EMERGING CHALLENGE IN MAXILLOFACIAL SURGERY

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Aim: cocaine-induced lesions is a major complication of intra-nasal cocaine abuse and a frequent cause of centrafacial destruction in developed countries. Septal perforation is common, and tissue damage results from both cocaine-induced vasoconstriction and mucosal irritation by adulterants. This study summarizes the oral and maxillofacial lesions associated with cocaine use by combining the authors' clinical experience with published evidence.

Materials and methods: the authors have extensive, long-term experience with a patient cohort occasionally willing to admit their addictions and recreational drug uses. Our observations of this patient's cohort, and from other similar cases reported in current scientific international literature, are herein summarized relative to oral and maxillofacial lesions apparently resulting from direct placement of cocaine/crack powder/

smoking on oral mucosal surfaces or use of glass or clay pipes to inhale the drugs.

Results: repeated cocaine use was associated with a wide range of lesions. The most frequently reported were hard palate osteonecrosis, palatal and septal perforations, saddle-nose deformity, gingival and mucosal changes such as recession, ulceration and keratosis, and thermal injury caused by glass or clay pipes.

Conclusions: cocaine-induced lesions is an emerging health problem linked to cocaine abuse. Diagnosis is challenging because these lesions may resemble other destructive conditions. Early recognition requires a multidisciplinary approach involving dental professionals, maxillofacial surgeons and mental health specialists for diagnosis, rehabilitation, reconstruction and addiction care.

SURGICAL SITE INFECTIONS IN ORAL SQUAMOUS CELL CARCINOMA: MICROBIOLOGICAL AND CLINICAL IMPLICATIONS-EXPERIENCE OF A MAJOR ITALIAN MEDICAL CENTRE

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Aim: Surgical Site Infections (SSI) are common but clinically significant postoperative complications in Oral Squamous Cell Carcinoma (OSCC) surgery, characterized by specific microbiology. The study aims to quantify SSI incidence and identify clinical-pathological predictors of postoperative complications according to Enhanced Recovery After Surgery (ERAS) protocols.

Methods: the study included 575 adults treated by surgical resection at Marche Regional Hospital, Ancona, Italy, between 2009-2024. SSI were defined according to Centre for Disease Control and Prevention (CDC/NHSN) criteria with a 30-day surveillance window. Culture swabs and antibiograms were performed if SSI are suspected. Multivariable logistic regression with Lasso and Cox models and ROC curves were performed. A p-value <0.05 was considered as statistically significant.

Results: SSI occurred in 24.3% patients on average 7 days postoperatively. *S. aureus* (42.9%) and *P. aeruginosa* (35.7%) were the most frequently isolated pathogens in cases reconstructed by free flaps and pedicled flaps, respectively. Multidrug-resistant strains, such as MRSA (17.9%) and carbapenem-resistant *P. aeruginosa* (10.7%), occurred in 28.6% of SSI. SSI were significantly associated with age ($p = 0.002$), smoking ($p = 0.013$), alcohol consumption ($p = 0.019$), and radical neck dissection ($p = 0.003$).

Conclusions: ERAS protocols should be integrated into OSCC treatment to improve surgical outcomes. Modifiable risk factors should be addressed preoperatively, and personalized perioperative prophylaxis should be considered to reduce the SSI.

EVALUATION OF MANDIBULAR MORPHOLOGY AND DENTOALVEOLAR COMPENSATION IN RELATION TO SKELETAL GROWTH PATTERNS: A CROSS-SECTIONAL OBSERVATIONAL STUDY

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Aim: the aim of this study is to evaluate the mandibular morphology in relation to the skeletal growth pattern and dental parameters.

Methods: a cross-sectional observational study was conducted by analyzing 119 large-field-of-view (FOV) CBCT scans. After anonymizing the data, deep learning tools within 3D Slicer were used to automatically orient, segment, and detect landmarks. Skeletal cephalometric landmarks were employed to measure symphyseal width and height, cortical and buccal thickness, mandibular divergence, and sagittal relationships of the maxillomandibular complex. Dental landmarks were used to determine lower incisor inclination relative to the mandibular body. Statistical analysis was performed using the software R, where the significance level was set at $\alpha = 0.05$.

Results: the analysis between skeletal morphology and dental position revealed that an increased transverse width was linked to reduced incisor inclination ($b = -0.46$, $p = 0.0037$). Sagittal and vertical skeletal patterns significantly influenced symphyseal width: Class II subjects exhibited significantly greater incisor proclination compared to Class I ($b = 5.30^\circ$, $p = 0.002$), whereas Class III subjects showed a marked tendency towards retroclination ($b = -8.19^\circ$, $p < 0.001$). Vertically, dolichofacial individuals demonstrated lower incisor inclination compared to brachyfacial subjects ($b = -7.02^\circ$, $p < 0.004$).

Conclusions: mandibular symphyseal morphology correlates with skeletal growth patterns, while lower incisor inclination likely represents an adaptive dentoalveolar compensation to the underlying skeletal structure.

NEW BONE FLUORESCENCE DETECTION SYSTEM: QUANTITATIVE ANALYSIS OF SPECTROPHOTOMETRIC VARIATION AI BASED. A MULTI-CENTER STUDY

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Aim: Osteonecrosis of the jaw (ONJ) management remains challenging due to the lack of standardized surgical margin criteria. Bone autofluorescence (AF) may distinguish necrotic from vital tissue intraoperatively. This study aimed to measure the association between AF intensity and histopathologic diagnosis to validate a quantitative spectrophotometric method for real-time assessment.

Methods: this was a prospective, multicentric, cross-sectional *ex vivo* study including 40 patients treated for ONJ (2022-2024). After surgery, bone specimens were analyzed at sites classified as necrotic or healthy margins based on clinical and radiographic evaluation. Each site was illuminated using a probe that emits light in the violet spectrum (400-430 nm), and the tissue fluorescence was measured by a spectrophotome-

ter (Ocean Optics - Fiamma). Histopathologic analysis was performed on all samples. Mixed-effects models assessed the association between AF intensity and tissue vitality.

Results: a total of 294 spectral points were analyzed (147 necrotic, 147 vital). AF intensity was significantly lower in necrotic areas compared to vital bone (7,886 vs 33,825; $p < .001$). Histopathology showed complete concordance. The mean Loss of Fluorescence Intensity (LoFI) was 5.2. Mixed-effects analysis confirmed a strong inverse association between AF intensity and necrosis.

Conclusions: quantitative AF correlates with histopathologic vitality and represents a data-driven step toward AI-based intraoperative decision-support systems, potentially improving surgical margin identification and outcomes in ONJ.

ROBOCASTED ALLOPLASTIC BIOACTIVE COMPOSITES FOR TREATING BONE DEFECTS: AN *IN VITRO* STUDY

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Aim: functional vascularization is essential for successful tissue regeneration, requiring biomaterials able to release pro-angiogenic signals. This work aims to develop new 3D bone substitutes based on poly(ϵ -caprolactone) (PCL) filled with bioactive glasses (BGs).

Methods: two functionalized BGs, either copper-doped (BG_Cu) or undoped, were blended with PCL at 10 wt% to form PCL/BG and PCL/BG_Cu and compared to PCL. The composites, prepared by solvent casting with chloroform, were 3D printed as cylindrical porous scaffolds. SEM and EDX analyses were performed to assess the efficiency of the mixing and printing process. ASC52 hTert cells (ASCs) and HMEC-1 cells (HMECs) were cultured for 1, 3 and 7 days to evaluate the biocompatibility through CellTiter-Glo kit. Angiogenic potential was tested recurring to a tubulogenesis assay with HMEC-1

cultured on Matrigel in ASCs conditioned media. Spreading morphology within 21 days was performed to assess the interaction between cells.

Results: all the scaffolds presented a regular geometry with the filler phase well dispersed and allowed both ASCs and HMECs proliferation, particularly for PCL/BG. The tubulogenesis revealed that PCL/BG_Cu had higher proangiogenic potential than the other samples. Similar conformation of the cells was observed after 21 days of co-culture on each composition.

Conclusions: composites charged with BGs seem to improve neat PCL, as for the *in vitro* response assessed. However, fine tuning the ionic release profiles is needed to improve both vascularization and bone formation, before animal experimentation.

FINITE ELEMENT ANALYSIS OF A PATIENT-SPECIFIC Z-SHAPED PLATE WITH LINGUAL EXTENSION *VERSUS* TWO MINIPLATES FOR MANDIBULAR PARASYMPHYSEAL FRACTURE FIXATION

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Aim: Champy principles remain the most widely used approach for the fixation of parasymphiseal fractures. However, this technique has been associated with significant mandibular widening. Therefore, this study was designed to quantify differences in stress distribution and stability between a Z-shaped plate with lingual extension and the conventional two-mini-plate system for mandibular parasymphiseal fracture fixation using standardized finite element analysis (FEA).

Methods: this FEA study evaluated two fixation configurations for parasymphiseal fractures by simulating them on two mandibular models following fracture reduction. In model I, fixation was performed using a Z-shaped plate with lingual extension, whereas model II used two parallel mini-plates. Identical screw pretension, material properties, contact conditions, and load-

ing scenarios were applied to both models. The evaluated outcomes included von Mises stress in the bone and plating system, as well as fracture micromotion.

Results: bone von Mises stress was 120 MPa in model I and 200 MPa in model II. In contrast, plating system von Mises stress was 200 MPa in model I and 113 MPa in model II. Furthermore, interfragmentary micromotion was 0.17977 mm in model I and 0.3316 mm in model II.

Conclusions: the Z-shaped plate with lingual extension demonstrated favorable biomechanical performance under simulated conditions, supporting an environment conducive to bone healing. In addition, it may reduce operative time and lower the risk of injury to the mental neurovascular structures during fracture management.

ARTIFICIAL INTELLIGENCE IN ORTHOGNATHIC SURGERY: A USEFUL TOOL FOR 3D PLANNING AND SURGICAL MANAGEMENT?

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Aim: the aim of this study is to evaluate the advantages of artificial intelligence (AI) in orthognathic surgery by analyzing its impact on diagnosis, preoperative planning, outcome prediction, and surgical safety, defining the current role and future potential of these technologies in improving clinical outcomes.

Methods: a review of the recent literature was conducted, including papers focusing on the application of machine learning and deep learning algorithms in orthognathic surgery, with particular attention to diagnosis, virtual planning, soft tissue prediction, intraoperative support, and complication assessment.

Results: AI improves diagnostic accuracy by reducing operator-dependent variability and increasing standardization. In surgical planning, it enables automatic landmark identification,

simulation of osteotomies, and optimization of bone movements, leading to reduced operative times and greater reproducibility. Predictive models allow highly accurate simulation of soft tissue response and postoperative facial aesthetics, enhancing patient communication. AI contributes to surgical safety, increasing intraoperative precision and efficiency.

Conclusions: artificial intelligence represents a tool capable of making orthognathic surgery more precise, predictive, and personalized. Although it presents limitations related to clinical validation and the generalizability of models, AI offers significant advantages in terms of efficiency, safety, and quality of outcomes, while keeping the surgeon at the center of the decision-making process.

TARGETING TUMOR CELL MIGRATION IN ORAL SQUAMOUS CELL CARCINOMA: EFFECTS OF COLD ATMOSPHERIC PLASMA (CAP) ON CYTOSKELETON AND ADHESION PATHWAYS

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Aim: tumor cell migration plays a crucial role in invasion and metastatic progression of oral squamous cell carcinoma (OSCC). Although cold atmospheric plasma (CAP) has become a new anticancer treatment, its effects on cell motility remain largely unexplored in oro-maxillo-facial scenario. This work investigate the impact of CAP on OSCC cell migration, cytoskeletal regulation and the epithelial-mesenchymal transition (EMT).

Methods: Human head and neck squamous cell carcinoma (HNSCC) cell lines were exposed to CAP under standardized conditions. Cell migratory capacity was quantitatively evaluated using wound healing assays in presence of a DNA synthesis inhibitor. Western blot analysis was carried out to assess the expression of proteins linked to the EMT. Signaling pathways

linked to cell migration and cytoskeletal dynamics in HNSCC were identified by bioinformatic analysis.

Results: CAP treatment significantly impaired migration in OSCC lines, as demonstrated by delayed wound closure compared to controls. Bioinformatic analyses revealed enrichment of pathways involved in actin cytoskeleton regulation, focal adhesion, and cell motility in HNSCC. CAP therapy led to a significant E-cadherin up-regulation, unaltered N-cadherin expression, suggesting a transition toward a less invasive phenotype.

Conclusions: CAP inhibits OSCC cell migration and modulates adhesion-related signaling and cytoskeletal dynamics, suggesting a role in reducing tumor invasiveness. These results improve the evidence for implementing CAP into innovative treatment approaches to reduce tumor growth and metastases in HNSCC.

MANAGEMENT OF DENTAL IMPLANTS ACCIDENTALLY DISPLACED INTO THE MAXILLARY SINUS. A REVIEW OF THE LITERATURE AND A CASE REPORT

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Aim: to analyze the etiology, clinical features, and management strategies of dental implants accidentally displaced into the maxillary sinus, and to discuss a representative clinical case.

Methods: a critical review of the literature was conducted, including case reports, case series, and observational clinical studies on adult patients with implant displacement into the maxillary sinus. Data regarding causes, timing (immediate vs late), complications, and treatment approaches were collected and analyzed. A case report of implant displacement associated with sinusitis, treated surgically, is also reported.

Results: implant displacement is mainly associated with insufficient primary stability, reduced residual bone height, and inadequate surgical planning. Migration may occur intraoperatively or during osseointegration and loading phases. Fre-

quently reported complications include maxillary sinusitis and oroantral fistula, although some patients remain asymptomatic. Management ranges from observation to surgical removal. Surgical approaches such as transoral techniques, Caldwell-Luc, lateral window, and endoscopic sinus surgery are selected based on implant location and symptomatology, with high overall success rates.

Conclusions: implant displacement into the maxillary sinus is a multifactorial complication requiring prompt diagnosis and individualized management. Surgical removal is often indicated, particularly in symptomatic cases. The presented case highlights a displacement associated with sinusitis, successfully treated through a transoral surgical approach, emphasizing the importance of timely intervention and appropriate technique selection.

3D AESTHETIC ASSESSMENT OF PRIMARY CLEFT LIP REPAIR: A PROSPECTIVE STUDY

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Aim: to analyze and compare the reliability of the Asher-McDade scale relative to the Visual Analogue Scale (VAS) for the three-dimensional (3D) aesthetic assessment of primary unilateral cleft lip repair.

Methods: a cohort of 50 blinded lay raters consecutively evaluated 3D facial models of 10 neonates with unilateral cleft lip and palate (UCLP) at three time points: preoperative (T0), 1 month (T1), and 6 months postoperatively (T2). Nine aesthetic parameters were assessed using the 5-point Asher-McDade scale and a 100-mm VAS across standardized 3D viewing perspectives. A balanced crossover design was implemented, incorporating a 2-week washout period and scale inversion, to

minimize order and memory biases. Inter- and intra-rater reliability were evaluated using unweighted Cohen's kappa alongside percentage agreement.

Results: inter-rater agreement ranged from moderate to substantial, with high inter-scale concordance. Conversely, intra-rater reliability and agreement across different viewing conditions ranged from slight to fair, highlighting viewpoint dependency. Longitudinal agreement was uniformly slight, successfully reflecting postoperative morphological changes rather than measurement error.

Conclusions: both scales are confirmed as reliable instruments for monitoring aesthetic changes in UCLP patients.

SURGICAL AND NONSURGICAL APPROACHES FOR MEDICATION-RELATED OSTEONECROSIS OF THE JAW. ANALYSIS OF A COHORT OF 376 CANCER AND 122 NON-CANCER PATIENTS

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Aim: medication-Related Osteonecrosis of the Jaw (MRONJ) is a severe complication of antiresorptive and antiangiogenic therapies. This study evaluates outcomes of surgical and non-surgical approaches in cancer and non-cancer MRONJ patients, assessing differences in clinical improvement and complete healing by treatment strategy.

Methods: from 2004 to 2026, 554 MRONJ sites in 498 patients were treated at the University Hospital of Parma. Of these, 430 (77.6%) occurred in oncological patients and 124 (22.4%) in osteometabolic patients. Patients were divided into 5 groups: Group 1 (medical therapy), Group 2 (medical therapy + low-level laser therapy, LLLT), Group 3 (traditional surgery), Group 4 (traditional surgery + LLLT) and Group 5 (Er:YAG laser surgery + LLLT). Groups 1-2 were classified as conservative and Groups 3-4-5 as surgical.

Results: in both oncological and osteometabolic patients, the surgical approach was associated with better outcomes than the conservative approach. In oncological patients, it achieved higher rates of clinical improvement (99.1% vs 76.1%, $p < 0.05$) and complete healing (96.4% vs 42.6%, $p < 0.05$). Similar findings were observed in osteometabolic patients, with higher rates of clinical improvement (100% vs 85.5%, $p < 0.05$) and complete healing (97.1% vs 58.2%, $p < 0.05$).

Conclusions: the surgical approach is associated with better outcomes than the conservative one in both oncological and osteometabolic patients with MRONJ. Surgery, alone or combined with laser therapy, appears to be the most effective strategy for clinical improvement and complete healing.

THREE-DIMENSIONAL RADIOLOGICAL ANALYSIS OF THE MIDPALATAL AND CIRCUMMAXILLARY SUTURE MATURATION: AN OBSERVATIONAL STUDY

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Aim: this study evaluated the maturation of midpalatal (MPS), zygomaticomaxillary (ZMS), transpalatal (TPS), and pterygomaxillary sutures (PMS), and their associations with facial pattern, age, and sex to support clinical decision-making.

Methods: a retrospective analysis was conducted on 150 CBCTs of subjects aged among 10-60 years. MPS and ZMS were classified into stages A-E (Angelieri *et al.*), while TPS and PMS were assessed as open or closed (Govaerts *et al.*). Sutures were independently evaluated by two investigators at two time points, with discrepancies resolved by expert consensus. Facial pattern was determined using three-dimensional cephalometric analysis based on the SN-Go-Me angle.

Results: increasing age was significantly associated with advanced maturation of the MPS, ZMS, and TPS ($p < 0.0001$). No association was found between age and PMS maturation, which was predominantly closed in this sample (>90%). Facial pattern showed no significant association with suture development ($p > 0.05$). Males had a significantly lower probability of presenting an open TPS compared with females ($\beta = -1.2888$; $p = 0.003$).

Conclusions: suture maturation is strongly associated with chronological age and should be considered a primary predictor in treatment planning, whereas facial pattern has not a fundamental influence. These findings highlight the importance of individualized three-dimensional assessment for accurate diagnosis and optimized maxillary expansion strategies.

THE ROLE OF PROFESSIONAL ORAL HYGIENE IN ENHANCING OUTCOMES OF MAXILLOFACIAL TRAUMA SURGERY

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Aim: the study aims to evaluate the impact of professional oral hygiene protocol on clinical manifestations of maxillofacial surgery.

Methods: the study included 529 patients treated for maxillofacial fractures at Marche Regional Hospital, Ancona, Italy, comparing patients treated before (2018-2020) and after the non-surgical protocol implementation (2021-2023). For each case, clinical-pathological data and modified Beck Oral Assessment Score (BOAS), evaluating the oral dysfunction, and Numerical Rating Scale (NRS), assessing pain intensity, were evaluated, preoperatively, weekly during the first postoperative month, and at 3, 6, 12, and 24 months postoperatively. Non-surgical protocol consists of full supragingival scaling 48h preoperatively, chlorhexidine 0.20 % three times daily postop-

eratively, and standardized antibiotic and analgesic regimens. Independent t-test and χ^2 -test were performed. A p-value <0.05 was considered as statistically significant.

Results: after the introduction of the non-surgical protocol, a significant improvement of infection rate (19.5% vs 13.4%; p = 0.023), post-operative NRS (5.4 vs 4.6; p <0.01) and BOAS (2.9 vs 3.8; p <0.001) were detected. Therefore, the protocol showed substantial benefits in reducing postoperative complications and enhancing patient outcomes.

Conclusions: the results highlight the critical role of oral health in advancing surgical care. Therefore, the integration of professional oral hygiene measures into standard surgical protocols improve the oral health status and pain management of maxillofacial patients.

TIMING OF DIETARY PROGRESSION AFTER MANDIBULAR FRACTURE REPAIR: THE ROLE OF COMORBIDITIES AND THEIR IMPACT ON POSTOPERATIVE OUTCOMES

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Aim: the study evaluated whether the timing of dietary progression after mandibular fracture repair influencing the postoperative complications. Moreover, it investigated the impact of systemic comorbidities on clinical outcome.

Methods: the study included 1023 patients treated by open reduction and internal fixation (ORIF) for mandibular fractures at Marche Regional Hospital, Ancona, Italy, between 2012-2023. Patients were categorised into early (<3 weeks, n = 256), standard (3 weeks, n = 511), and delayed (>4 weeks, n = 256) groups based on the timing of solid diet re-introducing. The impact of systemic comorbidities on wound dehiscence and postoperative infections, was evaluated. A multivariate logistic regression model, adjusting for fracture type,

smoking, diabetes, and chronic kidney disease (CKD), was performed.

Results: at multivariate analysis, early dietary progression did not predict postoperative complications. Among systemic comorbidities, only CKD was significantly correlated with wound dehiscence (OR = 2.77; p <0.001). Thirty-five patients required second operation due to severe wound dehiscence or inadequate fracture healing. Most of these cases occurred in early group. Moreover, at multivariate analysis, CKD significantly predicted the re-operation (p <0.001).

Conclusions: these data suggest renal dysfunction may exacerbate both soft tissue and bone healing. Moreover, excessive masticatory forces could compromise soft-tissue integrity.

MANDIBULAR FRACTURE IN IMPACTED THIRD MOLAR SURGICAL EXTRACTION: MANAGEMENT AND MULTIDISCIPLINARY APPROACH

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Aims: mandibular fractures represent a rare complication in oral surgery, typically secondary to impacted third molar extractions. This study evaluates the incidence of mandibular fractures during surgical extraction, while delineating preventive strategies and standardized clinical management protocols.

Methods: a spectrum of determinants was scrutinized to elucidate the pathogenesis of mandibular fractures, encompassing excessive biomechanical loading, patient age, site-specific anatomical vulnerability, and operative methodology. All identified fractures underwent clinical resolution at our Complex Unit of Maxillofacial Surgery of University of Bari Aldo Moro, integrated within a radiological pre-surgical and assessment and concerted multidisciplinary framework. Such complication was addressed via a surgical protocol, leveraging ti-

tanium osteosynthesis for definitive anatomical reconstruction and rigid internal fixation of the fractured maxillary architecture. Clinical and radiographical follow-ups were performed every 3 months for the first year and then every 6 months.

Results: in our experience the incidence of mandibular fractures was restricted to five occurrences: four post-surgical sequelae and a single intraoperative event. All patients presented a complete clinical and radiographical healing.

Conclusions: a rigorous preoperative diagnostic assessment and meticulous surgical planing are essential for positive clinical outcomes. While maxillary fractures constitute an infrequent yet multifaceted surgical sequela, their resolution is contingent upon a concerted multidisciplinary framework, which serves as the definitive cornerstone for optimizing therapeutic success.

INTEGRATION OF IMPLANT-PROSTHETIC REHABILITATIONS IN ONCOLOGIC PATIENTS: AN ANALYSIS OF CLINICAL PREDICTABILITY

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Aims: the present study aims to evaluate the clinical predictability and long-term success rate of implant-prosthetic rehabilitations in patients undergoing resective surgery for head and neck neoplastic pathologies.

Methods: a cohort of 18 patients was evaluated, including 10 malignant neoplasms and 8 benign lesions. All patients underwent radical surgical excision, followed by adjuvant therapy protocols (radiotherapy/chemotherapy) whether indicated. The implant-prosthetic treatment plan was tailored to the extent of the post-resective bone defect, the involvement of adjacent critical structures, and the patient's aesthetic and functional requirements. Such multidisciplinary approach is currently regarded as the gold standard for restoring quality of life in oncological patients.

Results: long-term clinical and radiographic follow-ups performed every 3 months underscore the deep complexity of rehabilitative management. The identified predominant challenges involve the significant volumetric deficits of anatomical structures secondary to tumour resection, also with the inherent variability in patient compliance.

Conclusions: although implant-prosthetic rehabilitations in such patients remain challenging due to bone and mucosal defects resulting from tumour resection, evidences confirm that peri-implant tissue stability and prosthetic success are strictly dependent on the precision of surgical reconstruction and methodological monitoring. Periodic clinical follow-ups are essential for the early interception of complications, thereby ensuring the long-term stability of therapeutic outcomes.