# DIFFICULTY OF LOWER THIRD MOLAR SURGERY: COHORT STUDY AND PROPOSAL FOR NEW CLASSIFICATION

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**Aim:** to assess whether the degree of complexity of impacted lower third molar extraction, estimated preoperatively, corresponds to the actual difficulty of the intervention, established ex post.
**Methods:** a total of 80 lower third molars in an equally sized sample of patients (ranging from 13 to 58 years of age) were preoperatively assessed in a cohort study using Pederson and newly proposed Comprehensive Simplified Difficulty Score (CSDS) classifications. All interventions were carried out by the same experienced operator, who also registered intraoperative data concerning ostectomy, tooth crown and root sectioning, as well as surgical time. Such variables were statistically analyzed in order to objectify the difficulty of the procedures and investigate the accuracy of the aforementioned scoring systems.
**Results:** both Pederson and CSDS classifications correlate with the ostectomy values as determined at the time of surgery. Moreover, CSDS alone and surgical time appear to be significantly correlated one another ($p < 0.001$).
**Conclusions:** CSDS offers a reliable tool for predicting the operative time and difficulty in impacted mandibular third molar surgery, thus serving both the clinician and the patient in the process of decision-making and surgical planning.

# THE USEFULNESS OF PLATELET CONCENTRATES IN ENDODONTIC SURGERY: A SYSTEMATIC REVIEW

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**Aim:** this systematic review was aimed to evaluate the usefulness of platelet concentrates (PCs) in endodontic surgery and evaluate whether the design of the primary studies may affect the results.
**Methods:** a literature search was conducted up to the end of December 2021 on PubMed, Scopus and Cochrane Databases. Studies addressing the use of PCs in endodontic surgery were included. No restrictions were applied concerning language and type of PC used. Case report/series and animal studies were excluded. Clinical and radiographical findings were reported.
The level of evidence was evaluated by means of the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) tool.
**Results:** the search resulted in 17 papers.
The findings showed that when PCs were used, patients exhibited significantly less pain and swelling and greater reduction of apical radiolucency after 12 months follow-up on average.
The methodological quality of most of the studies was moderate. A comparative meta-analysis was not possible due to the high heterogenicity of the studies.
**Conclusions:** this systematic review found that PCs may improve clinical and radiographical findings when used in association with endodontic surgery. However, more studies are needed to support these hypotheses.




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# CORONECTOMY AS A SURGICAL APPROACH TO MANDIBULAR THIRD MOLARS: A 10-YEAR FOLLOW-UP STUDY

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**Aim:** the extraction of third molars is the most common surgical procedure performed in the oral cavity. Coronectomy is a surgical protocol to reduce the risk of neurologic lesions to the inferior alveolar nerve. Early (up to 6 month) and late (from 12 to 120 months) postoperative complications were evaluated.

**Methods:** the present prospective cohort study enrolled patients treated at the Unit of Oral and Maxillofacial Surgery, University of Bologna. The predictor variable was the time after coronectomy with up to 10 years' follow-up. To assess the rate of postoperative complications, the outcome variables were neurologic injuries, postoperative pain, swelling, fever, alveolitis, pulpitis, and root exposure. The success rate, need for a second surgical procedure, probing pocket depth, and bleeding on probing also were investigated.

**Results:** onehundredsixteen coronectomies were performed in 94 healthy patients (37 men and 57 women; mean age, 28.99! 8.9 years). At 10 years' follow-up, 48 patients with 62 coronectomies were re-evaluated. No cases of neurologic lesions to the inferior alveolar nerve or lingual nerve were observed after surgery. Residual roots were removed 3 years after surgery in 5 cases and 10 years in 2, without any neurologic complications. No periapical infections were observed around the residual roots.

**Conclusions:** this prospective study on coronectomy of third molars in a close relationship with the mandibular canal found no cases of neurologic lesions, no cases of late infection of the retained roots or the development of pathologies at 10 years.

# CROWN-TO-ROOT RATIO IN ENDODONTIC SURGERY: A SURVIVAL STUDY

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**Aim:** to assess the influence of the crown height (CH), root length (RL) and crown-to-root ratio (CRR) on the survival of teeth subjected to surgical endodontic retreatment and classified as periapically healed.

**Methods:** a single operator performed all the endodontic microsurgery interventions. The present analysis selected the teeth classified as "complete periapical healing" according to the Molven-Halse-Grung scale. The periapical radiographs were analyzed by two independent calibrated examiners, who measured CH and RL in a blind manner. The CRR was calculated as the ratio of the two variables CH and RL. The measurements were performed by comparing the post-operative radiographs ($t_0$) with those taken for a previous retrospective analysis ($t_1$) and the most recent available ($t_2$). An independent statistician conducted a survival analysis using Kaplan-Meier plots and a log-rank test ($a = 0.05$).

**Results:** thirty-eight patients were evaluated, each one contributing to the study with a single tooth. The mean follow-up period was 5,96 ± 3,36 years. Comparing the CRR and RL values between $t_1$ and $t_2$, the difference was found statistically significant ($p = 0.03$). Survival was improved for the teeth with roots longer than 7 mm. There were no statistically significant differences among the remaining comparisons.

**Conclusions:** root length ≥ 7mm exhibited better chances of long-term survival. Over time, a risk of further decrease of clinical RL due to periodontal disease and consequent increase of CRR could be critical by a mechanical point of view. Other studies are needed.

# 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 pounch" technique. In this case, the membrane was elevated mesially where the graft was placed with a collagen membrane.

**Conclusions:** 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 EUROPEAN MULTICENTER STUDY ABOUT THE EPIDEMIOLOGY AND MANAGEMENT OF ODONTOMAS

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**Aim:** the objective of the present study was to assess the demographic variables, patterns, diagnostic features, and management issues of odontomas treated at several European departments of maxillofacial and oral surgery.

**Methods:** this study was conducted at 8 European departments of oral surgery between January 1, 2004, and December 31, 2018. Only patients with odontomas were included. The following data were recorded for each patient: gender, age, comorbidities, site, size of odontomas, radiographic features, type and treatment of odontomas, complications, recurrence.

**Results:** 127 patients (70 male and 57 female patients) with odontomas were included. Mean age was 22 years; 71 odontomas were found in the mandible, whereas 56 in the maxilla. In the mandible, the most frequently involved subsite was the parasymphysis, while in the maxilla, the most common subsite was the upper incisor region. Mean size of included odontomas was 15.3 mm. On the whole, 62 complex odontomas, 50 compound odontomas, and 15 mixed type odontomas were observed. Complete excision of the odontomas was performed in 121 patients. In 24 patients the extraction of deciduous teeth was performed, and in 43 patients one or more permanent teeth were removed. In 9 patients a partial excision of the odontoma was performed. Recurrence was observed in 4 cases out of 127 patients.

**Conclusions:** dental practitioners should be aware of the distinct clinical and radiographic features of odontoma, in order to perform an appropriate and early diagnosis. Conventional radiography is often sufficient technique for a diagnosis after clinical suspicion or for an incidental diagnosis to prevent later complications, such as impaction or failure of eruption of teeth.

# INNOVATIVE PORCINE COLLAGEN MATRIX IN GINGIVAL RECESSION TREATMENT: MULTICENTER PILOT STUDY

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**Aim:** evaluate the effectiveness of an innovative porcine collagen matrix NovoMatrix® RTM in maxillary gingival recessions treatment with a 6 months follow-up.

**Methods:** 10 patients, avg. age 48 (± 2) years, (8 F-2M), in good general health were selected. All patients showed a total of 26 single or multiple gingival recessions (4 mm). Probing depth (PD), gingival recession depth (REC), gingival recession width (WR), clinical attachment level (CAL), keratinized tissue width (KTW) were recorded. Soft tissue healing was monitored and all parameters were recorded at baseline, 3 and 6 months after surgery.

**Results:** at baseline (T0) the soft tissue evaluation showed: PD 1.31 ± 0.21mm; REC 4.27 ± 025mm; WR 4.15 ± 0.25mm; CAL 5.58 ± 0.49mm and KTW 1.35 ± 0.59mm. No post-surgical complications were recorded. Significant improvements were found for all the sites treated. Both at 3 months (T1) and even more at 6 months (T2) after surgery, improvements in all clinical parameters were found. At T1 the recorded values were: PD 1.04 ± 0.07mm; REC 1.54 ± 0.38mm; WR 3.15 ± 0.60mm; CAL 2.62 ± 0.41mm; KTW 3.27 ± 0.08mm. While at T2 were: PD 1mm; REC 1.23 ± 0.37mm, WR 2.92 ± 0.59mm, CAL 2.04 ± 0.4mm, KTW of 3.46 ± 0.37mm.

**Conclusions:** a longer follow-up and a larger sample size will be needed to better understand and confirm the results obtained in this pilot study. However, these interesting positive results have confirmed that use of heterologous porcine NovoMatrix in gingival recessions in esthetic area improve all clinical parameters, the patient compliance and reduce all surgical complications.

# EVALUATION OF RECURRENCE OF MRONJ POST-SURGICAL TREATMENT: AN OBSERVATIONAL CLINICAL STUDY

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**Aim:** Medication-Related Osteonecrosis of the Jaw (MRONJ) is a potentially severe complication, consisting of progressive bone destruction in the maxillofacial region. MRONJ can be caused by different pharmacological agents: bisphosphonates, denosumab and angiogenesis inhibitors. The aim of this study was to analyze if there is any predictive factor of recurrence after local debridement and which surgical approach can guarantee the elimination of the complication without generating recurrence episodes in MRONJ patients.

**Methods:** thirty-four MRONJ patients treated at the Dental School - University of Brescia, were included in this observational study. All of them were treated surgically by sequestrectomy and radical surgical excision of all diseased bone. The observation period was between January 2018 and September 2021. Information regarding type, administration and duration of therapy with bisphosphonates/denosumab and stage and site of the complications were recorded.

**Results:** zoledronic acid was the main antiresorptive used (50%) followed by denosumab (26.47%) and alendronic acid (17.65%). Cancer (47.06%), osteoporosis (29.41%) and multiple myeloma (23.53%) were the main diseases because the patients were taking BP/denosumab. We found after performing the multivariate model that patients with cancer diagnosis were related to recurrence (p = 0.052).

**Conclusions:** in this study, MRONJ surgical treatment caused the recurrence of the complication in 20.59% of the patients. It seems to be more frequent in patients with cancer, mandibular site of the osteonecrosis, duration of therapy (> 2 years), advanced stage of the complication and after zoledronic acid administration.

# AUTOLOGOUS PERIOSTEAL STEM CELLS ENRICHED GRAFT FOR BONE REGENERATION: LONG-TERM FOLLOW UP

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**Aim:** the success of a dental implant depends on the long-term stability of the tissues that support it: the aim of the following study was to evaluate the efficacy of autologous periosteal stem cells micro grafts used for the regeneration of bone defects.

**Methods:** 8 patients were recruited to undergo bone regeneration procedures with autologous micro grafts of stem cells collected from the periosteum. For bone regeneration, different types of scaffold were tested: hydroxyapatite, animal collagen, poly (lactic-co-glycolic acid), porcine and equine deproteinized bone. After the healing of the regenerated sites, the implants were positioned. Clinical success and radiographic bone loss were evaluated during scheduled follow up visits up to five years and reported.

**Results:** clinical and radiographic evaluations during follow-up highlighted: 1. success in terms of presence of the fixture and graft over time; 2. peri-implant bone loss of 1.27 ± 0.31 mm, slightly greater in the distal sites; 3. complete absence of symptoms and clinical signs of peri-implantitis and/or mucositis in the area. In all patients, the rehabilitated areas did not present functional and/or aesthetic complications over time.

**Conclusions:** data from this pilot study showed no issues in using autologous stem cells micro grafts for bone regeneration. The result proved to be valid and stable even in the medium/long term. Further studies with a larger sample are needed.

# IL-37 EVALUATION AFTER PERIODONTAL TREATMENT WITH AND WITHOUT LOW LEVEL LASER TERAPY

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**Aim:** IL-37 level evaluation during scaling and root planing (SRP) with and without the Low Level Laser Therapy (LLLT) in two cronical periodontitis (CP) patient groups.

**Methods:** in 2 private Dental Clinics and in Foggia University Dental School 30 no-smoker patients with CP were recruited and selected in 2 homogenous groups. Group 1 (G1) was treated with SRP therapy and Group 2 (G2) SRP and LLLT. In all sites periodontal pocket depth (PPD), bleeding on probing (BOP) and gingival crevicolar fluid (GCF) IL-37 were recorded before (T0) and 10 (T1), 30 (T2) and 60 (T3) days after treatment.

**Results:** at baseline (T0) PPD deep was 2.68 (± 0.11) in G1 and 2.39 (± 0.09) in G2. After 10 days (T1) was 1.78 (± 0.11) in G1 and 1.58 (± 0.17) in G2; after 30 days (T2) 1.67 (± 0.10) in G1 and 1.48 (± 0.12) in G2 and, finally, after 60 days (T3) was 1.68 (± 0.08) in G1 and 1.38 (± 0.09) in G2. BOP decreased in G1 from 35% (T0) progressively to 11% (T1), 6% (T2) and 3% (T3); in G2 from 39% (T0) to 11% (T1), 5% (T2) and 2% (T3). IL-37 increased in G1 from 0.13 (± 0.12) (T0) to 1.63 (± 0.11) (T1), 1. 84 (± 0.12) in T2 and 1.31 (± 0.12) in T3 and in G2 from 0.14 (± 0.13) (T0) to 1.95 (± 0.14) (T1), 1.99 (± 0.12) (T2) and 1.98 (± 0.12) (T3).

**Conclusions:** LLLT, due to biostimulatory and anti-inflammatory functions, has confirmed its role in periodontal healing not from conventional SRP. IL-37, anti – inflammatory cytokine, has confirmed its capability of being used as a marker of periodontal healing.

# HPV AND ORAL LESIONS: WHAT IS THE BEST DIAGNOSTIC METHOD?

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**Aim:** squamous cell papilloma is associated with HPV 6 and 11, it is the most common papillary lesion of the oral mucosa. The diagnostic techniques currently available are different and can be more or less invasive depending on the type of lesion and the need for the clinician. The aim of this work is to identify the best diagnostic method.

**Methods:** in this study, two clinical cases subjected to a double diagnostic technique were considered in order to exclude any possible risk of false negatives.

**Results:** the Polymerase Chain Reaction (PCR) technique showed a lower sensitivity or in any case dictated by a limited number of HPV strains analyzed.

**Conclusions:** histological examination nowadays turns out to be the best diagnostic method despite requiring a surgical phase. Surely new methods and new diagnostic techniques (such as salivary ones) will allow clinicians to make a diagnosis more quickly and in a less invasive way, anticipating the times, especially in the case of potentially cancerous or cancerous lesions.

# TREATMENT OF PERI-IMPLANTITIS WITH REGENERATIVE TECHNIQUES: A SYSTEMATIC REVIEW

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**Aim:** peri-implantitis is a plaque-associated pathological condition occurring in tissues around dental implants, characterized by inflammation of the peri-implant mucosa and subsequent progressive loss of supporting bone.
The aim of this study is to compare regenerative surgical treatments of peri-implantitis: "Open Flap Debridement" (OFD) in association with a biomaterial versus OFD alone.

**Methods:** this study was carried out following the "PRISMA Statement 2009".
Following PICOS questions, only studies on human subjects undergoing treatment of peri-implantitis by OFD in association with a biomaterial compared to OFD alone and evaluating BL (primary outcome), PD, BoP and PuS (secondary outcomes) were included.

**Results:** the research on electronic databases led to the selection of 6 articles. The use of a biomaterial (Enamel Matrix Derivative - EMD, Porous Titanium Granules – PTG, Endobon® or D-PLEX$_{500}$) proved to be more effective in the regenerative treatment: all the studies found an increase in BL (0.5 mm-2.56 mm) and a decrement of PD (mm), BoP (%) and PuS (%) with the association OFD and a biomaterial.

**Conclusions:** from the qualitative analysis of the data, despite the limitations of this study, it can be concluded that the addition of a biomaterial seems to improve all the evaluated outcomes and, therefore, the clinical performance of OFD alone in the treatment of peri-implantitis. Further studies are needed in order to carry out a quantitative analysis and, therefore, a meta-analysis to confirm the effectiveness of this therapeutic options.

# EARLY PATHOLOGICAL CHANGES OCCURRING IN THE DISTAL AREA OF LOWER THIRD MOLARS

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**Aim:** the aim of this study was to evaluate the early pathologic changes occurring in dental follicle of erupted (E) and vertical partially erupted (PE) lower third molars with radiolucency distal area of lower molar (DALM) less than 2.5 mm.

**Methods:** 100 healthy patients presenting E or PE lower third molars associated with a DALM less than 2.5mm were selected. Contextually to the dental extraction the biopsy of the DALM was executed. After the histological examination, the samples were classified into two groups: non-pathologic and pathologic-DALM.

**Results:** 76 specimens were included in the non-pathological DALM group (25 physiological dental follicles, 18 gingival tissue with inflammatory infiltrate, 10 physiological gingival tissue, 15 fibrotic tissue, and 8 granulation tissue) and 24 in the pathological DALM group (9 periodontal cyst-like, 4 focal squamous epithelial metaplasia with intraparietal epithelial islands organized in micro-cyst, 4 islands of odontogenic epithelial residues organized micro-cyst with keratocystic/ameloblastic appearance, 4 giant cell tumors, and 3 hemangiomas). Pathological changes didn't have differences in incidence between the two genders (p value = 1) and any correlation with age (p value = 1).

**Conclusions:** about one-quarter of the analyzed DALM samples were characterized by pathological changes.

These findings suggest that the lack of radiographic appearance of the disease is not a reliable indicator of the absence of disease and that the prevalence of soft tissue pathosis is higher than generally assumed from radiographic evaluation alone.

# PROTON PUMP INHIBITORS AS AN ADDITIONAL RISK TO DEVELOPMENT OF MRONJ: HISTORICAL PROSPECTIVE STUDY

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**Aim:** the aim of the study is to analyze the influence of antiacid therapy based on proton pump inhibitors (PPI) in the development of MRONJ in pharmacologically at risk patients, since in literature is documented a direct action on bone tissue from PPI (malabsorption of $Ca^{+}$, $Mg^{+}$, Vit. B12, secondary osteoporosis, increased risk of fracture).

**Methods:** information about medications taken and possible development of the MRONJ were gained from the medical records of the patients which have been visited and treated at the Dental School – University of Brescia, from January 2019 to December 2020, and put in two databases.

**Results:** in this prospective study 713 teeth have been selected, 343 (48.1%) were patients' in antiresorptive therapy and 370 (51.9%) were antiresorptive and PPI patients. From statistical analysis (Kaplan Meyer curves' evaluation), the risk of adverse event development in antiresorptive patients is higher than PPI+antiresorptive patients. Specifically, the probability is 11% (SE = 4,5% and CI = 5%-24%) and 7.7% (SE = 3.7% and CI = 3%-19%; p = 0.0974).

**Conclusions:** it has been observed that the use of PPIs does not increase the risk of developing MRONJ, on the contrary it seems to reduce the occurrence of the adverse event. The hypothetical mechanisms underlying this result could be two: the reduction of drug absorption in the stomach, especially as regards bisphosphonates taken orally, or the inhibition of the vacuolar proton pumps present in the osteoclasts, due to a decrease in pH.

# PREOPERATIVE USE OF PREDNISONE IN THIRD MOLAR SURGERY. RANDOMIZED, SPLITMOUTH, PILOT STUDY

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**Aim:** swelling, pain, and trismus after lower third molar (L3M) surgery have a negative impact on patients' quality-of-life following surgery. The study aims to evaluate the effectiveness of Oral Prednisone (OS) in reducing these outcomes.

**Methods:** six patients were recruited who needed bilateral impacted L3M extractions with similar surgical difficulty. A test (25mg/OS Prednisone) or a placebo were randomly administered one hour before surgery. Study variables were assessed before surgery (T0), at 3 days (T1) and 7 days (T2) after surgery. The study variables considered were: pain (VAS score), trismus (maximum buccal opening) and swelling, evaluated by facial scans with Bellus 3D software (Bellus3D, version 2.5.2, Bellus3D, Inc. Campbell, CA, USA) and compared using 3DSlicer software (3D Slicer, version 4.11.20210226, Brigham and Women's Hospital, Harvard University, NIH). A bivariate statistic was performed using the Student's t-test with alpha = 0.05.

**Results:** six participants (2 male and 4 female, mean age 21 ± 2.89 years) were included. The statistical analysis showed a significant difference between the two groups. At T1 mean facial swelling measurements were 3.7 ± 1.3 mm in the test group and 6.8 ± 0.98 mm in the placebo group ($p = 0.0012$). The mean pain score was 1.8 ± 1.8 in the test group and 4.5 ± 2.3 in the placebo group ($p = 0.049$). The mean maximum buccal opening was 40.8 ± 3.13 mm in the test group and 33.8 ± 3.8 mm in the placebo group ($p = 0.006$). At T2 a significant difference was evidenced only in facial swelling between the two groups ($p = 0.015$).

**Conclusions:** the pre-operative administration of Prednisone (OS) reduces post-operative sequelae such as swelling, trismus, and pain in the surgical L3M extraction. More randomized clinical trials are needed to confirm these results.

# IMMUNE STATE IN CANCER PATIENTS UNDERGOING ANTIRESORPTIVE TREATMENT AT RISK TO DEVELOP ONJ

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**Aim:** Medication-Related Osteonecrosis of the Jaw (MRONJ) is a side effect of the treatment with antiresorptive (AR) drugs, such as zoledronate (ZOL) and denosumab (DMAB). This work aims to monitor gamma/delta T cells (γδ) and activated T cell subsets in AR drugs-treated patients. Since in MRONJ osteoclast (OC) activity is impaired, we evaluated circulating OC precursors (OCPs) and their ability to differentiate into OCs in *in vitro* cultures.

**Methods:** peripheral blood mononuclear cells (PBMCs) derived from MRONJ and bone metastatic patients before and after AR therapy were analyzed by flow cytometry. The expression of γδ chains, T cell activation and OCP markers were evaluated. OC formation was studied in *in vitro* PBMC cultures.

**Results:** both ZOL- and DMAB-induced MRONJ patients showed a comparable marked reduction in γδ. After 6 months of treatment, the level of γδ in ZOL patients significantly decreased reaching values comparable to MRONJ patients, while DMAB patients γδ remained constant as well as CD4+ and CD8+. No differences in circulating OCPs were reported, while they lost the ability to differentiate into OCs *in vitro*.

**Conclusions:** these results confirmed the reduction of circulating γδ in ZOL patients, suggesting the possibility to monitor the level of γδ during ZOL treatment as a predictive marker of MRONJ development. On the other hand, since DMAB patients levels after 6 months were stable, likely DMAB-induced γδ impairment is slower than ZOL. This suggests that even though γδ reduction holds an important role in MRONJ pathogenesis, also other factors are involved and currently under investigation.

# DENTAL AUTOTRANSPLANTATION BY WAY OF 3D RESIN REPLICAS: A PRELIMINARY CONTROLLED STUDY

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**Aim:** the present study aimed to investigate the clinical outcomes of dental autotrasplantation with the use of 3D resin replicas.
**Methods:** patients requiring extraction of a hopeless molar and presenting another non-functioning molar were included. CBCT DICOM dataset was used to produce a 3D printed resin replica of the tooth to be transplanted. After extraction of the hopeless tooth, post-extractive socket was modified with piezosurgery until reaching perfect adaptation of the resin replica. The donor element was then extracted and immediately transplanted into the recipient site. Total surgical time, site preparation time and extralveolar time of the transplanted tooth were recorded. Transplanted tooth was splinted to the adjacent teeth using an orthodontic wire: after 21 days (T1) the splint was removed and root canal therapy was performed. Transplanted (test) and contralateral (control) tooth stability was assessed by using Periotest (PTV) at T1, after 3 and 6 months (T2 and T3) and analyzed with one-way repeated measures ANOVA test.
**Results:** ten patients were included in the final analysis. No complications were recorded. Mean surgical time, site preparation time and extraalveolar permanence of transplanted tooth were 81.9 ± 30.2 min; 18.9 ± 9.0 min and 25.7 ± 27.42 sec, respectively. Mean test group stability at T1, T2 and T3 was 21.6 ± 8.7 PTV; 14.5 ± 7.9 PTV and 10.6 ± 6.3 PTV, respectively ($p = 0.002$). Test and control group stability resulted significantly different at T1 ($p = 0.002$), T2 ($p = 0.003$) and T3 ($p = 0.002$).
**Conclusions:** transplanted tooth stability significantly increased during the first six months of healing. At 6-month follow-up, tooth stability in test group was still significantly lower than in control group. Long-term evaluations are necessary to further evaluate stability pattern and to monitor possible future complications.

# ANALYSIS OF PROGNOSTIC FACTORS OF MRONJ: UP TO 6-YEAR FOLLOW-UP RETROSPECTIVE COHORT STUDY

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**Aim:** the aim of this retrospective single cohort study was to evaluate the recurrence pattern of MRONJ over time and to identify potential prognostic factors that could influence the recurrence of treated MRONJ.
**Methods:** patients affected by MRONJ, treated from January 2015 to December 2021 were included in the study. Survival analysis was performed using the Kaplan-Meier method and a Cox regression model was mounted.
**Results:** 85 patients with the occurrence of 102 MRONJ lesions were treated. The mean follow-up was 18,51 (range 1-98) months. 78 (76.47%) MRONJ lesions were located in the mandible and 24 (23.53%) in the maxilla. 87 (85.29%) MRONJ lesions were surgically treated. In 19 (18.63%) cases platelet-rich plasma (PRP) was used. After the treatment, 43 (42.16%) MRONJ lesions recurred. The type of drug (especially Zoledronate) and smoking are negative prognostic factors, and the finding was statistically significant ($p < 0.05$), while the use of platelet-rich plasma resulted to be a protective factor; the risk of recurrences decreased by 78,9% in MRONJ lesions surgically treated with the addition of PRP (22.09%).
**Conclusions:** according to the present study, the administration of Zoledronate, smoking habit and oral hygiene levels may influence the risk of recurrence, while the use of PRP in conservative surgery is a protective factor.

# IMPACT OF COGNITIVE FACTORS ON DENTAL ANXIETY

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**Aim:** to establish if cognitive dimensions (perceived professionalism, lack of control, communication) have a role, in association with non-cognitive factors (e.g. traumatic dental experiences), in generating dental anxiety, and to assess their influence on patients' perception of dental procedures.

**Methods:** the assessment was conducted through the evaluation of 253 patients, who answered a survey composed of 3 sections: Level of Exposure-Dental Experiences Questionnaire (LOE-DEQ), Dental Beliefs Survey (DBS-R), Modified Dental Anxiety Scale (MDAS), which respectively analyze the distress of previous traumatic dental experiences, patients' perceptions of dentist and dental treatment, level of dental anxiety. Statistical analysis was performed using bivariate correlations and a structural equation model to evaluate mediation.

**Results:** non cognitive factors were positively associated with dental anxiety. Among the cognitive factors, only lack of control was associated with dental anxiety and showed a mediating role between traumatic dental experiences and anxiety.

**Conclusions:** the perception of not being in control of the situation and not having the possibility of taking a break during treatment influences patients' perceptions on dental procedures, contributing to generate dental anxiety.

# 3D ANALYSIS OF CLINICAL OUTCOMES AFTER THIRD MOLAR SURGERY IN RELATION TO FACIAL MORPHOLOGY

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**Aim:** this pilot study investigated any correlation between clinical outcomes and different facial growth patterns after lower third molar surgery.

**Methods:** a morphometric analysis of the jaw was performed after 3D reconstruction. Predictor variable was the angle between cranial base and mandibular plane (SNGoGn^) to define two groups: Short-Face (SF) and Long-Face (LF). Outcome variables were pain (VAS score), bleeding, trismus (buccal opening), and swelling (Bellus3D facial scanner app), measured before (T0), 3 days (T1), and 7 days (T2) after surgery. Pre- and post-operative swelling were compared using qualitative and quantitative analysis of colormaps (3D Slicer software). Statistical analysis was performed setting $\alpha = 0.05$.

**Results:** the study sample included 11 patients (8 female; mean age 25.4 ± 6.3 years), 4 in SF group and 7 in LF group. The mean value of SNGoGn^ was 28.6 ± 2.3° in SF group and 40.4 ± 5° in LF group. All patients showed a good recovery of dynamic functions at T2. At T1, swelling was greater in SF patients (3.9 ± 1.6 mm) compared to LF (2.8 ± 1.7 mm). At T2, higher reduction of swelling was noted in LF group, but no statistical significance was found ($p = 0.2$). Pain (4.1 ± 2.4 in SF; 4 ± 2.4 in LF) and trismus (34.6 ± 2.4 mm in SF; 35.6 ± 2.4 mm in LF) worsened equally at T1, but improved better in LF group at T2, despite without significant difference ($p > 0.05$). Bleeding was absent in all patients.

**Conclusions:** SF patients appeared to be associated with more severe morbidity after third molar surgery. Further studies are required to evaluate the reliability of this conclusion.

# MANAGEMENT OF PERI-IMPLANT HARD AND SOFT TISSUES IN SUBCRESTAL O-T-A IMPLANTS: PRELIMINARY RESULTS

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**Aim:** this study will be performed to assess the efficacy of a new prosthodontics device (GFA, Gingival Former Abutment) in management of hard and soft tissue in subcrestal One Time Abutment (OTA) implants in terms of MBL (marginal Bone Level) and peri-implant tissues health after 3 months from surgery before loading.

**Methods:** 27 healthy patients, with posterior intercalated monoedentulia, receive crestal implant or 2 mm subcrestal implant with immediate placement of GFA. To assess the quality of hard and soft tissue periapical X-Ray and Probing Depth (PD) is registered. The MBL is measured with ImageJ software.

**Results:** PD changes are clinically e statistically ($p < 0.001$) significant for the test group: at 3 month the mean PD is 0.93mm in test group and 2.57mm control group, with a ratio of 0.39. In MBL changes aren't clinically and statistically significant between group.

**Conclusions:** the preliminary results show that the GFA performs an impenetrability of the probe as management of soft tissue thanks to OTA concept and there are a remodeling of the MBL also before the loading but not significant between group.

# "CYSTS" INCLUDING IMPACTED CANINES: CLINICAL-PATHOLOGIC DIAGNOSIS AND THERAPEUTIC CHOICES

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**Aim:** the current retrospective study shows clinical-pathologic data on cases of impacted canines associated with wide, simple, or complex, cyst-like radiolucencies referred to the Unit of Odontostomatology of Aldo Moro University of Bari from 2010 to 2020.

**Methods:** authors analyzed clinical records, radiological, cyto- and histological exams. All patients underwent panoramic radiography and computed axial tomography. The preoperative cytopathological diagnosis was obtained by using fine needle biopsy; otherwise, the frozen section provided diagnosis intraoperatively. Authors extracted canines associated with tumors, cheratocysts, and/or calcifying odontogenic cysts, whereas orthodontic traction and treatment were performed for those associated with other dysontogenic cysts, inflammatory cysts, and compound odontomas. All patients underwent clinical and radiological follow-up. In the absence of recurrences, extractive cases proceeded with implantology in adults and orthodontic space maintainers in children.

**Results:** 36 patients were included; 11 received extractive treatment, due to unicystic ameloblastoma, odontogenic adenomatoid tumor, dentinogenic ghost cell tumor, complex odontoma, ameloblastic fibroma, myxoma, calcifying odontogenic cyst, and cheratocysts; 25 received orthodontic traction and treatment. No recurrence was observed.

**Conclusions:** in our experience, impacted canines were associated with odontogenic cysts and benign tumors. Preoperative diagnosis has been important for both prognosis of impacted teeth and complete excision of associated lesions.

# LONG TERM FOLLOW UP OF DENTAL IMPLANTS INSERTED IN RIDGE PRESERVED SITES

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**Aim:** to evaluate peri-implant health and marginal bone level (MBL) of dental implants positioned in ridge-preserved sites after 9 years of function.

**Methods:** adult patients who met the inclusion criteria were recalled for a clinical and radiographical visit. Following parameters were registered: probing depth, bleeding on probing, suppuration, periodontal screening record, marginal bone levels, visual inflammation signs, history of periodontitis, n. of follow up months.

**Results:** 50 patients (38 females and 12 males; mean age 57 ± 20 years) with 58 implants were analyzed with a follow-up ranging from 5 to 15 years; no implant was lost because of peri-implantitis in this period. 30 implants were classified as "healthy" (51,7%), 23 presented mucositis (39,7%), and 5 presented peri-implantitis (8,6%). Significant differences ($P < 0.0004$) were found between the peri-implant status groups considering history of periodontitis and follow up length.

**Conclusions:** alveolar ridge preservation confirmed to be a predictable procedure with a favorable long-term prognosis for the health of dental implants. History of periodontitis and follow up length were associated with a worse peri-implant status.

# CORONECTOMY AS AN ALTERNATIVE TO SURGICAL AVULSION OF THE LOWER THIRD MOLAR: SYSTEMATIC REVIEW

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**Aim:** lower third molar extraction may present, as complication, a temporary lower alveolar nerve injury in approximately 8% of cases, and a permanent one in less than 1% of cases. Risk factors include difficult operative conditions, but the most important one is the nearness between the roots and the mandibular canal.

The aim of this systematic review with meta-analysis is to compare coronectomy and complete extraction of lower third molars with high risk of nerve injury, according to four variables: onset of pain, post extraction alveolitis, incidence of infection and loss of sensation.

**Methods:** articles were collected from Embase, Cochrane, and PubMed search engines, through the search string "coronectomy AND (third molar)". After the application of inclusion and exclusion criteria, 6 articles were included in the systematic review.

**Results:** with an OR = 0.36 [0.17,0.73], coronectomy seems to reduce the risk of dry socket, compared to the complete extraction of the third molar. On the other hand, with regard to the "onset pain" and "incidence of infection" outcomes, with OR = 0.08 [0.03, 0.23] and OR = 0.87 [0.43, 1.78] respectively, there were no statistically significant differences between the two techniques. Finally, the "loss of sense" outcome was evaluated: it was found a statistically significant superiority in reducing the risk of IAN injury for coronectomy rather than lower third molar extraction, with OR = 0.08 [0.03, 0.23].

**Conclusions:** considering the "loss of sensation" and "post-extraction alveolitis" outcomes, there is a statistically significant difference between the two techniques, favorable to coronectomy surgery. On the other hand, for the "dolorability" and "incidence of infection" outcomes, there is no statistically significant difference between the two techniques.

# DERIVED DENTIN GRAFT AS AUTOLOGOUS BONE REGENERATION IN IMPLANT SURGERY

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**Aim:** this trial has been conducted to evaluate the dentin regeneration potential as an autologous graft material for the preservation of the bone volume in the post-extraction socket. Tooth Transformer has been used as the device required to demineralize the dentin got from the extracted elements, which led to obtaining a granular material rich in collagen and growth fac-tors.

**Materials and Methods:** all 8 patients selected for the trial underwent two surgical procedures. During the first surgery, the affected elements have been extracted, the Tooth Transformer protocol has been run, and the material has been grafted into the existing bone defects and post-extraction socket. After three months, the biopsy of the regenerated areas has been performed and the implants re-quired for prosthetic rehabilitation were placed in the same site. For two of the 8 patients, the implant has been placed with the support of a surgical guide.

**Results:** CBCT and histological analysis' results after 3 months confirmed the actual replacement of grafted material and the regeneration of bone tissue suitable for implant rehabilitation.

**Conclusions:** thus, the Tooth Transformer proves to be an effective device to produce an innovative autologous material from dentin, which is capable of predictable viable bone tissue regeneration able to support prosthetic implant rehabilitation in edentulous sites.

# ANTIBIOTICS: PAIN, OEDEMA, FUNCTIONAL LIMITATION AND ALVEOLITIS IN LOWER THIRD MOLAR SURGERY

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**Aim:** we investigated the use of Amoxicillin and Amoxicillin combined with Clavulanic Acid in the postoperative period of the lower third molar surgery, to verify their effectiveness in the prevention of pain, functional limitation, oedema, and alveolitis sicca.

**Methods:** was identificated a search string, which on the databases used (PubMed, Cochrane Library, and Embase) gave as initial results the retrieval of 3,588 articles. It was possible to carry out a first screening, to obtain 398. The elimination of duplicates resulted in 217 articles.159 articles were excluded (58 articles included). At the end were included 11 articles, through a final selection of eligibility.

**Results:** from the Forest plots study, parameters are then reported as an overall average to get a general picture of the outcome considered. The Confidence Interval chosen was 95. Pain: the overall Risk Ratio is equal to 0.58 [0.42, 0.80]. Trismus: First postoperative period: there are no statistically significant differences (Standardized Mean Difference 0.14 [-0.37,0.65]). Second postoperative period: the overall result is not significant (Standardized Mean Difference 0.56 [-0.22,1.35]). Alveolitis sicca: the result is a Risk Ratio equal to 0.52 [0.17, 1.61]. Infection: a superiority of the treated over the controls, with Risk Ratio 0.41 [0.27, 0.63] and 0.39 [0.16, 0.93]. Oedema: the differences between treated patients and the Control group are not considered significant.

**Conclusions:** the results demonstrate efficacy for the control of painful symptoms and infection, and not least the results relating to the control of alveolitis sicca must be considered, which demonstrate how its presence, initially, is not etiopathologically correlated to bacterial over-admission, but, more likely, to an interruption of the healing process of the alveolus.

# AN ANCIENT SCIENCE TO IMPROVE CLINICAL PRACTICE: HUMAN ANATOMY MEETS ORAL SURGERY

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**Aim:** to emphasize the usefulness of dissection to understand the reason of the possible lack of anesthesia during symphysis surgeries.

**Methods:** in the surgeries of the symphysis, it is necessary to anesthetize the surgical area through the mental nerve bilateral block. Sometimes, however, patient refers intraoperative pain despite the correct execution of the anesthesia.

**Results:** the mandibular symphysis usually receives innervation from inferior alveolar nerve (IAN) terminations, but, in some rare cases, a particular anastomosis involves the lingual nerve and the nerve to the mylohyoid. Thanks to an in-depth anatomical study through anatomical dissection of the lower jaw, it is possible to see that the lingual nerve, crossing the duct of the submandibular gland, can give rise to an unusual lateral branch that anastomoses with the nerve to the mylohyoid, usually below it, as it passes through the mylohyoid muscle. In such case the mylohyoid nerve collects the sensitivity of the symphyseal area. Therefore, in patients who have the described anastomosis, the clinician must proceed, in the event of sensory perception during surgery in the symphyseal area, with a bilateral anesthetic block of the lingual nerves.

**Conclusions:** the study of anatomy through dissection can be a useful tool for clinicians today, to find answers to their daily practice questions, as the reason why the patient could feel pain during the symphysis surgery, raising their level of preparation and the quality of their work.

# NASOPALATINE DUCT CYST: LITERATURE REVIEW AND CASE REPORT

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**Aim:** the aim of this study is to describe the management of an upper jaw cyst with involvement of the nasopalatine nerve and to compare our technique with the most predictable ones according to the literature.

**Methods:** a 50-year-old patient came at the Department of Dentistry of IRCCS San Raffaele with swelling in the anterior palate. The first step of the diagnostic process highlighted a symmetrical edema at the interincisal papilla, with a fluctuating consistency. The OPT showed a radiolucent area in the premaxilla and the CBCT displayed the presence of a rounded lesion with radiopaque, clear margins and with involvement of the naso-palatine nerve. A vitality test was performed from element 1.3 to 2.3 excluding the odontogenic origin of the lesion. After locoregional anesthesia, an intrasulcular incision was made and an envelope flap was created. The lesion was totally excised and sent to the Histology and Pathology Department of the San Raffaele Hospital. The cavity was carefully revised and filled with fibrin sponges. Then simple sutures were performed.

**Results:** the patient was kept on a follow-up program and a CBCT was performed which confirmed the remission of the lesion. In addition, excellent healing of the soft tissues was highlighted.

**Conclusions:** this study demonstrates the importance of the diagnostic phase for the correct surgical planning and the treatment success.

# OSTEOLITIC LESION ASSOCIATED TO IMPACTED THIRD MOLAR: LITERATURE REVIEW AND CASE REPORT

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**Aim:** the aim of this clinical report is to discuss our approach of a surgical excisional biopsy of an osteolytic lesion located in correspondence of the element 38 compared to the state of art in scientific literature.

**Methods:** a 46-year-old patient presented to the Department of Dentistry of San Raffaele Hospital for a check-up visit.

After an accurate clinical and radiographic analysis, we noticed the presence of a lesion associated with the element 38, which was not vital.

The chosen treatment was a surgical exeresis of the lesion and the surgical extraction of the element, performed under local anesthesia. A mucoperiosteal incision was made to detach a full-thickness flap. With a straight handpiece the excision of the element and associated lesion were performed.

After a thorough revision of the cavity, absorbable hemostatic sponges were inserted into the neo-cavity, and a suture was placed to close the wound.

**Results:** the histological examination indicated that the lesion in the III quadrant was a 2.8 cm inflammatory orthokeratinized odontogenic cyst. At the 3-years follow-up visit complete soft tissue healing and a steady reduction in radiolucency were observed, still without any lesion recurrence.

**Conclusions:** precise and accurate pre-surgical evaluation coupled with timely intervention increases the chance of achieving complete healing and optimal preservation of both soft and hard residual structures.

# APICOECTOMY AFTER ENDODONTIC TREATMENT FAILURE: LITERATURE REVIEW AND CASE REPORT

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**Aim:** the purpose of this case report is to present a clinical case of apicectomy with 2-years follow-up comparing it with the current scientific literature.

**Methods:** a 47-year-old patient presented at Dentistry Department of San Raffaele Hospital for a dental consultation reporting a persistent pain on left pre-maxilla. On clinical examination there was a fistula in correspondence of the apex of element 23, previously treated endodontically. On radiographic examination we noticed an apical radiolucency.

Under local anesthesia, we proceeded to set up a mucoperiosteal triangular flap and excision of the lesion. Then we performed an apicectomy and retrograde obturation. After a careful revision of the cavity, absorbable haemostatic sponges were inserted and sutures were placed to close the wound. The removed neoformation was sent to the Histology and Pathology Department of San Raffaele Hospital for histopathological analysis.

**Results:** the histological examination indicated that the lesion was an apical granuloma of 0,6cm in size. At the 2 years follow-up visit we noticed a complete tissue healing and an improvement in radiolucency.

**Conclusions:** even if an adequate endodontic therapy is performed, due to the high percentage of secondary canals in the last 3 mm of the tooth apex, one may encounter a failure. In such cases, performing an apicectomy allows to obtain a good apical seal and a good canal disinfection.

# EFFICACY OF INTRAMUSCULAR INJECTION OF CORTICOSTEROIDS IN THIRD MOLAR SURGERY

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**Aim:** this systematic review aimed to identify randomized, placebo-controlled trials investigating the effectiveness of intramuscular corticosteroids in the control of facial edema, pain, and trismus following third molar surgery.

**Methods:** searches were performed in the PubMed, Embase, and Cochrane Library databases. The search identified 139 studies. After assessing eligibility, five studies were included in the meta-analysis. Each outcome was considered the first postoperative period, including the first 72 h after surgery, and the second postoperative period concerning the analysis on the sixth or seventh day after surgery.

**Results:** orticosteroids were effective in controlling pain, both in the first postoperative period ($p < 0.00001$; MD -1.20; 95% CI -1.56 to -0.84) and in the second postoperative period ($p < 0.00001$; MD -1.09; 95% CI -1.45 to -0.74), and in edema control, both in the first postoperative period ($p = 0.02$; MD -2.30; 95% CI -4.23 to -0.37) and in the second postoperative period ($p = 0.01$; MD -1.01; 95% CI -1.79 to -0.24). In contrast, for the control of trismus, corticosteroids were less effective, both in the first postoperative period ($p = 0.15$; MD -0.50; 95% CI -1.17 to 0.18) and in the second postoperative period ($p = 0.65$; MD -0.15; 95% CI-0.81 to 0.50).

**Conclusions:** intramuscular injection of corticosteroids is effective in reducing postoperative sequelae of surgical removal, particularly in the control of facial edema and pain, in contrast to trismus, both in the first postoperative period and in the second postoperative period.

# MAXILLARY ODONTOGENIC CYST: LITERATURE REVIEW AND CASE REPORT

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**Aim:** the purpose of this paper was to perform a literature review on management of maxillary odontogenic cyst with implementation of a clinical case.

**Methods:** a 52-year-old patient was referred to the Dentistry Department of San Raffaele Hospital, for discomfort in the first quadrant. After a clinical and radiological evaluation through orthopantomography (OPT) and CBCT, an apical neoformation at element 16 was observed with vestibular cortical resorption and oro-sinus communication.

A trapezoidal full-thickness flap was elevated and after tooth's extraction, the enucleation of the lesion was performed. After revision of the cavity, fibrin sponges were placed, and stiches were applied. The sample was sent to the Histology and Pathology Department of San Raffaele Hospital for histopathological analysis.

**Results:** histopathological examination confirmed our hypothesis of an inflammatory odontogenic cyst. Clinical and radiographical analyses at 2-years follow-up showed proper hard and soft tissue healing.

**Conclusions:** according to literature, an accurate pre-surgical evaluation, and the use of radiographic examinations, in case of proximity to noble structures must be performed for a safe surgical procedure with good control of possible intraoperative complications.

# DECOMPRESSION OF JAW CYSTIC LESIONS: A CBCT ANALYSIS IN FOUR PATIENTS

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**Aim:** Odontogenic Cysts (OC) arise from the odontogenic epithelium and occur in the tooth-bearing regions of the jaws. This study aims to evaluate the effects of decompression in jaw cystic lesions, using CBCT analysis before cystectomy; moreover it evaluates the new walls formation where solutions of continuity with extraoral districts were present.

**Methods:** four patients with jaw cystic lesions compatible with OC of inflammatory origin, solution of continuity between cyst wall and extraoral districts (maxillary sinus, oral floor and nasal cavity) were selected.

A surgical decompression of the OC was performed, inserting a cannula and fixing it to the adjacent teeth. For five months patients daily performed saline solution washings, then a second CBCT was executed to perform oral surgery. Results were assessed on CBCT both before drain insertion and cystectomy, measuring the OC on the three axis by taking fixed landmarks.

**Results:** the Kolmogorov-Smirnov test was performed to evaluate the normality of the sample, which resulted parametric (p value > 0.1000 - 0,0924). T-test was subsequently performed for paired data (P value 0,0002). The results showed a statistically significant association between drain placement and size reduction in the three planes of space.

**Conclusions:** these results suggest that decompression can be an effective treatment to reduce size of cysts lesions when the dimension of the cysts creates a continuity solution between oral bones and extraoral districts, also showing new walls formation.

# IMPACT OF LORNOXICAM AND FLURBIPROFEN ON POSTSURGICAL MANAGEMENT AFTER THIRD MOLAR SURGERY

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**Aim:** the aim of the present study was to evaluate the efficacy of Lornoxicam versus Flurbiprofen and placebo in reducing perioperative sequelae following mandibular third molar surgery.

**Methods:** ninety-one patients were enrolled and randomly allocated to receive one of the following treatments twice a day for 5 days after surgery: placebo (n = 29), Flurbiprofen (n = 31), or Lornoxicam (n = 31). Postoperative pain (primary outcome) was evaluated through the visual analogue scale (VAS) score at 30 min, 2, 6, 12, 24, 48 h, 7 and 10 days following surgery. Postoperative swelling and maximum mouth opening values were the secondary outcomes measured. Statistical analyses were performed, and a p-value < 0.05 was set as statistically significant.

**Results:** compared to placebo, treatment with Flurbiprofen and Lornoxicam significantly reduced postoperative pain. Moreover, after surgery the treatment with Lornoxicam presented significantly lower median pain scores at 2 h ($p < 0.001$) and at 6 h ($p = 0.016$) compared to Flurbiprofen and at 2 h ($p < 0.001$), 6 h ($p = 0.01$), and at 24 h ($p = 0.018$) compared with placebo. Swelling and maximum mouth opening values were not significantly different between the groups at each follow-up session.

**Conclusions:** the treatment with Lornoxicam determined a decrease in the incidence and severity of pain in the first postoperative phase following mandibular third molar surgery compared to Flurbiprofen and to control group.

# PATIENT'S SATISFACTION AFTER DENTAL EXTRACTION USING THE MAGNETIC MALLET®

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**Aim:** Magnetic Mallet® is a revolutionary tool in oral surgery that simplifies teeth extraction helping to preserve the alveolar bone in a considerable manner. The objective of this study is to assess the patient's feedback and satisfaction after dental extraction using the Magnetic Mallet®.

**Methods:** 49 teeth considered as "hopeless" after clinical and radiographic evaluation on 37 patients had been extracted using the Magnetic Mallet®.

After the avulsion was performed, the patient was asked to quantify and report the pain using the NPRS scale (Numeric Pain Rating Scale) and a standard therapy of Paracetamol and Chlorhexidine 0,12% mouthwash was given. Clinical controls were scheduled at intervals of one week and then after 21 days. A medical record was gathered in order to document patients' level of pain at 24 and 72 hours and then at 7 and 21 days.

**Results:** the mean pain level after tooth extraction was limited to 0.49. The mean pain in the follow ups was 3.18 after 24 hours; 2.14 after 72 hours and 1.02 after one week following the procedure. During the 21-day follow-up the average pain was assessed again and stood at 0.18.

**Conclusions:** based on the results that were gained we can form an impression about the easiness of tooth extraction with the help of Magnetic Mallet®. Its effectiveness and its capability in reducing the damage to the tissues and bone creates a positive post-surgery satisfaction for the patient that can be considered as good as or better compared to the traditional technique described in the literature.

# CUSTOM BONE REGENERATION (CBR): A HUMAN CASE SERIES STUDY

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**Aim:** the aim of this retrospective clinical study is to evaluate the reliability of the Guided Bone Regeneration (GBR) surgical technique through the use of customized CAD CAM titanium meshes (Yxoss CBR® Reoss).

**Methods:** 9 patients presenting 10 bone defects were referred to solve an oral dysfunction due to edentulous atrophic ridges. Guided bone regeneration was performed with titanium meshes combined to autogenous bone graft and heterologous bovine bone mineral graft. A "poncho technique" soft tissue approach was exclusively performed.

After a mean 9 months of graft healing, meshes were removed and implant surgery was subsequently performed.

**Results:** 1 site met titanium mesh exposure. However, a significant gain in width and thickness was achieved for all the 10 sites.

The statistical results were estimated uploading and superimposing cbct scans before and after CBR surgery for each patient. It was thus possible to evaluate the maximum linear vertical and horizontal bone gain through a dedicated Cad Cam software (Exocad GmbH®). The average results were: a horizontal gain of 6,37 ± 2,17 mm, a vertical gain of 5,95 ± 2,06 mm and a bone volume gain of 3012 ± 1938 $mm^3$.

A total of 18 implants were placed into the grafted sites with a 100% survival rate.

**Conclusions:** the findings from this retrospective study suggest that Yxoss CBR® Reoss represents an affordable and safe approach to pursue GBR in horizontal, vertical or combined defects. The soft tissue management is diriment: a "poncho" flap approach was chosen to reduce the most frequent exposure complications.

# ENUCLEATION OF A NEOFORMATION IN THE VENTRAL PART OF THE TONGUE: MUCOCELE OF BLANDIN-NUHN GLANDS

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**Aim:** the aim of this study is to report a rare case of mucocele of Blandin-Nuhn glands and discuss the most appropriate therapeutic approach of it, describing a case treated by the authors.
**Methods:** a 16-year-old female patient, in good general health, referred to us reporting the recurrence of a circumscribed neoformation located on the apex of the ventral part of the tongue. The parents reported the relapse of the lesion following an initial surgery. Based on the clinical aspects, the probable diagnosis is determined as cyst of the Blandin-Nuhn glands, suggested by histopathological examinations after an excisional biopsy of the lesion performed with a classical scalpel. Within 7 days of the biopsy, complete repair of the tissue was observed.
**Results:** clinically it presents as a longitudinal swelling of the ventral surface of the tongue, parallel to the frenulum, with a major axis of 0.6cm. Since it was a relapse, the definitive diagnosis of the case was oral mucosa with stroma occupied by lymphocytic and histocitic infiltrates in a context of eosinophilic amorphous material, with intense chronic inflammation and ectasia of the peri-lesional lymphatic vessels.
**Conclusions:** surgical removal of the mucocele is the first choice treatment; removal of the traumatic aetiological agent is an alternative conservative therapeutic treatment. It is indeed very important to identify them in order to provide complete excision of the Blandin-Nuhn gland and avoid relapses.

# MAGNETIC MALLET: AN ALTERNATIVE TO TRADITIONAL THIRD MOLAR EXTRACTION SURGERY

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**Aim:** Magnetic Mallet is a surgical magneto-dynamics device that allows performing simple and complex extractions in an atraumatic way, preserving the bone crest. It represents an alternative to rotary and manual surgical instruments that could be invasive in several cases. The aim of this study is to evidence the benefits of magnetic surgery compared to the traditional one by analyzing five third molar split-mouth extractions.
**Methods:** split-mouth extractions were performed, with both traditional (C) and magnetic (T) surgery, two weeks apart. The following parameters were considered for each patient: intraoperative pain (VAS scale); duration of surgery; one-, three-, seven- and twenty-one-days postoperative pain (VAS scale) and post-surgical complications.
**Results:** the sample showed that the T group reported less intraoperative and postoperative pain than the C group. The duration of surgery was shorter on average in the T group. There were no significant differences between the T and C groups for postoperative complications.
**Conclusions:** the magnetic mallet has proven to be a valid support for the surgical extraction of erupted or partially erupted third molars. It allows a cleaner, simpler and less traumatic surgery than the traditional one. In addition, it has been shown to significantly reduce patients' postoperative discomfort, usually associated with surgery with manual instruments.

# ODONTOGENIC KERATOCYST SURGERY AND RECURRENCE IN GORLIN-GOLTZ SYNDROME: A NARRATIVE REVIEW

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**Aim:** Gorlin-Goltz syndrome (GGS) is an autosomal dominant hereditary disorder. Typical manifestations involve the maxillary region, with the presence of keratocystic lesions, basal cell carcinomas, and skeletal deformities. For this reason, early diagnosis of the disease is necessary to improve the patient's quality of life by limiting the recurrences after keratocysts excision.

**Methods:** a narrative review of the literature was performed using the PubMed database to identify surgical methods for the treatment of keratocysts currently in use, showing recurrence rates for each method.

**Results:** post-surgical recurrence rates for odontogenic keratocysts are variable: 30% following enucleation, 9%-17% following enucleation and irrigation with Carnoy's solution, 14.5%-38% with enucleation and cryotherapy, 18% with enucleation and peripheral ostectomy, 13%-14.6% with decompression and cystectomy, 32%-33% with marsupialization, and 0%-8.4% following surgical resection. The resective en bloc technique proves to be the best because it has shown no cases of recurrence in the literature, but it is also the most invasive technique.

**Conclusions:** the potential recurrence of keratocysts treated with enucleation has marked the treatments on the resective surgery option, but recently the treatment plan preferred is the intermediate plan between enucleation and resective surgery. Extensive lesions preclude the use of resection.

# BETA CALCIUM TRIPHOSPHATE *VS* 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.

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

# EXTRACTION OF AN IMPACTED MAXILLARY PREMOLAR: LITERATURE REVIEW AND CASE REPORT

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**Aim:** the purpose of this study is to show the surgical extraction of a maxillary premolar in total bone inclusion compared to the state of art in scientific literature.

**Methods:** a 14-year-old female patient came to the Dentistry Department of San Raffaele Hospital with impacted element 2.5. Anamnesis, clinical evaluation, OPT and Cone Beam are accomplished. Element 2.5 location is defined in relation to noble structures. Under local anesthesia, a full-thickness palatal flap with paramarginal incision, papillae preservation and distal release incision is performed. An osteotomy is carried out to gain access; dislocation, partial odontotomy and extraction of element 2.5 are then carried out. After the revision of the cavity and the insertion of absorbable haemostatic sponges into the surgical neo-cavity, sutures in detached stitches are used to close the wound.

**Results:** element 2.5 in total bone inclusion is successfully extracted, respecting the anatomy and noble structures. The 1-year follow-up shows the reorganization of the bone complex and the restitutio ad integrum of both hard and soft tissue.

**Conclusions:** the extraction of maxillary premolars in total bone inclusion is more predictable for the surgeon and more tolerated by the patient if supported by an attentive Cone Beam planning and performed with literature validated techniques.

# PREMAXILLARY PERIAPICAL LESIONS: LITERATURE REVIEW AND CASE REPORT

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**Aim:** the root cyst is the most frequent odontogenic cyst and originate from the epithelial components that remain from the odontogenesis. The purpose of this study is to present a clinical case of root cyst located in premaxilla, surgically treated by excisional biopsy in a 68-year-old patient, accompanied by a literature review on the topic.

**Methods:** the patient came at the Department of Dentistry of San Raffaele Hospital for an osteolytic lesion in the premaxilla. After an accurate clinical and radiographic analysis, we confirmed the presence of the lesion bounded by the mesial wall of the maxillary sinus and the floor of the nasal cavity. The chosen treatment was a surgical exeresis of the lesion, which was performed under local anesthesia. A mucoperiosteal incision was made and a full-thickness flap was raised. The excision of the lesion was carried out and after a carefully revision of the cavity, collagen sponges was inserted and a 4/0 suture was placed to close the wound.

**Results:** the histological examination indicated that the lesion was a 2cm phlogosated odontogenic cyst. The 1-year follow-up visit complete soft tissues healing and a steady and significant reduction in radiolucency were observed, still without any lesion recurrence.

**Conclusions:** precise and accurate pre-surgical evaluation joined with timely intervention can lead to complete healing and optimal preservation of both soft and hard tissues.

# GUIDED ZYGOMATIC IMPLANT SURGERY: CRITICAL REVIEW AND OUR EXSPERIENCE

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**Aim:** Zygomatic implants (ZI) are one of the possible options for immediate implant rehabilitation without grafting the atrophic edentulous maxilla. A literature review is performed regarding guided surgery for ZI placement.

**Methods:** an electronic search was performed on databases (PubMed, MEDLINE, ScienceDirect) including studies that evaluated the accuracy of computer-guided static surgery for ZI placement.

**Results:** a total of 81 studies were identified, only 4 studies included the criterion of accuracy of computer-guided static surgery for the placement of ZI. Studies on human cadavers were conducted using stereolithographic surgical guides resting on the maxillary crest inserting a total of 28 ZI (Van Steenberghe D et al. In 2003; Chrcanovic BR et al. In 2010; Schiroli G et al.), finding a discrepancy compared to pre-surgical planning. 40 ZIs were inserted into a study on human cadavers using a bone-supported surgical guide (Grecchi F. et all in 2021) with positive outcome with respect to pre-surgical planning.

**Conclusions:** on the basis of our experience, in accordance with the literature, the most predictable technique for the placement of ZI remains the freehand one, as long as it is entrusted to expert clinicians with a high surgical background. It can also be stated, from a critical examination of the literature, that the surgical guide resting on the maxillary crest (with or without bone support) presents substantial criticalities; the use of a bone-supported surgical guide (lateral wall of the maxillary sinus) has brought good results, having such a cost/benefit ratio that this technique cannot be imported into outpatient clinical practice.

# DENTAL EXTRACTION USING THE MAGNETIC MALLET® TECHNIQUE

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**Aim:** Magnetic Mallet® is the latest and most modern device proposed to facilitate dental extraction by preserving and compacting the alveolar bone to ensure the replacement of the extracted tooth. The aim of this study is to evaluate the effectiveness and easier use of the Magnetic Mallet® in the simple extractions and the acceptability of its use by the patients.

**Methods:** after a circumferential luxation performed using the Magnetic Mallet®, 49 non-recoverable teeth were extracted on 37 patients. The day of the intervention, many data regarding the procedure details were recorded. In particular, it was registered which of the 4 different power levels selectable from the frontal dial selector, was used. Follow-ups were settled at 7 and 21 days to evaluate clinically and radiographically the socket healing.

**Results:** in 69,39% of the cases, the power of 1 or 2 was sufficient to conclude the case, proving that a medium force is enough to remove the tooth, limiting the discomfort for the patient.

Endodontically treated and ankylotic teeth were always extracted intact, without fractures during the study, proving the effectiveness of the instrument in these cases.

From the 21-days results, it was always possible to observe an optimal healing with good alveolus preservation.

**Conclusions:** data and clinical evidence preliminary suggest that the use of the Magnetic Mallet® facilitated tooth extraction through the compaction of the alveolar bone simplifying the luxation phase, making it less traumatic for the patient and easier for the clinician.

# CORONECTOMY PERFORMED TROUGH COMPUTER-ASSISTED SURGICAL NAVIGATION: A CASE REPORT

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**Aim:** to describe a successful surgical case of coronectomy of an impacted mandibular third molar in close contact with the inferior alveolar nerve (IAN) using dynamic navigation.

**Methods:** a 42-years-old woman was referred for the treatment of an impacted left mandibular third molar. The patient reported recurrent pericoronitis requiring antibiotics. The orthopantomography and the cone-beam computed tomography (CBCT) images showed close proximity of the roots with the IAN and the presence of an associated dentigerous cyst closed to the second molar's roots. To minimize iatrogenic injuries to the IAN a coronectomy was performed using a surgical dynamic navigation system.

**Results:** coronectomy and cyst removal were successfully performed. High surgical accuracy was provided, thanks to the dynamic navigation system that allows the surgeon to perform the procedures following in real-time the instruments' position on the CBCT images. No neurological damages or other intraoperative complications occurred. The surgical site healed by primary intention. After 2 years, no long-term postoperative complications were reported. The vitality of the left mandibular second molar was preserved and a physiologic probing depth on its distal aspect was detected. Follow-up radiographs showed roots migration and stabilization together with the complete bone mineralization.

**Conclusions:** dynamic navigation can provide high intraoperative accuracy that is an essential goal, in particular in the case of management of teeth in close proximity to the IAN.

# POST EXTRACTIVE IMPLANT PLACEMENT WITH IMMEDIATE LOADING: A CASE REPORT

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**Aim:** the purpose of this study is to show the placement of a post extractive implant fixture with flapless technique in the mandibular first molar site, associated with a literature review on bone compaction techniques.

**Methods:** a female 52-year-old patient comes to the dentistry department of the San Raffaele hospital with symptoms affecting the third quadrant. After an accurate clinical and radiographic analysis, we noticed a root fracture of the element.

Under local anesthesia the extraction of the element is performed. To maintain the morphology of the septum, the roots are separated. For the preparation of the implant site, osteotomes in series are used with the mechanical compaction technique. The chosen implant fixture is inserted and immediate loading is performed.

**Results:** post-operative Cone Beam shows the success of the surgery with the improvement in bone density from D3 to D2, due to the mechanical compaction technique. The 3 years follow up reveal the osteointegration of the fixture and the restitutio ad integrum of tissue.

**Conclusions:** the use of second level radiographic examinations, respecting the ALARA principles, during the diagnostic phase allow us to visualize the improvement in bone density following the use of mechanical compaction.

# CANALICULAR ADENOMA OF THE LIPS: LITTERATURE REVIEW AND CASE REPORT

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**Aim:** the purpose of this study is to analyze a soft tissue lesion located in the left upper lip area both from a diagnostic and a therapeutic point of view, through the description of our clinical experience and a literature review of the perioral neoformations.
**Methods:** a 71-year-old patient was referred to the Dentistry Department of San Raffaele Hospital for the presence of an upper lip lesion. Macroscopic examination of the region revealed a well-defined, round, smooth, firm, elastic and hard nodule. After local anesthesia, we proceed with a scalpel incision, to the surgical exeresis of the lesion by blunt dissection.
The sample, 1,2x0,7x0,6cm, was sent to the Histology and Pathology Department of San Raffaele Hospital for Histopathological analysis with diagnostic suspect of mucocele of pleomorphic adenoma.
The wound is then closed with 4/0 resorbable sutures with simple stiches.
Analgesic drug therapy was prescribed and the patience was placed in a control protocol.
**Results:** the histological examination confirmed that the lesion was a canalicular adenoma. At the 1 years follow-up visit, a complete tissue healing was observed.
**Conclusions:** it is very important to carefully examine the oral mucosa as part of a dental examination to identify lesions in a preventive manner.

# CLINICAL MANAGEMENT OF AN ODONTOGENIC NASOLABIAL ABSCESS: A CASE REPORT

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**Aim:** the odontogenic abscess is a frequent consequence of caries, traumas and failed dental root canal treatments.
The aim of this study is to report about the clinical management of facial odontogenic abscesses and their follow-up.
**Methods:** a 45-year-old man with a painful swelling at the level of the right nasolabial fold came to our attention. Clinically it appears as a 10 cm lesion including the five cardinal signs of inflammation and trismus. The patient underwent an attentive informed consent concerning his clinical data disclosure. The involvement of the 1.6. periapical area is reported by the OPT exam analysis, showing a previous endodontic treatment. At the first appointment a transcutaneous haemo-purulent drainage of the abscess has been followed by a systemic administration of Ceftriaxone (Rocefin 1g/3,5 ml). The drainage has been performed inserting a syringe in the lowest and central sites of the lesion. Therefore, the clinician opted for an #11 scalpel blade incision to ease the flow. The second session has shown a remarkable reduction of the symptoms. A second transcutaneous drainage has been useful to deplete the content of the abscess, easing the first upper right molar extraction.
**Results:** the immediate results determined a partial resolution of the edema re-establishing the physiological opening of the jaw, alongside a decrease of the pain. It ensured a total successful follow-up.
**Conclusions:** a timely treatment for this condition is crucial to avoid potentially severe life-threatening complications and achieve a restitutio ad integrum.

# LOWER THIRD MOLAR AUTOTRANSPLANTATION IN LOWER FIRST MOLAR FRESH SOCKET: A CASE REPORT

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**Aim:** autogenous tooth transplantation is the surgical transfer of a tooth from one site to another in the same patient. A case of lower third molar autotransplantation in a lower first molar fresh socket is presented.

**Methods:** in September 2021, a 25-year-old female patient was referred to the Oral Surgery Unit of the Umberto I Hospital of Rome for the extraction of the lower left first molar because of a destructive decay. Since the lower left third molar was healthy and its morphology and dimensions were compatible with those of the tooth which had to be extracted, it was extracted as well in the same session, transplanted in the first molar site and splinted to the adjacent teeth.

**Results:** the first follow-up visit and suture removal were performed 7 days after surgery. Third molar pulp test vitality was performed after 15 days and gave a positive, although delayed, result. After further 30 days, the tooth showed a normal vitality.

A last visit was performed in mid-December, when the patient underwent a new orthopantomography which showed no periapical nor periodontal radiolucency on the transplanted tooth. The splint was therefore removed and the normal vitality of the tooth was confirmed again.

**Conclusions:** third molar autotransplantation can be considered an option for the substitution of non-restorable first molars, especially in young patients. Although endodontic treatment of the transplanted tooth is usually performed a cautious extraction and a quick transplantation make tooth vitality maintenance possible.

# CLEIDOCRANIAL DYSPLASIA: A CASE REPORT OF CRANIOFACIAL AND DENTAL ABNORMALITIES

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**Aim:** this case describes surgical extractions of supernumerary teeth in a Cleidocranial dysplasia patient. CCD (Cleidocranial dysplasia) is an autosomal dominant genetic disorder, characterized by general dysplasia, skeletal and dental deformities. Aplastic or hypoplastic clavicles, supernumerary teeth, failed eruption of permanent teeth, and a hypoplastic maxilla are the most common features.

**Methods:** a young woman with CCD, inherited from her father, characterized by missense mutation in the RUNX-2 gene (c.674G > A), resulting in the replacement of arginine with glutamine at residue 225 (p.Arg225Gln); with short stature, brachycephalic head, hypoplastic maxillary and broad nasal bridge were referred to Oral Surgery Department, for the avulsion of supernumerary included teeth in the area of maxillary canines . The patient presented an Angle class III malocclusion, lower crowding, negative overjet and multibrackets strightwire fixed appliance.

**Results:** to expose the teeth, a full thickness flap was raised and osteotomy was performed. After extractions, the flap was repositioned and sutured. Finally, antibiotic and inflammatory therapy was prescribed.

**Conclusions:** the interdisciplinary approach between geneticist and dentist is fundamental to produce early diagnosis and to perform the treatments in cleidocranial dysplasia patients.

# SURGICAL-ORTHODONTIC THERAPY OF AN ENCLOSED RIGHT LOWER CANINE: CASE REPORT

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**Aim:** this paper documents a case of bony inclusion of the right mandibular canine restored to the arch with an orthodontic surgical approach.

**Methods:** some of the causes of bony inclusion of the canine are: failure of resorption of the deciduous canine, obliteration of the gubernaculum dentis with loss of eruptive guidance, lack of space in the arch, ect.

In a 12-year-old patient, we find absence of permanent canines and retention of deciduous canine. After a radiographic evaluation with opt x-ray, a dental inclusion of the 4.3 element with the crown inclined towards the apices of the lower incisors was revealed. CBCT was also performed for a correct planning of the intervention, of the localization of the dental elements and of the anatomical structures.

After local anesthesia we proceeded with the avulsion of the deciduous element (8.3), the execution of a full-thickness flap with mesial vertical incision at 4.1 to expose bony cortical and the crown of 4.3. 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-resorbable sutures were applied.

**Results:** after 8 months from surgery and subsequent orthodontic traction, the included canine was returned to the arch.

**Conclusions:** for a successful orthodontic surgical therapy of included canines, an early and accurate diagnosis made with clinical and radiological examinations such as OPT and CBCT radiographs and the evaluation of the predictive factors of dental eruption is essential.

# CAD/CAM CUSTOMIZED AND ENGINEERED GBR SCAFFOLDS WITH AUTOLOGOUS STEM CELLS

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**Aim:** the goal of this work was to develop a CAD/CAM guided bone regeneration technique allowing the realization of customized, engineered scaffolds with autologous stem cells for the treatment of diffuse maxillary atrophy with a fully digital workflow.

**Methods:** starting from the acquisition of X-ray images by CBCT, the DICOM files was processed by a specific software able to realize 3D model files of the maxillary bone.

The STL file was processed with CAD software that allows the virtual reconstruction of the alveolar ridge and grants scaffold design to integrate specific anatomical shape in the most appropriate position. The 3D scaffold geometry was then imported into the CAM software for fabrication with a four-axis CNC milling machine. The material used for the scaffold consists of BCP. Moreover, these scaffolds were engineered with periodontal ligament stem cells and growth factors to ensure an adequate supply of osteoprogenitor cells and promote the regeneration process.

**Results:** this tissue engineering protocol simplifies surgery, reduces intraoperative time, allows perfect adaptation of the scaffold and finally allows the seeding of autologous stem cells above and inside the scaffolds, which are the main responsible for true tissue regeneration.

**Conclusions:** nowadays, digital tools enable new alternatives for bone surgery planning. The possibility of modelling the bone graft in a suitable three-dimensional architecture and the ability to ensure an adequate supply of growth factors and osteoprogenitor cells in the surgical site are paramount goals.

# GUIDED BONE REGENERATION IN POST-EXTRACTION SOCKETS WITH NANOSTRUCTURED HYDROXYAPATITE

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**Aim:** post-extractive socket preservation procedures aim to prevent alveolar ridge atrophy and maintain adequate dimensions of bone in order to facilitate implant placement. Here we report the clinical results of a guided bone regeneration strategy tackled with SpherHA, a biomimetic nanostructured hydroxyapatite, and Collygen, an absorbable collagen membrane.

**Methods:** 10 teeth had been extracted in patients between 26 and 66 years old. The sockets had been filled with either hydroxyapatite porous chips or mouldable crunch and then covered by a collagen membrane and sutures. After 3 and 6 months we controlled the bone healing measuring the bone height with personalized plastic masks, probing 5 different points for each tooth with a periodontal probe. We also evaluated the pain of the patients, using a NRS Scale (Numeric Rate Scale).

**Results:** a successful bone regeneration has been observed in all the patients treated. No adverse effects were observed. Mean post- operative pain after treatment at 15 days was 3.2 ± 1.1. None of the patients reported pain at 3 and 6 months. Radiographs show proper bone healing; the measurement results show minimal resorption at 6 months, with maintenance of the initial bone volume.

**Conclusions:** the use of bone substitutes, such as SperHA, contributes to a long-term maintenance of the bone structure, favoring the maintenance of an adequate bone volume useful for future implant placement. An artificial bone structure, based on hydroxyapatite, allows osteoblastic cells to use it as a scaffold for the formation of a new native bone structure; it is possible to observe a complete restitutio ad integrum after 6 months.

# RADIOGRAPHIC AND HISTOMORPHOLOGIC EVALUATION OF THE MAXILLARY BONE AFTER CRESTAL MINI SINUS LIFT

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**Aim:** after tooth extraction, the alveolar bone loses over time volume in height and width, so that reconstructive procedures may be necessary to perform implant placement. In the maxilla, to increase the bone volume, a mini-invasive surgery such as sinus lift by crestal approach could be performed.

**Methods:** a crestal approach was used in this study to perform the sinus lift, fracturing the bone and putting collagens (condress®). The single dental implant was placed in the healed bone after six months.

**Results:** the newly formed bone after healing, was histologically analyzed. Histomorphological analyses confirmed the quality of the new bone formation even without graft biomaterials. This is probably due to the enlargement of the space, meaning more vascularization and stabilization of the coagulum.

**Conclusions:** using just collagen could be sufficient to have proper new bone formation in particular clinical situation and using a minimally invasive surgery to perform a sinus lift.

# OUTPATIENT MEDICAL SURGICAL TREATMENT OF CUTANEOUS FISTULA: A CASE REPORT

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**Aim:** the aim is the management of a patient with persistent cutaneous fistula.

**Methods:** a 56 y/o man was referred for fistulized mandibular swelling present for over a month with fever. On the anamnesis: hypertension, III degrees obesity, active smoker and in therapy with Lopridam. The swelling did not regress following a double cycle of oral and IM antibiotic therapy. OPT shows a large periapical lesion on tooth 3.4 with an incongruous endodontic treatment with temporary filling. After antibiotic therapy element 3.4 is extracted. One month later, the fistulized skin swelling is still present concurrently with lymph node involvement. The CT shows disintegration of the spongiosa of the alveolar and basal process, from region 4.2, with continuous solution of the vestibular cortex, to region 3.4. CLL, respiratory insufficiency with secondary polyglobulia are diagnosed following urgent haematological consultation. Later a surgical revision of the osteonecrotic area is performed. Before surgery, Betamethasone IM and Ketorolac IM are administered; a full thickness vestibular flap and isolation of the mental nerve is performed, granulation tissue is removed, Rifamycin is used. Periosteal releases were performed and flaps sutured. At 14 days the suture was removed.

**Results:** one month after outpatient surgery, the patient showed complete skin and intraoral healing.

**Conclusions:** it seems difficult to establish the nature of the mandibular osteonecrosis outbreak as there were no risk factors such as antiresorptive drugs or history of radiotherapy. Surgical sequestrectomy proved to be successful.

# THE USE OF LASERS IN DENTISTRY: CYSTECTOMY IN COAGULOPATHIC PATIENTS

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**Aim:** about 250,000 patients in Italy are subjected to anticoagulant therapy and many of them require surgical treatment of the oral cavity. In order to promote haemostasis, anticoagulant therapy can be suspended, and the use of lasers is very important to promote coagulation in oral surgery, to have immediate haemostasis.

**Methods:** a cardiopathic patient with a previous heart attack and on anticoagulant therapy came to our observation. On the first visit he reported pain and the mobility of elements 4.3 and 4.5 was evident; radiologically in correspondence of the aforesaid teeth there was a radiolucent lesion with clear limits. After careful evaluation with blood screening and cardiological consultation, the surgical treatment was performed using a strict protocol. The patient had preoperative drug therapy with tranexamic acid, subsequently the teeth 4.3 - 4.5 were removed and the cystectomy was performed according to the Parstch II technique with lateral displacement of the mental nerve. During the operation, the bleeding status was checked using an 808 nm diode laser, then the tissues were sutured with Vicryl 5-0 and bio-styled, again using the laser.

**Results:** the patient had home drug therapy based on systemic antibiotics, anti-inflammatory drugs and topical chlorhexidine gel. No noteworthy postoperative complications were found.

**Conclusions:** the follow-up was carried out at 7, 15 and 30 days, or until the surgical site had completely healed and so the use of laser during the treatments was very important.

# MAXILLOFACIAL UNUSUAL FOREIGN BODY: SURGICAL MANAGEMENT WITH THE AID OF 3DCT RECONSTRUCTION

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**Aim:** Foreign bodies (FB) in maxillofacial region are not frequently reported. Aetiology of this event could be traumatic, iatrogenic and self-harm injuries. Presence of FB is usually free from life-threatening risk but can cause functional disorders, pain, infection and discomfort. Surgical removal of FB could be challenging for proximity to important anatomic structures (IAS). Recent reports describe usefulness of radiologic 3D digital imaging for preoperative planning and intraoperative navigation for safe removal of FB.

**Case report:** a 82 y.o. male patient presented to DDOS for pain in the right mandibular posterior region and cheek associated with headache and cervicalgia. A follow-up orthopantomography prescribed by private dentist occasionally revealed presence of FB in soft tissues of right buccal region. Reason for its presence and its nature was unclear, patient reported surgical extraction of 4.8 years before (fracture of extraction tool?). A maxillofacial CT scan was performed and 3DCT reconstruction was obtained to assess exact position of FB. Surgical removal was safely obtained under local anesthesia. No perioperative complications were observed. Improvement of symptoms was reported.

**Conclusions:** FB in maxillofacial region are uncommon. No guidelines exist regarding their management. Radiologic 3D digital imaging is highly recommended for FB close to IAS to assess possibility and safety of surgical removal. In this case 3DCT reconstruction permitted to plan the best surgical approach to protect IAS during incision, dissection and removal of FB (parotid duct, buccal nerve, facial artery).

# ORAL ULCERATION WITH BONE SEQUESTRATION ON TORUS PALATINUS: CASE REPORT

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**Aim:** this report is about a case of a 52-year-old female patient who had an ulceration with bone necrosis at the level of a palatine torus. The patient did not have any disease and did not take any drugs. The hypothesized cause was mechanical traumatism. The aim of this study was to report a case of oral ulceration with bone sequestration (OUBS) to raise awareness amongst dental clinicians.

**Methods:** the diagnosis of OUBS was made by clinical examination. The torus palatinus and the necrotic bone were surgically removed in general anesthesia. A histological examination was also performed to confirm the diagnosis.

**Results:** at the clinical follow-up the region was completely healed.

The histopathological examination confirmed the presence of compact bone with necrotic changes.

Thus, the final diagnosis was oral ulceration with bone sequestration on torus palatinus.

**Conclusions:** OUBS is a very distinct entity, today it is considered rare but it is probably underestimated because there are few studies in the literature that deal with this topic. It is therefore important that clinicians know this disease in order to diagnose and treat it correctly.

# KERATOCYST SIMULATING PERIODONTAL LATERAL CYST IN PREMOLAR REGION: A CASE REPORT

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**Aim:** to highlight the attention on the differential diagnosis of lesions that can have unexpected location and can lead doubts on diagnosis, therapy, and follow-up and the leading role of biopsy.

**Methods:** a 34-year-old man presented to Department of Oral Surgery of the University of Naples Federico II, with a complaint of soft pain in the vestibular aspect of left mandibular second premolar and first molar region of two months duration. Vital teeth, no mucosal swelling, and no drainage were observed. The radiographic examination (CBCT) showed a well circumscribed hypodensity area extending between 35 and the apex of mesial root of 36. No displacement and no resorption of the roots. Upon clinical and radiographical examination, a provisional diagnosis of LPC was made, but a surgical treatment consisting of the enucleation of the lesion and histological examination was planned. The lesion was removed and sent to the anatomic pathology laboratory.

**Results:** histologically a cystic wall partially lined by a keratinizing squamous epithelium was observed. The diagnosis of Odontogenic Keratocystic was done and follow-up was established every 6 months for the first 5 years and every year from 5 years upwards.

**Conclusions:** radiolucent lesions in the premolar and canine region are frequently clinically and radiographically misdiagnosed. The identification of keratocyst in a location preoperatively favouring a lateral periodontal cyst should be suspected and biopsy must be considered in all cases to establish the nature of the lesion, the best surgical treatment, and the follow-up appointments.

# DENS INVAGINATUS IN RELATION TO A LARGE CYSTIC LESION: ENDO-SURGICAL MANAGEMENT

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**Aim:** this case report shows the endo-surgical treatment of a large radicular cystic lesion, due to a developmental dental anomaly.

**Methods:** the patient A.L. (24 y.o.) was referred to our oral surgery unit for a large first quadrant abscess. On physical examination the patient showed temperature and significant swelling from the element 1.2 to the element 1.6. Orthopantomography revealed a large cystic-like lesion. The periodontal probing of the elements and the pulp vitality tests were negative; there were not mobility of dental elements. The CBCT showed a large capsulated lesion engaging dental elements eroding the buccal bone wall, showing element 1.2 with an anatomical anomaly and presented 2 independent canals. We performed the root canal treatments of the elements from 1.2 to 1.6 with Protaper Next and the obturation of canals with carrier-based system. The second canal of 1.2 with bigger apex was obturated with MTA. We conducted the treatment in narcosis with an intrasulcular flap from 1.1 to 1.7. We performed the radical cystectomy with piezosurgery and surgical endodontics of the 1.2.

**Results:** after 2 years of follow up the patient has no symptoms, presents complete mucosal healing and good radiological healing. The result of histological examination is compatible with a radicular cyst.

**Conclusions:** dental elements that present anomalies require continuous monitoring, because they are more involved in the formation of cystic lesion. The multidisciplinary approach and a correct diagnosis are fundamental for a correct surgical planning.

# ANATOMIC VARIANT OF THE EXTERNAL CAROTID ARTERY (ECA) ORIGIN: A CASE REPORT

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**Aim:** the aim of this study is to highlight a variation of external carotid artery (ECA), occasionally observed during an anatomical dissection for teaching purposes.

**Methods:** at the ICLO research and teaching centre in Verona (Italy), Professor A. Cicconetti *et al.* have performed 50 dissections on head-neck fresh-frozen samples of corpses between 43 and 75 years old, of which 38 men and 12 women. ECA course was followed as identification guide of the main anatomical structures, and, for teaching purposes, to reach the oral cavity through its branches.

**Results:** in 50 anatomic dissections it was reported the presence of a specific anatomic variant, that can be defined as: a single emergency section from which three collateral branches depart, that are including the lingual artery, facial artery and internal maxillary artery.

**Conclusions:** anatomical expertise is essential in oral surgery; however, the existence of anatomic variants requires the adoption of a specific surgery technique which aims to identify the main anatomic landmarks for the realization of specific surgeries.

Furthermore, it was possible to verify how the executed anatomic dissection for teaching purposes may be useful of the oral surgeon in achieving the right awareness of the deep areas directly connected to the oral cavity.

# ASSESSMENT OF BILATERAL SINUS LIFT GRAFT VASCULARIZATION BY MAGNETIC RESONANCE IMAGING

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**Aim:** the purpose of this work is to evaluate angiogenesis in grafting biomaterials with or without the addition of platelet-rich fibrin (PRF) by means of contrast-enhanced magnetic resonance imaging (CE-MRI).

**Methods:** bilateral sinus augmentation surgery was performed in a patient of 50 years old with severe maxilla atrophy. The left sinus was grafted only with Bio-Oss®, while in the right sinus Bio-Oss® with the addition of PRF was applied. CE-MRI was performed before the surgery (T0), 11, 25, 53, and 104 days after surgery. Analysis were performed with STIR and conventional TSE T1 weighted sequences. Subsequently, dynamic scans and SPIR sequences after the endovascular injection of a contrast agent were used. Images were examined to evaluate angiogenesis by the enhancement of the contrast agent in the two different grafts.

**Results:** after 11 days an equivalent peripherical enhancement was visible in both grafting sites.

At 25, 53 and 104 days a circumferential peripherical enhancement was visible, while it was not in the central area of the left sinus graft.

The right side showed a wider enhancement of the whole graft starting from 25 days, growing progressively in all successive analysis, and becoming massive at 104 days.

**Conclusions:** CE-MRI offers quantitative parameters to evaluate vascularization of biomaterials. This case report showed that vascularization progressively increased centripetally around Bio-oss® graft, whereas appeared to be more uniform and well represented in Bio-oss® with the addition of PRF.

Further studies are needed to confirm this different trend.

# HISTOMORPHOMETRIC ANALYSIS OF NEW BONE FORMATION AFTER BILATERAL SINUS LIFT: A CASE REPORT

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**Aim:** the aim of this case report was to compare new bone formation in grafting biomaterials with or without the addition of platelet-rich fibrin (PRF) by means of histomorphometric analysis.

**Methods:** bilateral sinus augmentation surgery was performed in a patient of 50 years old with severe maxilla atrophy. Graft in left sinus was performed only with Bio-Oss®, meanwhile in right sinus Bio-Oss® with the addition of PRF was applied. After 6 months, before dental implants insertion, cylindrical bone biopsies were developed in both grafting sites (T = 0). The bone obtained was prepared with the Schenk method and analyzed quantitatively with a computer software. In the samples were marked and distinguished: old bone, newly formed bone, Bio-oss® and connective tissue/bone marrow. After 10 years, before implants insertion, control bone biopsies were performed and analyzed with the identical procedures (T = 1).

**Results:** at T = 0 no quantitative differences were observed in new bone and residual biomaterial in both sites. New bone formation was only peripherical in the left sinus, whereas it developed both peripherally and through biomaterial in the right sinus. At T = 1 a similar new bone formation was found, however in left sinus Bio-oss® particles were still present, while in right sinus they were not.

**Conclusions:** this case report showed that the adjunct of PRF led to a more homogeneous new bone formation and helped to complete long term biotransformation of biomaterial. Further studies are needed with a wider sample dimension to evaluate this phenomenon.

# COMPOUND ODONTOMA ASSOCIATED WITH IMPACTED MAXILLARY CANINE: A CASE REPORT

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**Aim:** odontomas are benign odontogenic tumors formed from fully differentiated epithelial and mesenchymal cells. Usually asymptomatic, their presence is often revealed on routine radiographs. According to their structure, they are divided into compound and complex. The aim of this study was to report a case of compound odontoma in the anterior maxilla of a 13yo boy which was causing the impaction of the right maxillary canine.

**Methods:** patient medical history excluded trauma, infection and family history of odontoma. Extraoral examination revealed no facial asymmetry. Intraoral clinical examination revealed a stage of permanent dentition with the absence of the right maxillary canine, 13. An orthopantomography was performed to investigate the cause of uneruption, revealing a radiopaque well-defined mass above the crown of 13. A cone beam computed tomography of the upper jaw confirmed the presence of an amorphous mass surrounded by a radiolucent envelope, measuring 6,9 x 8,1mm. The treatment consisted of surgical removal of the odontoma under local anesthesia.

**Results:** the post-operative periapical radiograph showed the complete surgical removal of the mass. Due to the incomplete development of the root of element 13, a spontaneous eruption may occur, otherwise orthodontic traction will be required.

**Conclusions:** clinical experience and literature suggest that a radiographic examination should be performed for any pediatric patient with delayed tooth eruption. Early diagnosis and appropriate treatment ensure better prognosis, increasing the possibility of preserving the impacted teeth.

# RETROMOLAR CANAL AND FORAMEN: A CASE REPORT

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**Aim:** the retroMolar canal (RMC) and foramen (RMF) represent rare anatomical variations located in the retromolar area of the mandible, behind the third molar tooth. This case report highlights the clinical importance of these structures because of their involvement in several surgical procedures such as lower third molar extractions.

**Methods:** a 28-year-old female patient with impacted third molar presented to our department. A thorough preoperative investigation was performed, where both OPTG and CBCT were examined. The patient was treated with a standard surgical protocol. The presence of the anatomical variable of the RMC was detected intraoperatively.

**Results:** anatomical knowledge of RMC and its intraoperative isolation allowed the successful outcome of surgery without complications. The frequency of retromolar canal commonly reported in bilateral CBCT studies ranges from 5.0 to 16% per side and from 8.5 to 28.1% per patient. Conventional two-dimensional radiographs such as OPTGs have been shown to be insufficient to detect the presence of RMC, whereas sectional imaging, such as Computed Tomography (CT) and Cone-Beam CT (CBCT), has been reported to be superior for its identification.

**Conclusions:** RMC and RMF have great importance in the clinical practice due to prevalence of the pathological processes and complications related to retromolar area. Since their incidence is extremely variable, with any suspected alteration in the mandibular canal, it is recommended to always perform an accurate pre-operative investigation such as CBCT to prevent any possible complication.

# SURGICAL ASPORTATION OF AN AMELOBLASTIC FIBROMA: A 2-YEAR FOLLOW-UP CASE REPORT

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**Aim:** this work has the aim of presenting a case of ameloblastic fibroma and its successful removal and recovery in a pediatric patient, with 2-year follow-up.

**Methods:** a 7-year-old patient presented with an Orthopantomography performed for asymmetrical dentition with a significant delay in the eruption of tooth 4.6 compared to the contralateral one. It showed a radiolucent lesion with clear margins distally to 8.5, element 4.6 was impacted and hindered in its eruption. Absence of 4.5 and delay in germ formation of 4.7 compared to contralateral were also observed. Simple surgical excision of the lesion was performed under general anesthesia, in order to avoid traumas to 4.6 and allow its spontaneous eruption.

**Results:** the histological examination confirmed the diagnosis of ameloblastic fibroma.

During the clinical check-ups a correct healing was evaluated, and the radiographical follow-up at 1 and 2 years showed complete re-ossification of the area with no relapses, and progressive spontaneous eruption of 4.6

**Conclusions:** within the limits of this work, early diagnosis and tempestive intervention appear to be resolutive in the management of this kind of lesions. As confirmed by Literature data and the results of this case report, the complete surgical asportation of the tumor with a conservative approach is the best treatment in order to avoid relapses and to permit physiological healing.

# COMBINED ENT AND ORAL SURGERY APPROACH IN A CASE OF POST-GRAFT MAXILLARY SINUSITIS

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**Aim:** the aim of this work is to present a case of combined ENT and oral surgery, for the resolution of a maxillary sinusitis caused by a biomaterial graft used for a sinus lift and GBR.

**Methods:** a 66-year-old female patient presented in emergency for an abscess with intra-oral fistula, following a sinus lift and GBR made 1 month before in a private clinic abroad. Radiographic exams, OPT and CT scan, showed congestion and presence of material in the right maxillary sinus. The patient was referred to the ENT department where complete obliteration of the cavity on an inflammatory basis and polypoid hypertrophy of the mucosa were diagnosed.

FESS surgery and removal of the residual infected graft via transoral access were planned: the patient was operated under general anesthesia and orotracheal intubation. Endoscopic approach from the osteo-meatal complex was performed by the ENT surgeons, then transoral access to the right maxillary sinus was executed by oral surgeons, with complete removal of infected graft and granulation tissue.

**Results:** at post-operative check-ups the patient showed a good healing process and over-infections were excluded.

**Conclusions:** as exemplified by the presented case, poorly planned and/or badly executed surgery can lead to severe complications requiring then a multidisciplinary approach. It is mandatory for the surgeons to project scrupulously the procedure. Patients must look for serious clinics with high surgical standards and respect the post-operative instructions and follow-ups.

# STABILITY OF TISSUES: KEY TO SUCCESS IN PATIENTS WITH SERIOUS SYSTEMIC DISEASES

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**Aim:** this study was aimed at demonstrating the success of bone regeneration, using autologous bone, in adult patients with severe suppression of the immune system. Following an appropriate antibiotic prophylaxis, autologous bone was taken from the mandibular branch and this graft was then positioned and fixed at the recipient site by means of osteosynthesis screws in the same surgical session. After 4 months, the reopening of this receiving site was carried out to remove the osteosynthesis screws and proceed to the insertion of titanium implants.

**Methods:** were considered 101 patients, 6 of them have presented common parameters such as: organ transplantation without systemic complications, cyclosporine intake, need for extraction of at least one dental element and no more than 3 contiguous teeth to each other with need of subsequent regeneration for implant purposes. These patients were matched 6 healthy control patients.

**Results:** healing checks showed that post-operative complications are the same for test patients as for control patients. No overinfections or exposure of the graft occurred and after 10 months oral function was fully recovered in all patients.

**Conclusions:** this study confirms the effectiveness of bone regeneration in healthy patients and opens an important reflection on the use of autologous bone as a grafting material in patients with severe impairments of the immune system.

# USE OF THE ORTHODONTIC MICROSURGERY TECHNIQUE FOR THE TREATMENT OF DENTAL ANKYLOSIS

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**Aim:** the purpose of this study is to evaluate the efficacy of microsurgery as a treatment alternative for dental ankylosis.

**Methods:** a male patient comes to observation with ankylosis of three mandibular elements. An orthodontic-surgical treatment is decided upon. In light of the patient's lack of compliance, surgery was performed under general anesthesia with nasal endotracheal intubation.

The Piezosurgery Medical II piezoelectric device with the following settings was used: cutting power, bone 1; pump level for irrigation solution 4; saline at 20°C for irrigation. After performing a full-thickness flap on the vestibular side with a paramarginal incision, vertical and horizontal corticotomies, approximately 2 mm deep, were performed on the vestibular side using OT7 and OT8 inserts; the corticotomy design was modified according to the root anatomy and bone type.

Control endoral radiographs were taken the day after surgery. Cortical bone dislocation and ligament distraction were performed with multibracket devices consisting of nickel-titanium brackets (0.21 x 0.25 inch), bands, and orthodontic wires (21 x 25 inch). Intense biomechanical force was applied prior to surgery.

**Results:** the postoperative course did not present particular complications. It was favorable, there weren't infections, wound dehiscences and bleeding. The desired tooth movement was achieved in about 60 days. After the surgery, a slight edema of the soft tissues of the face was noticeable, in particular in the area of the mandible subjected to corticotomy; however, there weren't signs of inflammation of the surrounding oral tissues or bruising. Periodontal tissues were respected, radiographs and periodontal examination showed that corticotomy techniques didn't damage these tissues significantly.

**Conclusions:** microsurgery has proven to be a painless, safe, fast technique associated with minimal morbidity. For these reasons, it may find application in the treatment of ankylosed teeth in adult patients.

# GUIDED IMPLANT SURGERY IN PATIENT WITH FFF AFTER PARTIAL MANDIBULECTOMY: A CASE REPORT

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**Aim:** Free Fibula Flap (FFF) is nowadays the gold standard for reconstruction after partial mandibulectomy. Prosthetic-implant rehabilitation represents a challenge for the clinician. Digital planning of the surgery allows to better understand the anatomy distorted by cancer ablation as well as reducing surgical times and patient discomfort. The clinical case consists of a two stages implant placement in a FFF in a patient with history of oral SCC of retromolar trigone subjected to radio-chemo adjuvant therapy.

**Methods:** the patient came to our attention 6 years after the mandible reconstruction requesting rehabilitation of the right site. Followed the execution of an intraoral clinical examination, complete-arch impression with 3D scanner and finally the execution of a CBCT. Then STL files were matched with the DICOM files and surgical planning was executed using a dedicated software. Finally, a mixed-support surgical guide was printed allowing the insertion of 3 implants in 4.4, 4.5 and 4.6 sites inside the fibula graft.

**Results:** following a precautionary protocol, after 6 months the healing screws were placed and a further time of 1 month was necessary to obtain complete healing of the mucosa; in 3 months prosthetic phase and digital impressions were scheduled.

**Conclusions:** implant-prosthetic rehabilitation in patients who underwent mandibular resection, consequent FFF and adjuvant therapy is tricky. In this context, digital features as 3D scanners and software for computer-guided surgery allows for more predictable results.

# DIGITALIZATION OF IMPLANT-PROSTHETIC REHABILITATION IN NOSE CANCER: A CASE REPORT

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**Aim:** the digitalization of the rehabilitation processes of nasal epitheses allows to create a prosthesis relying on patient's original anatomy and to shorten reconstruction times for an early social reintegration. The clinical case consists of the construction of a nasal epithesis supported by dental implants in an oncologic patient undergoing a total rhinectomy.

**Methods:** the prosthetic planning started with a pre-surgical phase in which the patient's nose anatomy was recorded using a 3D scanner and photographic documentation. Then a computer-aid surgical planning made on the CBCT allowed to select the best sites for implant placement in proximity of the nasal pyramid. During the surgical phase, right after the total rhinectomy performed by ENTs, three implants were placed in the anterior surface of the maxilla: two implants in the right and left alveolar processes and the last one in the right body nearby the piriform aperture. Three months after the end of the radiation therapy (RT, up to 18 Gy was delivered in fractions of 2 Gy over nine days), the prosthetic phase was planned

**Results:** five months after surgery the defect was restored delivering a nasal epithesis: the internal structure consisted of a CrCo bar screwed to the three maxillary implants and a silicone super-structure designed based on the digital nose file.

**Conclusions:** the application of the digital prosthetic workflow treating cancer patients seems to have an important role in the development of a customized prosthetic reconstruction, shortening rehabilitation after cancer resection and RT.

# MEDICATION-RELATED OSTEONECROSIS OF THE JAW IN A PATIENT AFFECTED BY KIDNEY CANCER

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**Aim:** the aim of this case report is to highlight the possible correlation between sunitinib, which is a receptor tyrosine kinase inhibitor and chemotherapeutic agent used for the treatment of renal cell carcinoma (RCC), and medication-related osteonecrosis of the jaw.

**Methods:** a 65 y.o. male was referred to the dental clinic of the hospital of Rho with exposed bone in the fourth quadrant of the mandible, around the right first lower molar implant. He was undergoing treatment with sunitinib for RCC. He had no history of radiotherapy of the head and neck region nor treatment with bisphosphonates. Following the removal of necrotic bone tissue, a biopsy was carried out, along with the removal of the implant.

**Results:** the histopathology results revealed necrotic bone tissue and no signs of neoplasia. At 1 week, 2 weeks and 1 month follow up controls the healing on the extraction site proved to be good, no signs of necrosis. In accordance with the oncologist sunitinib was replaced by nivolumab.

**Conclusions:** this care report shows that cooperation between oncologists and dentists is essential, particularly before the start of this kind of therapies in order to prevent medication related complications.

# DENTIGEROUS CYST AROUND A BUCCOLINGUALLY IMPACTED LOWER THIRD MOLAR

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**Aim:** we detailed the surgical approach to a case of buccoverted impaction of a lower third molar and associated dentigerous cyst in an adult patient.

**Methods:** a 53-year-old male presented to our unit on referral from his dentist, who first noticed a mandibular radiolucency in tandem with the crown of an impacted third molar upon routinary OPT. For further investigation, a CBCT scan was taken of the left inferior jaw showing a defined area of osteolysis and deep impaction of 38 inclined in a buccolingual fashion with its roots projecting across the lingual bone plate. Due to the position of the tooth, its surgical removal was scheduled to be performed under general anesthesia

**Results:** access to the lesion and tooth was achieved via the reflection of a full-thickness flap on the buccal aspect of the posterior mandible; soft tissues on the lingual side were additionally reflected to place a spatula retractor for protection. A bony window was made to expose 38 and dissect it from its roots: two fragments were pulled out separately by an elevator. Thus the concomitant cystic lesion could be enucleated and was sent for histopathological examination, which was consistent with dentigerous cyst.

**Conclusions:** this case report dealt with clinical management of buccoversion of a lower third molar in association with an odontogenic cyst, which were successfully removed in a minimally invasive technique.

# DIODE LASER GINGIVECTOMY IN A PATIENT AFFECTED BY TUBEROUS SCLEROSIS

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**Aim:** tuberous sclerosis complex (TSC) is a rare autosomal-dominant genetic disease characterized by the presence of hamartomas in multiple organs, especially the skin and the central nervous system. Oral manifestations such as gingival enlargement and dental enamel pitting are reported. The aim of this case report was to show benefits of laser-guided excision mostly in patient with scarce compliance.

**Methods:** a female 33-year-old patient affected by TSC presented to the section of Oral Medicine of University of Bari Aldo Moro complaining diffuse gingival enlargement. She had the typical TSC's triad (cognitive delay, facial spot, and epilepsy). She underwent CBC, EKG, dental hygiene. Due to her lack of compliance, the patient was set to receive treatment under general anesthesia and it was not possible to perform x-ray. Mepivacaine hydrochloride 2% was employed for local anesthesia, and diode laser set at 7 W/cm$^2$ with continuous wave was used to remove the enlarged gingiva. The excised tissue was submitted for the histopathological exam. No suture was required. Post-surgery antibiotic and analgesic therapy was prescribed.

**Results:** the follow up visit was established at 1 week, 3 weeks, and each month for 3 months and the patient did not present any recurrence nor complication. The histological exam reported a diagnosis of angio-fibromatosis.

**Conclusions:** the diode laser represents a quick and feasible tool to treat gingival enlargement with good post-operative outcomes, particularly useful in lacking compliance patient, unable to perform an adequate after surgery care.

# ORTHO-SURGICAL MANAGEMENT OF AN UPPER CENTRAL INCISOR RETAINED BY SUPERNUMERARY TOOTH

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**Aim:** an orthodontic and surgical treatment was performed to restore correct masticatory and aesthetic function in a 10-year-old patient with 1.1 retention.

**Methods:** during the intraoral examination we observed a right deviation of the upper interincisal line and lack of space in the arch due to the medial dislocation of 1.2 and 2.1. The retention of 1.1 is also due to the presence of an included supernumerary tooth, in a horizontal position, which blocked its eruption. The first phase of the treatment involved opening the space in 1.1 region using the straight-wire technique, subsequently the extraction of the supernumerary, followed by the traction of the retained tooth.

**Results:** after opening the space in 1.1 region and the extraction of the supernumerary, the central incisor restarted its eruptive path. 6 months after extraction, we did the orthodontic traction of 1.1 to reach the correct position in the arch, finalizing the orthodontic treatment to correct the malocclusion and restore the patient's aesthetics.

**Conclusions:** supernumerary teeth can be in any region of the oral cavity hindering the dental exchange and complicating orthodontic treatment. The collaboration between surgeon and orthodontist is essential for a joint treatment plan suitable for restoring the patient's aesthetics and function.

# ENUCLEATION OF MAXILLARY OSTEOLYTIC LESION WITH PRESERVATION OF LE FORT PILLARS

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**Aim:** the aim of this case report is to show the surgical procedures for the enucleation of an extensive osteolytic lesion set in the second and third sextants, drawing attention to the preservation of the anterior maxillary pillar, which is the structure with the highest resistance to loads together with the zygomatic and the pterygoid maxillary pillars. This was made possible thanks to the use of a minimally-invasive approach.

**Methods:** a cone-beam computed tomography has been prescribed with the aims of evaluating the extent of the osteolytic lesion and planning the surgery in an atraumatic way. Apicectomy of the involved teeth has been performed simultaneously with the surgical excision. Histopathological evaluation was later requested to confirm the nature of the lesion.

**Results:** based on clinical, radiographic and histopathological findings, a final diagnosis of "radicular odonthogenous cyst" was made, presenting a major axis of 2,5 cm.
The postoperative course was uncomplicated, with no pain and no swelling at 1 and 4 weeks of follow-up.
There was a good wound healing process by primary intention with no dental mobility or flap dehiscence.

**Conclusions:** this case report shows the importance of presurgical planning, based on clinical and instrumental tests, for a minimally invasive approach.
This allows maintenance of the supporting bone structures also in surgical excision of large-scale lesions affecting multiple teeth.

# LATERAL AND CORONAL ADVANCED FLAP FOR THE TREATMENT OF A SINGLE RECESSION: A CASE REPORT

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**Aim:** the purpose of this case is to correct a single unaesthetic recession using the laterally and coronally advanced flap technique. This approach is indicated in the treatment of isolated recession involving the lower incisors or the mesial root of the upper molars, where the local anatomical conditions do not allow the execution of the coronal displaced flap.

**Methods:** a 47-year-old woman presented to our attention complaining of marked symptomatology to thermal stimuli and aesthetic problems due to a single recession on element 3.1. Treatment starts with the performance of professional oral hygiene and instruction on effective, non-traumatic brushing technique, followed by mucogingival surgery using a displaced lateral and coronal flap.

**Results:** the follow-up at 3,6,9 months shows complete root coverage of exposed root and its maintenance over this time with functional and aesthetic improvements.

**Conclusions:** laterally and coronally advanced flap can be considered a valid option to cover the root of a single recession in presence of anatomical local conditions that don't allow to perform the coronally advanced flap.

# A SECOND CHANCE: TOOTH GERM AUTOTRASPLANTATION CASE REPORT WITH 24 MONTHS OF FOLLOW-UP

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**Aim:** autotransplantation of third immature molars could be an alternative to fill edentulous space in younger subjects and it can offer many advantages, including normally functioning periodontium, preservation of pulp vitality and a complete root formation. This Case Report describes a successful case autotransplantation open-apex mandibular and third molar in place of the hopeless first mandibular molar in a growing patient.

**Methods:** the clinical case reported in this study is an 18-years-old male subject presenting a severe cavity in the element 4.6 and a germ of 1.8. Diagnosis was obtained by clinical and radiographic examination. After local anesthesia, the treatment was divided into a first phase with the extraction of the element 4.6, a second phase with the extraction of the element 1.8 and a third phase with the transplantation of the element 1.8 in the site of 4.6, which had to be modified by a slight alveoloplasty. A provisional fixation to the adjacent tooth was made with flow composite to ensure the engagement of the tooth.

**Results:** after 36 months of follow-up the wisdom tooth showed physiologic mobility, absence of infection and ankylosis, positive pulp vitality test, and the periodontal integration was fully formed. The radiographic examinations confirmed a remarkable radicular edification.

**Conclusions:** the success of this case can be attributed to germ incomplete root formation and its potential growth. Furthermore, the open apex of the donor tooth and the surgical atraumatic technique have been critical to long-term success.

# CHRONIC SINUSITIS TREATED WITH HEMODERIVATIVES AND SINUS LIFT SURGERY: 18 MONTHS FOLLOW-UP

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**Aim:** chronical sinusitis is a multifactorial disease, often derived by an odontogenic cause. Here is a case of healed rhinosinusitis after a sinus-lift performed with piezo-surgery and aided by using Plasma Rich Fibrin (PRF). In the same surgical time an implant was positioned to rehabilitate edentulous lacuna.

**Methods:** was included into this study a 61 year old female patient, with a good oral hygiene and no-smoker. She reported a rhinosinusitis diagnosis, made by otolaryngologist which gives her a medical therapy which relieved symptoms but not eliminate the cause, that may be individuated in a previous attempt of sinus lift without implant positioning. Radiological images as Rx OPT and Cone Beam Computerized Tomography (CBCT) were obtained to a pre-surgical planning. After collecting informed consent, sinus lift was performed with piezosurgery. Bone graft with heterologous bovine substitutes and autologous bone was used to permit following prosthetic rehabilitation. PRF was used in addition to bone graft to improve handling and regenerative process. Finally, was placed an implant. Follow up visits were conducted at 3, 6, 9, 12 and 18 months.

**Results:** follow up visits, helped by a CBCT performed at 6 months show formation of mature bone, in correspondence of sinus lift, with an average bone density of 32% around implant. Furthermore, there was complete restitutio ad integrum of chronical sinusitis, with disappearing of symptoms.

**Conclusions:** a well-performed sinus lift, aided by PRF could be a treatment of chronic sinusitis, besides improve prosthetic rehabilitation.

# A CASE OF EXTRACTION OF AN INTRABONY MIGRATING IMPACTED MANDIBULAR THIRD MOLAR

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**Aim:** the purpose of this work is to present the extraction by piezoelectric technology of a lower third molar migrated in the direction of the mandibular angle, following a prior unsuccessful extraction procedure, evaluating the possible causes responsible for the intrabony migration.

**Methods:** a 49-year-old male patient in good health was referred to us after an unsuccessful attempt to extract the impacted 3.8 element.

Orthopantomography and CBCT showed deep impaction in the mandibular angle and proximity to the nerve.

For these reasons he was operated under general anesthesia using piezoelectric devices.

**Results:** the histological examination reported the presence of fibro-connective tissue with inflammatory infiltrate, not referable to a cystic lesion. Since the patient presented after an unsuccessful attempt of extraction of the element, an in-depth analysis of the literature regarding the possibility of iatrogenic dislocation was performed. However, there are no data about iatrogenic displacement within the bone.

**Conclusions:** intraosseous migration of an impacted tooth is a rare event that may recognize several causes: one of these could be represented by inflammation, although the mechanism through which it is made remains unknown. A proper anamnesis, a constant follow-up and accurate surgical planning and technique are therefore fundamental, in order to reduce the risk of complications.

# SURGICAL MANAGEMENT OF ODONTOGENIC MYXOMA

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**Aim:** Odontogenic myxoma (OM) is a rare, locally invasive, not encapsulated, benign neoplasm of mesenchymal and/or ectomesenchymal origin. The present describes the surgical management of a central OM.

**Methods:** a 28-year-old woman was referred for a painless swelling with progressive expansion. On clinical examination, the lesion extended from 23 to 27 site and had a soft-elastic consistency. Elements 25 and 27 presented a II degree mobility. The OPT and CT examinations revealed a large neoformation involving the left hemimaxilla and the ipsilateral sinus in its entirety, and root resorption of 27 and 28. A punch-biopsy revealed a sub-epithelial myxoid mesenchymal proliferation thus the intervention was planned.

**Results:** following local anesthesia, a partial thickness flap was performed from 21 to the maxillary tuberosity. A palatal flap was performed to evaluate the noninvolvement of the homolateral cortex. The lesion was isolated and *en bloc* resection was performed with the consequent loss elements from 24 to 28. The flap was repositioned by a silk mattress suture to close the bone defect. The histological examination showed a mesenchymal proliferation, with abundant myxoid stroma composed of cells in fascicular architecture. Segments of mature bone tissue and rare intra and perilesional fibrotic shoots were observed. The preoperative diagnosis of OM was confirmed.

**Conclusions:** 18 months after surgery, the patient showed excellent clinical and radiographic recovery. Considering the rate of recurrence of OM, *en bloc* resection appears to be a definitive treatment option.

# ADIPOSE TISSUE NEOFORMATIONS: 2 RARE CASES OF ORAL LOCALIZATION

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**Aim:** oral lipomas are benign neoplasms arising from adipose tissue. They are common body subcutaneous neoplasms but the oral involvement is uncommon. Rarely lipomas can hide liposarcomas, so the lesion's examination is mandatory. The aim of this case series is to show 2 cases or oral lipoma with different clinical appearance.

**Methods:** in 2021, 2 male patients were referred to the Complex Operating Unit of Oral pathology and Surgery, University of Bari Aldo Moro, complaining oral discomfort for oral space-occupying lesions. The examination revealed a soft texture lesion on the left check mucosa in the first patient, maybe of Bichat's fat pad origin, and on the lower left lip in the second patient, likely of "ex vacuo" origin. An intraoral high-definition ultrasound scan was performed to confirm the clinical suspicious of adipose tissue neoplasms. First patient underwent general anesthesia because the lesion was deeper and close to vital structures, the second patient only a conscious sedation. The lesion enucleation revealed a racemose, multi-lobed and poorly cleavable lesion in the first case, and an encapsulated, uni-lobed and well demarked lesion in the second patient.

**Results:** in both cases a histological diagnosis of lipoma was achieved, despite the strange clinical aspect of the first lesion. 3 months follow-up revealed no signs of recurrence in any case.

**Conclusions:** oral lipomas are uncommon benign neoplasm. Even if rare, dental surgeon should deal with this kind of lesions and a histological evaluation of the specimen is mandatory. In the diagnostic phase oral ultrasonography plays an important role.

# IMPLANT REHABILITATION IN PATIENTS WITH ECTODERMAL DYSPLASIA

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**Aim:** Ectodermal Dysplasia (ED) denotes a heterogeneous group of genetic diseases characterized by congenital defects in ectodermal structures such as hair, teeth, nails and sebaceous glands. The main manifestations of the oral cavity include dental anomalies in numbers (hypodontia, anodontia) or tooth malformations with conic or knife blade shape. This report describes the fixed prosthetic rehabilitation in children with ectodermal dysplasia.

**Methods:** two male children aged ten and eleven years were affected by ED. Conoid incisors teeth, premolars and first molar were present in the upper jaw of the patients. In the lower arch, however, only the permanent canines were present without the presence of dental buds from other teeth. They were treated with a fixed prosthetic rehabilitation. In lower arch, an overdenture was designed after placement of three tapered implants (3,8 x 10mm).

**Results:** at three-years of follow-up, implants had no clinical or radiographic negative signs. An adequate vertical height was maintained. The overdenture was well accepted by the patients who reported excellent improvements in masticatory function and aesthetics.

**Conclusions:** in children with ED, the oral rehabilitation with fixed prosthesis can be considered a valid therapeutic alternative to removable prostheses even in pediatric patients.

# LASER BIOSTIMULATION IN IMPLANT DENTISTRY AND ASSESSMENT OF ITS RELIABILITY

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**Aim:** Low level laser therapy (LLLT) is based on the principle that photons produced by low power laser stimulating cromophores involved in Krebs Cycle such as NAD and FAD enzymes, improve ATP production enhancing mitosis, and reducing the time of healing for the injured tissues.

**Methods:** we reported the application of LLLT as aid in the osseointegration in two patients undergone to implant surgery in the upper jaw. In one hemi-arch the LLLT was applied and the other one was used as control. A Nd-Yag laser was used (length wave 1024 nm), fixing power at 1.00 W, energy at 100 mJ, and time at 60''. An optical fiber of 600 lm was used, so as to apply it in the fornix at the T0, the 3$^{rd}$, the 5$^{th}$ and the 7$^{th}$ day from the intervention.

**Results:** the assessment of the bone area surrounding the fixtures was performed by means of cone beam computed tomography at 4th month follow-up and the area of bone-implants contact was measured by means of InVesalius® software. It was possible to notice that the bone formed around the fixtures was better for quality and quantity than that one in the other untreated side.

**Conclusions:** the photobiostimulation medicine represents a very promising therapeutic option to speed the bone healing after oral surgery procedures, including the implant placement. However, the strength of its reliability must be further investigated together with an established protocol.

# SURGICAL EXTRACTION OF AN IMPACTED THIRD MOLAR: CASE REPORT

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**Aim:** impacted third molar extraction is a commonly surgical procedure performed in oral surgery. Due to the lack of space their eruption often results in disodontiasis. After an accurate analysis with scientific literature on the topic, the aim of this case report is to present the extraction of a distally inclined element 3.8 in total bone inclusion.

**Methods:** a 66-year-old female patient came to the Dentistry Department of San Raffaele Hospital for neuralgic symptoms related to the III quadrant. The patient reports a past episode of gingival abscess with pus discharge, which spontaneously regressed. Anamnesis, evaluation of the case, OPT and Cone Beam are accomplished. Element 3.8 in total bone inclusion is close to NAI. Under local anesthesia and sedation, a full-thickness triangular flap with marginal incision and mesial release incision is carried out. Dislocation, coronotomy and extraction are then performed. After the revision of the cavity and the insertion of absorbable haemostatic sponges into the surgical neo-cavity stiches are applied to close the wound.

**Results:** element 3.8 in total bone inclusion is successfully extracted, respecting the anatomy and noble structures. Neuralgic symptoms are no longer reported by the patient.

**Conclusions:** the extraction of the mandibular impacted third molars is more predictable and avoids complications if supported by a careful Cone Beam evaluation.

# COMPUTER-GUIDED OSTEOTOMY IN IMMEDIATELY LOADED FULL-ARCH REHABILITATION: A CASE REPORT

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**Aim:** osteotomy is a procedure requiring precise indications in the context of immediate loaded full arch rehabilitation. Despite the digitalization of the process, it is difficult to be able to program the prosthesis before surgery. This case report presents a possible treatment protocol in immediate loaded cases with large osteotomy using a fully digital approach.

**Methods:** the osteotomy, implants placement and delivery of the provisional prosthesis were performed in the same surgery. It was possible to place the implants with a surgical guide, despite the osteotomy, as the landmarks were identified in CBCT by means of stabilization pins coinciding with those of the osteotomy guide. After 4 months, smile design, metal bar and its passivation, assembly of the teeth and delivery of the final prosthesis were obtained during four sessions.

**Results:** the completely digital protocol presented made it possible to plan and complete the osteotomy, the placement of the implants and the delivery of the temporary prosthesis in the same session as the extractions.

**Conclusions:** the digital planning, not only of the implant placement, but also of the osteotomy, allows an optimization of surgery time and comfort in immediate loaded full arch rehabilitations.