REHABILITATION OF THE MANDIBLE WITH SEVER BONE ATROPHY USING SHORT IMPLANTS, PLANNED WITH 3D ANATOMICAL SIMULATION

Fabbri A[1], La Carpia E[1], Guerra D[2], Guerra G[2], Fioroni A[2], Dodaj G[2], Sciarrone L[2,3], Paiella G[3], Palazzo L[3]

[1]Section of PerioImplantology, Prof.: L. Palazzo, University of Perugia, Perugia, Italy
[2]USL Umbria 1 Gubbio Odontostomatological Department, Director: Dr. M. Guerra, Gubbio, PG, Italy
[3]USL Umbria 1 Marsciano Odontostomatological Department, Referent: Dr. L. Palazzo, Marsciano, PG, Italy

Aim: a severe maxillary bone atrophy makes the implant placement difficult, especially in the posterior mandible, due to superficialization of the inferior alveolar nerve, resulting from bone resorption. The aim of this study is to demonstrate how the creation of an anatomical simulation of the mandible in the pre-operative phase allows a more careful anatomical study of the case, leading to adequate planning of the implant placement.

Methods: the selected patient presented severe bone atrophy of the right posterior mandible. The analysis made through OPT and Cone Beam CT radiographic examinations showed a poor availability of bone in the area 4.6 and 4.7, the presence of a periapical lesion on 4.4 and the path of the inferior alveolar nerve. Then a 3D reconstruction of the right hemimandible was performed, with the purpose of creating an anatomical resin model on which to simulate the surgical procedure: the insertion of two short 6.5 mm implants in the 4.5-4.7 area and a 4.1 x 10 mm implant in the post-extraction site of 4.4. Lastly, with the aid of a surgical mask, the same procedure was performed on the patient, without leaving any lesion on the nerve and with a current 5-year follow-up.

Results: the 3D reconstruction and the creation of an anatomical duplicate made the procedure safe and predictable, proving to be strongly helpful in complex cases of implant rehabilitation.

Conclusions: this study demonstrates that, in cases of complex implant rehabilitation, such as a patient with severe bone atrophy, counting on the support of the 3D printing technology is fundamental for the clinician, both in the planning and executing phases of the procedure.

THE ROLE OF DIGITAL WORKFLOW IN COMPUTER-GUIDED IMPLANT SURGERY: A CASE REPORT OF PARTIAL MAXILLARY EDENTULISM REHABILITATION

Barrucci S[1], Rella E[2], Spera A[1], D'Addona A[1]

[1]Department of Neuroscience, Sensory Organs and Chest, Institute of Clinical Dentistry, IRCCS A. Gemelli University Polyclinic Foundation, Catholic University of the Sacred Heart, Rome, Italy
[2]Department of Neuroscience, Sensory Organs and Chest, Institute of Clinical Dentistry, Division of Prosthodontics, IRCCS A. Gemelli University Polyclinic Foundation, Catholic University of the Sacred Heart, Rome, Italy

Aim: the aim of this study is to describe a clinical case of a computer-guided implant surgery, emphasizing the advantages of a fully digital workflow, using 3D radiology and advanced programming software.

Computer-guided implantology has revolutionized treatment planning, improving surgical precision, prosthetic predictability, and overall patient outcomes.

Methods: this case presents a 35-year-old ASA I male patient, requiring implant-supported rehabilitation in edentulous sites 2.4 and 2.5. A fully digital workflow was adopted, integrating CBCT imaging for bone assessment and intraoral scanning to analyze intraoral conditions and prosthetic space, resulting in virtual planning via 3Shape Implant Studio. A 3D-printed surgical guide was fabricated to ensure controlled guided placement of two Sweden & Martina Premium ZirTi implants with optimal angulation and depth.

Results: the procedure ensured accurate implant positioning, minimizing surgical complexity and allowing for a planned esthetic outcome. Postoperative radiographic analysis confirmed high surgical precision, with minimal deviation from the preoperative plan. In the post operative period, no significant complications or discomfort were detected for the patient.

Conclusions: computer-guided implant surgery enhances predictability and accuracy, reducing surgical risks while optimizing functional outcomes. However, it requires a learning curve, as well as close collaboration and coordination between the clinician and the patient. This case supports the integration of digital planning into modern implantology for improved treatment success.

Doi: 10.19256/abstract.cduo.06.2025

TREATMENT OF A VERTICAL DEFECT IN THE AESTHETIC AREA WITH ONLAY GRAFT HARVESTED *IN SITU*: CASE REPORT AND FOLLOW-UP

Romano L[1], Poncia L[1], Del Rosso D[1], Spazzi M[1], Bof B[1], Vivaldo L[2], Farronato D[1]

[1]Department of Medicine and Surgery, School of Dentistry, University of Insubria, Varese, Italy
[2]Private practice, Varese, Italy

Aim: this case report describes, through a multi-year follow-up, the clinical results of an implant-prosthetic rehabilitation of element 2.2 preceded by the regeneration of a vertical bone defect using an autogenous block graft harvested and rotated from the same surgical site.
Methods: a muco-periosteal flap is elevated from the midline to the area distal to the canine. A block is set up respecting the roots of the adjacent elements, with two converging cuts in the coronal direction, expanding up to 1 mm below the piriform opening and in a palatal direction until an adequate transverse thickness is obtained. In its horizontal-apical component the cut proceeds until the cortical of the base of the nose is identified. The crestal incision is initiated with a piezoelectric instrument and completed with osteotomy chisels. Subsequently, the block's shape is perfected, and the graft is fixed using two osteosynthesis screws, with the thickest portion in the crestal area. The residual spaces are filled by a mixture of autologous and heterologous material and everything is covered by a resorbable pericardium membrane.
Results: after 3,5 years a horizontal bone remodeling, not exceeding 2.6 mm, is observed in the mesial peak region while the distal peak appears stable. Although the filling of the mesial gingival embrasure is still incomplete, the distal interproximal papilla is well represented.
Conclusions: the technique described shows a limited degree of bone remodelling and satisfactory aesthetics of the soft tissues. It also allows a reduction of the patient's discomfort and operating time.

VERTICAL RIDGE AUGMENTATION IN THE POSTERIOR MAXILLA WITH THE USE OF A RESORBABLE COLLAGEN MEMBRANE SUSTAINED BY TENTING SCREWS AND A MIXTURE OF PARTICULATE XENOGRAFT AND AUTOGENOUS BONE GRAFT

Cerquaglia A, Baldassari E, Belleggia F, Signorini L

UniCamillus International Medical University in Rome, Rome, Italy

Aim: resorbable membranes are not stiff enough to resist collapse into the underlying vertical bone defects. The aim of this case study was to evaluate the use of a porcine pericardium collagen membrane sustained by tenting screws and a bone graft in the treatment of a vertical ridge defect.
Methods: a patient presented a severe atrophy of the posterior right maxilla due to periodontal disease, CT scans revealed a crestal bone height less than 1 mm in most of the ridge. A simultaneous lateral sinus lift procedure was performed, then two tenting screws (Pro-fix) were inserted perpendicular to the crest, leaving them outside the ridge for about 3 mm. A mixture of particulate autogenous and porcine bone (Zcore) was applied to correct the ridge's vertical defect. The graft was covered by the collagen membrane (Vitala), stabilized with pins both on the palatal and buccal side, and the flaps were sutured.
Results: re-entry was scheduled 10 months later. The regenerated tissue appeared very mature and compact, while the two tenting screws, left exposed 3 mm above the ridge, were completely surrounded by regenerated bone up to their heads. After tenting screws removal, implant bed preparations were performed. Two implants (CWM) were inserted, healing abutments were immediately connected for a trans-mucosal healing. Three months later implants were prosthetically loaded.
Conclusions: membrane support is a crucial factor when it is used to correct defects outside the bone envelope. The use of tenting screws and the grafting material prevented the membrane from collapsing on the defect.

GUIDED BONE REGENERATION WITH TENTING SCREW AND IMPLANT PLACEMENT: A CASE REPORT

Isella A[1], Pellicani R[1], Matiassich G[1], Colnago L[1], Pispero A[2]

[1]Department of Biomedical, Surgical and Dental Sciences, Santi Paolo-Carlo Hospital, University of Milan, Milan, Italy
[2]DDS, PhD, Department of Biomedical, Surgical and Dental Sciences, Santi Paolo-Carlo Hospital, University of Milan, Milan, Italy

Aim: this case report aims to guide bone regeneration of a horizontal defect in the posterior left maxillary and restore the loss of chewing ability on the left side with the positioning of an implant-supported restoration.

Methods: an asymptomatic middle-aged woman refers to an inefficient chew capacity on the left side of her mouth. Intraoral examination shows a distal edentulous saddle to 2.5 tooth, with significant loss of periodontal tissues. The CBCT highlights an insufficient horizontal and vertical residual bone crest for implant positioning. Guided bone regeneration is required. A trapezoidal mucoperiosteal flap is raised, and two tenting screws are positioned on the bone crest. Autologous bone particulate is collected by a bone-scraper and combined with deproteinized bovine bone mixed into a sterile viscoelastic gel based on polynucleotides and hyaluronic acid. An absorbable membrane is fixed with screws above the graft, and the flap is sutured with 4/0 and 6/0 vicryl suture thread. After 5 months, two implant fixtures are positioned at 2.6 and 2.7 sites in a prosthetically guided way.

Results: tenting screw technique used in guided bone regeneration allowed to restore the correct bone volume for the positioning of implants reducing the invasiveness of the surgical procedure. Correct implant positioning is done, and the proper bone volume around the fixtures is restored.

Conclusions: guided bone regeneration using tenting screws is a predictable technique to restore a horizontal bone defect and till 3-4 mm in verticality, giving mechanical support and space-making under the membrane, increasing the stability of the graft particles underneath.

ZYGOMATIC IMPLANTS AS RESCUE STRATEGY IN TRADITIONAL IMPLANT FAILURE CASES: A CASE REPORT

Dimagli G, Zeng X, Meli M, Spertini M, Erlicher L, Borgonovo AE, Re D

Department of Aesthetic Dentistry, University of Milan, Istituto Stomatologico Italiano, Milan, Italy

Aim: the failure of a distal implant in maxillary full-arch rehabilitation compromises prosthetic stability and function. This case report evaluates the effectiveness of a zygomatic implant as a rescue solution to restore support, reducing the need for regenerative procedures and shortening treatment time.

Methods: a 68-year-old patient with a previous immediate-loading full-arch rehabilitation experienced distal implant failure in the first quadrant.

A CBCT assessed bone conditions, leading to the choice of a zygomatic implant. The procedure, performed under conscious sedation, included atraumatic extraction of the failed implant, site preparation with dedicated drills, and implant placement (Oxy Implant, Biomec, Colico, Italy) guided by the failed site for optimal prosthetic emergence. The use of zygoma implant avoided additional regenerative procedures, reducing treatment time. The follow-up included post-operative OPT and a radiographic evaluation was performed 6 months after the surgery.

Results: the zygomatic implant restored prosthetic function without complex regenerative procedures. OPT confirmed the correct positioning of the zygomatic implant. Follow-up showed no pain or complications, and at six months, radiographs indicated good osseointegration with no bone resorption or peri-implantitis. The rehabilitation remained stable, preserving masticatory efficiency without unfavorable cantilevers.

Conclusions: zygomatic implant as a rescue solution is effective and minimally invasive for distal implant failures in full-arch rehabilitations, ensuring long-term function while reducing treatment time.

8-YEAR LONG-TERM CLINICAL FOLLOW-UP OF UNILATERAL ZYGOMATIC REHABILITATIONS

Dimagli G, Zeng X, Meli M, Erlicher L, Previderè G, Borgonovo AE, Re D

Department of Aesthetic Dentistry, University of Milan, Istituto Stomatologico Italiano, Milan, Italy

Aim: this preliminary study aimed to evaluate the survival rate of unilateral zygomatic implant rehabilitation, considering the type of prosthetic rehabilitation received by patients, whether it involved axial or pterygoid implants in combination with the unilateral zygomatic implant.

Methods: between 2016 and 2023, 30 patients were treated with zygomatic implants and were divided into 4 groups based on implant combinations: unilateral zygomatic implants alone, in combination with axial or pterygoid implants, or a combination of these options. A total of 35 zygomatic implants, along with 39 axial implants and 6 pterygoid implants (Noris Medical s.r.l., Roma, Italia, and Fixo Zygoma, Oxy Implant by Biomec S.r.l., Colico, Italia). The follow-up period ranged from 4 months to 8 years. During the study, data were collected on patient details, implant numbers, diameters, lengths, follow-up duration in months and any complications or failures observed.

Results: preliminary statistical analysis showed different survival rates for the different types of implants: 100% for zygomatic implants, 94.87% for axial implants and 100% for pterygoid implants. Additionally, 3 biological complications were observed, including 2 cases of periodontal abscesses and 1 case of sinusitis, along with 1 mechanical complication consisting in the fracture of a prosthetic screw.

Conclusions: zygomatic implants offer a predictable long-term solution for treating severe maxillary atrophy, with combined zygomatic fixed implant-supported rehabilitations demonstrating survival rates comparable to conventional implants.

NAVIGATED IMPLANT PLACEMENT BY DYNAMIC GUIDED SURGERY: CASE REPORT

Dalmasso L, Gibello U, Bezzi M, Vocaturo C, Mandara J, Forno F, Crupi A, Lanzetti J, Pera F

Department of Surgical Science, University of Turin, Turin, Italy

Aim: dynamic guided surgery X-Guide (Nobel Biocare) is an advanced technology that enhances surgical accuracy compared to traditional free-hand or static guided techniques. It provides real-time feedback on the position, angle and depth of both drills and fixture in three-dimensional space during surgery. This allows intraoperative adjustments based on anatomical findings or unexpected conditions. This case report illustrates the clinical application of dynamic guided surgery and analyzes the differences between the preoperative plan and the actual positioning of the fixtures.

Methods: a 22-year-old male patient, D.S., required implants placement at sites 1.4 and 2.4 due to bilateral agenesis. CBCT (DICOM) and intraoral scan (STL) were acquired and used to plan the case with DTX Studio™ software. Osteotomies were performed using a flapless approach, helped by real-time navigation. The clinician can control the procedure, verifying his position in space and the angle in relation to the planning and surrounding anatomy. Two fixtures (3.5 x 11,5 mm) were placed with primary stability. Implant positioning was verified with an intraoral scan.

Results: complete healing without postoperative complications and prosthetic phase shows optimal function and aesthetic adaptation. The differences between the planning and real fixture positioning were minimal.

Conclusions: dynamic guided surgery is a viable alternative, particularly in complex cases. It offers clinicians several advantages, minimizing complications and ensuring both prosthetic and aesthetic success for the patient.

ATROPHIC BONE REGENERATION OF THE JAWS. DIGITAL METHODOLOGIES FOR THE EVALUATION OF DIFFERENT TISSUE GROWTH TECHNIQUES: AN EXPERIMENTAL STUDY

Pullella I, Bitto M, Brucia G, Crivello V, Santacroce M, Oteri G

Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Messina, Italy

Aim: the aim of this study is to assess the efficacy of GBR techniques through the implementation of advanced digital methodologies, specifically focusing on the volumetric assessment of both soft and hard tissue augmentation.

Methods: a patient was selected from the CUO of Dentistry and Prosthodontics at the G. Martino University Hospital, Messina. Intraoral optical scans were acquired at three times: baseline (T0), one week (T1), and three months postoperatively (T2). Surgical intervention involved the placement of a titanium dental implant, with either a resorbable collagen membrane or a cortical bone graft utilized based on case-specific requirements. Preoperative clinical parameters and defect measurements were recorded. The patient was monitored throughout the postoperative period. For volumetric analysis, STL files from follow up scans were compared using CloudCompare software. A digital calibration procedure was performed by importing a digital ruler into the software, employing a 1 mm reference scale to convert point cloud data into real millimeter values. This ensured accurate quantification of soft and hard tissue volumetric changes.

Results: the digital workflow enabled precise superimposition of STL models over time, enabling an accurate assessment of volumetric tissue changes. The adopted methodology showed superior accuracy and reproducibility than conventional clinical measurements techniques.

Conclusions: this study reveals the feasibility and reliability of digital volumetric analysis as a method for monitoring tissue regeneration following GBR procedures.

REHABILITATION IN THE MOLAR REGION WITH WIDE PLATFORM IMPLANTS

Riccio E[1], Catalano I[1], Bizzoca ME[1], Annicchiarico C[2], Lo Muzio L[1], Mastrangelo F[1]

[1]Department of Clinical and Sperimental Medicine University of Foggia, Foggia, Italy
[2]Private practice, Bari, Italy

Aim: this study aimed to evaluate the clinical and radiological outcomes of variable-platform implants situated in the molar region, focusing on the protocols for immediate placement, either for single-tooth replacement or short bridge applications.

Methods: this multi-institutional data collection reviewed records from consecutive patients who received at least one variable-platform implant, measuring 5.5 mm in diameter and ranging from 7 to 15 mm in length. Implants were placed in either healed sites or extraction sockets and restored using a diverse array of prosthetic solutions, adhering to either an immediate, early, or delayed loading protocol. The distribution of soft tissue outcomes in healed versus extraction sites was analyzed using contingency tables.

Results: a total of 105 implants were evaluated, showing a 96.2% survival rate. Two implants failed due to loss of osseointegration. The study suggests that wide platform, tapered implants have high success rates in molar areas.

Conclusions: wide platform, variable-thread tapered implants with internal conical connections show high success rates and stability in the molar areas of both jaws, benefiting healed and extraction sites while promoting healthy peri-implant tissue.

COMPUTER-GUIDED IMPLANT PLACEMENT WITH TRANSCRESTAL MINI SINUS LIFT: AN INNOVATIVE SURGICAL APPROACH

Bondar N, Perini L, Manacorda M

Dental School, Vita-Salute San Raffaele University, Milan, Italy

Aim: to describe a computer-assisted approach for implant site preparation with transcrestal mini sinus lift in patients with limited vertical bone height.

Methods: using guided surgery software integrating CBCT and digital impressions, a 6 mm implant was virtually positioned 1 mm from the sinus floor to guide the osteotomy. This preoperative planning enabled a safe approach and accurate control of drill depth. Sinus membrane elevation was performed using the Summers osteotome technique. This protocol is applicable in cases with 2.5-3 mm of residual bone height.

Results: in the demonstrated case, sinus lifting was successfully achieved without membrane perforation.
Radiographic and clinical evaluations confirmed precise implant placement and effective preservation of membrane integrity.

Conclusions: combining guided surgery with transcrestal mini sinus lift and osteotome technique is a safe and reliable approach for implant placement in atrophic posterior maxilla, reducing complications and improving clinical outcomes.

FULL ARCH REHABILITATION WITH THE COLUMBUS BRIDGE DIGITAL PROTOCOL: A NOVEL CASE REPORT OF PHOTOGRAMMETRY

Tedesco G[1], Gibello U[1,2], Magaldi G[1], Ambrogio G[1], Dalmasso L[1], Asero S[1], Crupi A[1], Roccuzzo A[3], Lanzetti J[1], Pera F[1]

[1]Department of Surgical Sciences, C.I.R. Dental School, University of Turin, Turin, Italy
[2]DIMEAS, Polytechnic University of Turin, Turin, Italy
[3]Shanghai Perio-Implant Innovation Center, Institute of Integrated Oral, Craniofacial and Sensory research, Ninth people's hospital, Shanghai Jiao Tongue University School of Medicine, Shanghai, China

Aim: the objective of this case report is to show a new digital approach in full-arch rehabilitation with immediate loading using the new Columbus Bridge Digital Protocol.

Methods: a 65-year-old man with hopeless dentition, with good systemic heath, required a mandibular full-arch rehabilitation. Starting from CBCT of the patient and an intraoral scan, the mandibular conditions have been reproduced. The first step of the digital planning of the patient is achieved by matching all the pre-operative data: facial pictures, face scanning and CBCT can be linked together to be able to evaluate the anatomical initial situation. The previous intra-oral scan allowed the operator to record the pre-surgical bite registration.
A traditional full thickness flap was elevated. After the extraction of the hopeless teeth, immediate implant placement was performed following the "all-on-six" principles, tilting distal implants to optimize the residual native bone. The two distal molars were extracted at the end of the surgical procedure, since they do not interfere with implant positioning and can be used as reference points. Post surgical Intraoral Photogrammetry (IPG) is performed using scan caps, which are the last update of IPG system and very helpful in the mandibular arch with tough surgical approach.

Results: 48 hours after the surgery, the patient has restored masticatory function, aesthetics and phonetics.

Conclusions: IPG represents an efficient technique for the post-surgical scan procedures that reduces the problems related to the intraoral scan in edentolous patients rehabilitated with CBP.

CLINICAL AND HISTOMORPHOMETRIC RESULTS OF BIOLOGICALLY-ORIENTED ALVEOLAR RIDGE PRESERVATION AT INTACT AND COMPROMISED EXTRACTION SOCKETS: A PROSPECTIVE, MULTICENTER CASE SERIES

Sclip A[1], Pramstraller M[1,2,3], Farina R[1,2,3], Zuercher AN[4], Jung RE[4], Barbeck M[5,6], Fracasso M[1], Trombelli L[1,2,3]

[1]School of Dentistry, University of Ferrara, Ferrara, Italy
[2]Research Centre for the Study of Periodontal and Peri-implant Diseases, University of Ferrara, Ferrara, Italy
[3]Operative Unit of Dentistry, Azienda Unità Sanitaria Locale (A.U.S.L.) of Ferrara, Ferrara, Italy
[4]Clinic of Reconstructive Dentistry, Center of Dental Medicine, University of Zurich, Zurich, Switzerland
[5]BerlinAnalytix GmbH, Berlin, Germany
[6]Clinic and Policlinic for Dermatology and Venereology, University Medical Center Rostock, Rostock, Germany

Aim: to evaluate the outcomes of Biologically-oriented Alveolar Ridge Preservation (BARP) at extraction sockets with buccal and lingual bone walls extending <3 mm apical to the line passing through the adjacent interdental bony peaks (*intact* group, I) or with at least one wall ≥3 mm apical to the reference line (*compromised* group, C).

Methods: a prospective case series was performed. Both groups underwent BARP. In group C, an additional collagen sponge was placed between the compromised socket wall and the flap. Re-entry was performed at 4-6 months. Also, a biopsy was collected during implant site preparation.

Vertical Ridge Position (VRP) was measured on radiographs at 2 weeks after BARP and re-entry. Bone Width (BW) was clinically measured before tooth extraction and at re-entry. Tissue Profile (TP) between 2 weeks and re-entry was evaluated on STL files.

Results: fifteen sites in each group were included. A 0.3 mm increase in VRP occurred within each group and the reduction in BW was 0.7 mm in I group and 1.0 mm in C group, with no significant inter-group differences in VRP and BW changes. TP at 1 mm from the mucosal margin was 0.7 mm in group I and 1.5 mm in group C (p = 0.029). No significant differences in histomorphometric outcomes were found between groups.

Conclusions: limited dimensional bone changes occur at intact sockets undergoing BARP. At compromised sockets, the combination of BARP with an additional collagen sponge has similar clinical and histomorphometric effects but with a greater tissue profile reduction of the buccal mucosa.

FACTORS INFLUENCING IMPLANT STABILITY DURING THE EARLY HEALING

Antonacci D[1], Padula R[1], Coppola A[2], Cardaropoli D[2], Caponio C[1], Mastrangelo F[1]

[1]Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy
[2]Giuseppe Cardaropoli Foundation, Turin, Italy

Aim: this experimental study aims to compare the implant stability of bioactive surface implants in regenerated and non-regenerated bone by monitoring ISQ values and other clinical parameters at two postoperative time points to evaluate the influence of the bioactive surface in tissue osteointegration.

Methods: sixteen patients with D3, D4, or regenerated bone were enrolled, receiving implants treated with calcium phosphate to mimic the mineral component of bone. Bone loss, plaque index, and soft tissue thickness and width were assessed at baseline (T0), 45 days and 60 days.

Results: repeated measure ANOVA did not show statistically significant differences. Time alone did influence mean ISQ value (p-value = 0.287), nor when considering the surgical protocol including the regeneration (p-value = 0.106).

Conclusions: it is expected that the increased wettability of the bioactive surface will maintain primary stability over time without significant decreases. This outcome could confirm the potential of this technology in improving implant integration, particularly in compromised or regenerated bone conditions, providing new indications to be corroborated in future clinical trials.

EVALUATING FIXO ZYGOMA IMPLANTS: SURVIVAL AND COMPLICATIONS ANALYSIS

Pavan E, Dimagli G, Erlicher L, Damilano M, Galbiati SLM, Borgonovo AE, Re D

Department of Aesthetic Dentistry, University of Milan, Istituto Stomatologico Italiano, Milan, Italy

Aim: the most common complications in zygomatic implant treatment include the presence of a microgap between the implant and abutment, leading to bacterial infiltration, loosening of the healing screw, and peri-implant soft tissue dehiscence. This study aims to evaluate the success rate and potential complications following the placement of the Fixo Zygoma implant, a one-piece implant featuring a flat crest design.

Methods: the study was conducted on 34 patients, each undergoing surgical placement of at least one Fixo Zygoma implant (Oxy Implant, Biomec, Colico, Italy) with or without pterygoid and/or traditional implants. All patients followed the same surgical protocol, consisting of five phases: creation of a maxillary sinus window, preparation of a slot along the anterior maxilla, zygomatic preparation, and prosthetic rehabilitation.

Results: a total of 63 Fixo Zygoma implants, 68 traditional implants, and 10 pterygoid implants were placed.
Regarding surgical technique: 18 patients were treated with the Hybrid technique, 13 with the Unilateral technique, and 3 with the Quad technique. The most frequently chosen sites were posterior, particularly positions 15-25 and 16-26.
No failures were reported for the Fixo Zygoma implants, resulting in a 40-month survival rate of 100%. Prosthetic success was also 100%. The main complications observed were 4 cases of gingival recession and 2 cases of sinusitis.

Conclusions: the study data confirm that the Fixo Zygoma implant, with its innovative features, has led to excellent clinical outcomes in terms of both implant survival and prosthetic success.

COMPARATIVE EVALUATION OF SECOND-GENERATION ONE-PIECE ZIRCONIA IMPLANT FIXTURES: CASE REPORT

Pavan E[1], Dimagli G[1], Erlicher L[1], Viglione S[2], Censi R[1], Borgonovo AE[1], Re D[1]

[1]Department of Aesthetic Dentistry, University of Milan, Istituto Stomatologico Italiano, Milan, Italy
[2]Private practitioner, Cassano D'Adda, MI, Italy

Aim: this study compares two implant fixtures to evaluate osseointegration and peri-implant soft tissue response of second-generation one-piece zirconia implants. The results are expected to confirm the excellent primary stability of the previous generation, enabling immediate loading.

Methods: second-generation zirconia fixtures (Bredent, Senden, Germany) are one-piece implants with a conical-cylindrical shape, a double self-tapping compression thread, a micro-structured sandblasted surface, an implant collar with micro-rings, and quadrangular head. The abutment has two opposing surfaces inclined at 15°. It is 4.5 mm in height and includes coulisse, facilitating prosthetic restorations. The two implant types differ in diameter and proportions. The first type is generally recommended for anterior regions. The Tissue Line is more suitable for aesthetic outcomes, whereas the Alveo Line is preferable for posterior regions. Two clinical cases compare their use.

Results: second-generation one-piece zirconia implants promote osseointegration, soft tissue conditioning, and material biocompatibility. The Tissue Line fixture is particularly recommended for aesthetic areas or when bone thickness is reduced or the keratinized tissue biotype is thin. The Alveo Line fixture fills post-extraction sites and withstands masticatory forces.

Conclusions: zirconia implants exhibit survival and success rates comparable to titanium implants. Their biocompatibility and mechanical stability make them a viable therapeutic option. The alveo line compensates for a potential limitation of the tissue Line.

THE EFFECTIVENESS OF COMMUNICATION IN PATIENTS WITH DENTAL IMPLANTS

Gozzi L, Rambaldini E, Orlandi S, Svanetti L, Audino E, Salgarello S

Dental School, Dean: Prof. C. Paganelli, Department of Oral Surgery, Head: Prof. S. Salgarello, University of Brescia, Brescia, Italy

Aim: exploring communication strategies to enhance adherence to home oral hygiene in patients with implant-supported prostheses.

Methods: to collect data for this study, two anonymous surveys (the first group consists of 60 patients, while the second comprises 12) were developed and administered to patients undergoing implant-prosthetic rehabilitation. Participation was entirely voluntary and confidential, without any interference from medical staff. Patients were invited to take part in the study after being informed about the research protocol, within the period from May to September 2024. The surveys, provided in Italian, were available in both paper and digital formats and were distributed through Google Forms.

Results: this study underscores the inadequacy of current motivational and educational strategies used in oral hygiene sessions for patients with dental implants, particularly in ensuring sufficient comprehension and sustained engagement. The findings suggest that incorporating supplementary materials, such as videos and brochures, significantly enhances patient understanding by allowing for self-paced learning. In contrast, verbal instruction alone demonstrates notable limitations, as it does not effectively support long-term retention or the correct application of hygiene guidelines.

Conclusions: the combination of verbal instruction with supplementary materials, such as videos or brochures, helps reduce the risk of implant failure and enhances the quality of life for patients with implants.

ZYGOMATIC IMPLANTS FOR REHABILITATION OF PATIENTS WITH ONCOLOGIC AND CONGENITAL DEFECTS: A CASE SERIES

Oliverio A[1], Pellegrino G[1,2], Barausse C[1], Tayeb S[1], Pistilli R[3], Felice P[1]

[1]Unit of Oral Surgery, University of Bologna, Bologna, Italy
[2]Unit of Oral Surgery, University of Catanzaro, Catanzaro, Italy
[3]Oral and Maxillofacial Unit, San Camillo Hospital, Rome, Italy

Aim: this study aims to evaluate the clinical outcomes of zygomatic implant-supported prosthetic rehabilitation in oncologic patients undergoing maxillary resection.

Methods: ten patients who underwent maxillary resection due to cancer were enrolled. Inclusion criteria required zygomatic implants due to the lack of native bone. Patients with previous unsuccessful reconstructive attempts were included, provided that they had a declaration of good general health. Before surgery, CBCT scans and surgical planning software were used. All surgical procedures were performed under general anesthesia. The preparation of the implant site was carried out according to the manufacturer's recommendations, and each implant was manually screwed in. The prosthetic loading was performed within 72 hours. Surgical and prosthetic procedures were standardized, and implant and prosthetic survival rates, along with complications, were assessed.

Results: the study cohort included 10 patients with a mean age of 66.5 years. A total of 35 implants were placed, achieving a survival rate of 94.29% at an average follow-up of 5.78 years. Biological complications affected 40% of patients, while prosthetic complications occurred in 40%, requiring modifications but no definitive failures.

Conclusions: zygomatic implants provide a viable solution for oncologic patients, particularly when bone grafting is contraindicated or impractical. However, these procedures present medium-to-long-term complications that require careful consideration. Future research should focus on larger studies and meta-analyses to provide stronger evidence.

IMPACT OF ORAL SURGEON'S EXPERIENCE USING A DYNAMIC NAVIGATION SYSTEM: A CADAVER STUDY

Stendardo V[1], Vocaturo C[1], Crupi A[1], Longhi B[1], Campagna A[1], Gibello U[1], Dalmasso L[1], Roccuzzo A[2], Pera F[1]

[1]Department of Surgical Sciences, C.I.R. Dental School, University of Turin, Turin, Italy
[2]Shanghai Perio-Implant Innovation Center, Institute for Integrated Oral, Craniofacial and Sensory Research & Department of Oral and Maxillofacial Implantology Shanghai Ninth People Hospital, Shanghai Jiao Tong, China

Aim: the objective of this study was to evaluate the accuracy of dynamic computer-aided surgical implant placement systems during practical training on fresh defrozen cephali.
Methods: three defrozen cephali with terminal dentition received a total of 26 implants (Nobel Biocare) following a standardized protocol: a digital scanning and planning protocol followed by dynamic navigation surgery (X-Guide, X-Nav Technologies). All surgical interventions were performed by two surgeons: a senior oral surgeon (OE) with more than 5 years of implant dentistry experience and a non-experienced surgeon (NE).
Results: different linear and angular measurements (deviation shoulder point; deviation tip point; depth deviation shoulder point; depth deviation tip point; B/L and M/D angular deviations) were calculated to estimate the discrepancy of the virtual digital planning with respect to the real clinical scenario. The differences between the two operators were also explored. The results of the bivariate analysis detected clinical negligible differences between the operators, without any statistically significant differences for all investigated parameters ($p > 0.05$).
Conclusions: this pilot study's preliminary positive findings suggest that the investigated dynamic navigation system may be a viable and safe technique for implant surgery and could provide additional safety benefits to non-experienced operators, even though it is important to underline that computer aided technologies require a different but however important learning curve process.

AMOXICILLIN'S EFFECT ON DIFFERENTIATION AND ACTIVITY OF PBMCS DERIVED FROM DENTAL IMPLANT SURGERY PATIENTS

Pavone L[1], Orrico C[1,2], Pedraza R[1,2,3], Pera F[4], Menini M[5], Roato I[1], Mussano F[1]

[1]Bone and Dental Bioengineering Laboratory, Department of Surgical Sciences, CIR Dental School, University of Turin, Turin, Italy
[2]Department of Mechanical and Aerospace Engineering, Polytechnic University of Turin, Turin, Italy
[3]Institute of Sciences and Technologies for Sustainable Energy and Mobility, National Council of Research, Turin, Italy
[4]Department of Surgical Sciences, CIR Dental School, University of Turin, Turin, Italy
[5]Division of Prosthodontics and Implant Prosthodontics, Department of Surgical Sciences, University of Genoa, Genoa, Italy

Aim: dental implantology employs broad-spectrum antibiotics to prevent post-operative infections, but no consensus exists on the optimal regimen for healthy patients undergoing implant surgery. This study aims to test whether Amoxicillin (AMX) affects patient-derived Peripheral Blood Mononuclear Cells (PBMCs) in their ability to differentiate into Osteoclasts (OCs) and stimulate Osteoblasts (OBs).
Methods: Adipose-derived Stem Cells (ASCs) were differentiated into OBs on plastic, then detached and plated on Bone Slices (BSs) or directly differentiated into OBs on BSs. After 3 weeks, bone mineralization was assessed through Von Kossa staining and Scanning Electron Microscopy (SEM). Peripheral Blood Mononuclear Cells (PBMC) were cultured with 3 different AMX concentrations for 5 days; cell viability was assessed at 24, 72 and 120 hours. To evaluate AMX effects on OB- and OC-genesis, ASC and PBMC co-cultures and OCs cultures on BSs were supplemented daily with 0.5 mM AMX for 5 days. OC bone resorption was assessed through SEM and TRAP staining.
Results: matrix deposition from pre-differentiated OBs on plastic and differentiated OBs on BSs showed no significative difference. Best PBMC viability was obtained at 0.5 mM AMX concentration, which was used to test patients' PBMC ability to affect OB and OC activity.
Conclusions: our preliminary data suggest that 0.5 mM AMX was not toxic and allowed to perform OB- and OC-genesis tests using patient-derived PBMCs to study whether AMX affects bone healing, potentially predicting the clinical outcome in dental implant surgery.

IN VITRO ANALYSIS OF IMPLANT THREAD DESIGN INFLUENCE ON TOTAL SURFACE AREA: KNIFE-EDGE THREAD AND V-SHAPE THREAD

Romano L[1], Poncia L[1], Del Rosso D[1], Bof B[1], Spazzi M[1], Vivaldo L[2], Farronato D[1]

[1]Department of Medicine and Surgery, School of Dentistry, University of Insubria, Varese, Italy
[2]Private practice, Varese, Italy

Aim: this *in vitro* study analyzes and compares the total surface area of two different thread designs, knife-edge and V-shape, to assess their impact on implant external surface.
Methods: a knife-edge thread implant (model A) and a V-shaped thread implant (model B), both with identical diameter (4.6 mm), length (10 mm), and fixture outline, were selected to minimize influencing factors. The total surface area was measured using a digital tool (SolidWorks 2023 SP5, Dassault Systèmes, Microsoft Windows). Subsequently, the percentage difference in total surface area (DS%) was calculated.
Results: model A showed a total surface area of 202 mm², while model B had a surface area of 195 mm².
The total DS% was +3.58% with knife-edge thread implant.
Conclusions: the null hypothesis is rejected, so implants with knife-edge threads offer a significantly larger total surface area than those with V-shaped threads.
This could enhance implant stability, which may be particularly advantageous in clinical conditions where optimal primary stability is challenging and when using short implants.

CAN THE SURFACE PROPERTIES OF TITANIUM IMPLANTS INFLUENCE MACROPHAGE POLARIZATION AND ENHANCE OSSEOINTEGRATION?

Cannatella O[1], Parisi L[2], Matera B[1], Rossi F[3], Manfredi E[1], Lumetti S[1,3], Ghezzi B[1,3]

[1]Department of Medicine and Surgery, Center of Dental Medicine, University of Parma, Parma, Italy
[2]Laboratory for Oral Molecular Biology, Department of Orthodontics and Dentofacial Orthopedics, University of Bern, Bern, Switzerland
[3]IMEM-CNR, Institute of Materials for Electronics and Magnetism-National Research Council, Parma, Italy

Aim: successful osseointegration of dental implants is influenced by many factors, including implant surface properties and the inducted modulation of immune response. This study investigates how different implant surfaces can accelerate healing and minimize implant failure by influencing the polarization of human macrophages and osteoblastic differentiation.
Methods: human THP-1 monocytes were differentiated into M1/M2 macrophages on four commercial implant surfaces: hydrophobic/hydrophilic SLA titanium (SLA/SLA+) and hydrophobic/hydrophilic zirconia/titanium (R/R+). After inducing M1/M2 polarization, gene expression was analyzed by qRT-PCR. Additionally, Luminex assay was used to test which surfaces promoted the release of anti-inflammatory cytokines and bioactive molecules for bone regeneration. Human osteoblasts were then cultured in the presence of THP-1 conditioned medium, and Alizarin red staining was used to assess their mineralization after 21 days.
Results: R surfaces induced a greater release of pro-inflammatory cytokines than SLA surfaces, without significantly affecting the production of anti-inflammatory molecules, whose release was greater on SLA+ samples. Furthermore, SLA+ significantly reduced IL-6 release compared with SLA, R, and R+ surfaces. Consequently, MG63 cell mineralization increased when THP1 cells were cultured on this surface.
Conclusions: obtained data corroborates the hypothesis of osteoimmune regulation, confirming the influence of implant surface characteristics in M1/M2 polarization and in the consequent osteoblastic mineralization.

USE OF THE ELECTRICAL DEVICE ON DENTAL IMPLANT'S BACTERIAL BIOFILM: A PRELIMINARY *IN VITRO* STUDY

Mattesini E[1], Botticelli G[2], Pizzolante T[2], Falisi G[2], Severino M[1], Scarano A[3], Gerardi D[3,2], Rastelli S[2]

[1]Section of Odontostomatologic Surgery, University of Perugia, Perugia, Italy
[2]Department of Life, Health and Environmental Sciences, University of L'Aquila, L'Aquila, Italy
[3]Department of Innovative Technology in Medicine and Dentistry, University G. d'Annunzio Chieti-Pescara, Chieti, Italy

Aim: mucositis and peri-implantitis are pathological conditions resulting from bacterial colonization of soft tissues and implant surfaces during implant-prosthetic rehabilitation. Surgical and non-surgical therapeutic strategies aim on bacterial biofilm removal using mechanical, chemical, or photodynamic agents. The aim of this study is to evaluate the effectiveness of an electric field generated by the Ximplant machine in reducing bacterial biofilm formation on dental implants.

Methods: twenty-eight titanium dental implants were contaminated with donor saliva containing peri-implant pathogenic bacteria. Fifteen implants were treated with an electric field generated by the Ximplant device, while twelve implants remained untreated as controls. Resazurin was used on all implants to monitor bacterial biofilm activity by observing colorimetric changes over time. One sterile implant was used as a negative control.

Results: a significant difference was observed between treated and untreated implants. The treated implants (n = 15) exhibited no color change throughout the study observation points (2 hours, 1 day, 2 days, 3 days). All untreated implants (n = 12) showed a progressive color change suggesting biofilm activity. The sterile control implant remained unchanged confirming the absence of contamination.

Conclusions: this study showed the preliminary success of the electric field in reducing bacterial populations on dental implants.

COMPLETE ARCH DIGITAL IMPLANT SCAN ACCURACY WITH SCREW-RETAINED OR SNAP-ON SCAN BODIES: A COMPARATIVE *IN VITRO* STUDY

Vannini V[1], Vitiello V[1], Gallo M[1], Gai D[1], Di Piazza S[1], Riccardi A[1], Arcuri L[2], Pasqua ML[1], Galli M[1], Sebastiani F[1]

[1]Department of Odontostomatological and Maxillofacial Sciences, Sapienza University of Rome, Rome, Italy
[2]Department of Life Science, Health and Health Professions, Link Campus University, Rome, Italy

Aim: the aim of this *in vitro* study was to evaluate and compare the accuracy of complete arch digital scanning using screw-retained versus snap-on scan bodies.

Methods: an edentulous mandibular master model with 4 conical connection analogsm was digitized to create a reference file. Seventy-six test scans were obtained with an intraoral scanner: 38 with screw-retained and 38 with snap-on scan bodies. The resulting 76 test files were aligned to the reference file using a best fit algorithm. Linear (ΔX, ΔY and ΔZ-axis) and angular deviations (ΔANGLE) were assessed for each implant position (n = 304). Three-dimensional deviation was calculated for each position using Euclidean distance (ΔEUC). Descriptive and multivariable analyses were performed, stratified by scan body type and implant position.

Results: considering ΔEUC, scan body type showed no significant difference (P = .097), while implant position was statistically significant (P <.001), with the left second premolar being the most critical and the right lateral incisor as the most accurate. Regarding ΔANGLE, scan body type was found to be significant (P = .033), favoring snap-on scan bodies Implant position also showed statistical significance (P <.001) with the left second premolar being the most critical and the right lateral incisor as the most accurate.

Conclusions: snap-on scan bodies showed comparable 3D and higher angular accuracy compared with screw-retained scan bodies. Tilted posterior implants resulted in more critical positions, particularly for the most distal position that was recorded.

HISTOMORPHOMETRIC OUTCOMES OF TWO COMBINATIONS OF COLLAGEN-PRESERVING BONE REPLACEMENT MATERIALS FOR ALVEOLAR RIDGE PRESERVATION

Minuti F[1], Cinquini C[1,2], Priami M[1], Nisi M[1], Izzetti R[1], Iezzi G[3], D'amico E[3], Pierfelice TV[3], Barone A[1]

[1]Department of Surgical, Medical, Molecular Pathologies and of the Critical Area, University of Pisa, Pisa, Italy
[2]Dental Biomaterials Research Unit, University of Liege, Liege, Belgium
[3]Department of Medical, Oral and Biotechnological Sciences, University G. d'Annunzio Chieti-Pescara, Chieti, Italy

Aim: Cortico-cancellous Collagenated Porcine Bone (CCPB) plays a significant role in Alveolar Ridge Preservation (ARP) procedures, as it is cost-effective and demonstrates good integration. The aims of this study were to compare the histomorphometric characteristics of two different CCPB formulations for ARP, and to evaluate the clinical outcomes of dental implants placed in augmented sites.

Methods: this study included patients requiring tooth extraction, ARP, and subsequent implant placement. ARP was performed with two different CCPB formulations:

- 50/50 (hand-mix) group: CCPB with 250-1000 µm granulometry, combined with a thermogelling synthetic biocompatible copolymer with heterologous type I and III collagen of porcine origin mixed in equal proportions;
- 80/20 (pre-mix) group: CCPB with 600-1000 µm granulometry plus, pre-mixed with the same thermogelling copolymer in an 8:2 proportion.

After 4 months of healing, a bone biopsy was retrieved using a trephine bur during implant site preparation. Patients were re-evaluated 1 year after implant placement.

Results: twenty patients, divided into the two study groups, were analyzed. At 1-year follow-up, the mean Marginal Bone Loss (MBL) was 0.1 mm in the hand-mix group and 0.4 mm in the pre-mix group, with no statistically significant difference ($p = 0.42$). The mean percentages of Newly Formed Bone (NFB), Marrow Spaces (MS) and Residual Particles (RP) in the hand-mix group were, respectively, 36.2, 45.3 and 18.5%, whilst in the pre-mix group the values were 27.1, 45.6 and 27.3%. A difference was observed for the NFB percentage in favor of the hand-mix group even though it did not reach the significance level ($p = 0.064$).

Conclusions: both formulations showed successful clinical and aesthetic outcomes in a short-term evaluation, highlighting their viability for ARP procedures.

EVALUATION OF BIOLOGICAL COMPLICATIONS IN CRESTAL *VS* SUBCRESTAL IMPLANTS IN PATIENTS ON SUPPORTIVE THERAPY: A 2-YEAR PROSPECTIVE OBSERVATIONAL STUDY

Scotti E[1,2], Farruku U[1,2], Marchetti S[1,2], Dalè M[1,2], Mensi M[1,2]

[1]Section of Periodontics, School of Dentistry, Department of Surgical Specialties, Radiological, Science and Public Health, University of Brescia, Brescia, Italy
[2]U.O.C. Odontostomatologia, ASST Spedali Civili di Brescia, Brescia, Italy

Aim: the present study evaluates the efficacy of a maintenance protocol for the prevention of mucositis and peri-implantitis in patients with crestal or subcrestal implants. The primary outcome is the Marginal Bone Modification (MBM) around the implants. Secondary outcomes are the change of periodontal parameters, presence/absence of interdental papilla and any prosthetic complications.

Methods: 36 patients, 18 with crestal implant and 18 with subcrestal implant with Gingival Formal Abutment (GFA), undergo through a semestral session of Guided Biofilm Therapy (GBT), are clinically and radiographically monitored at 6, 12 and 24 months after the prosthetic load. MBM is assessed through standardized radiographs processed with ImageJ.

Results: a reduction in terms of Plaque Index (PI), Bleeding on Probing (BOP) and Probing Pocket Depth (PPD) is observed at 24 months in each implant. In crestal implants, MBM decreases from surgery to 24 months (-0.68 mm). Instead in subcrestal implants, after initially decrease from surgery to load (-0.65 mm), regrowth is showed at 24 months (+0.1 mm).

Conclusions: one mucositis, no peri-implantitis and no prosthodontics problems are recorded. A phenomenon of gingival "creeping" is observed at 24 months, particularly in crestal implants. Subcrestal implants show greater papilla stability and better bone preservation, with positive bone growth. The GFA system keeps long-term bone stability and reduces the risk of marginal bone loss. Also, the six-month GBT session allows to maintain implants in the long term.

CLINICAL OUTCOMES OF TRANSCRESTAL SINUS FLOOR ELEVATION AFTER 10 YEARS: IMPLANT SURVIVAL, MARGINAL BONE LOSS, AND VOLUMETRIC STABILITY

Giavardi G[1], Rapani A[1], Berton F[1], Lombardi T[2], Pasquali R[1], Stacchi C[1]

[1]Department of Medical, Surgical and Health Sciences, University of Trieste, Trieste, Italy
[2]Department of Health Sciences, Magna Graecia University of Catanzaro, Catanzaro, Italy

Aim: the aim of this prospective multicenter study was to evaluate the long-term clinical outcomes in patients treated with transcrestal Sinus Floor Elevation (tSFE) and dental implant placement after 10 years of functional loading.

Methods: the study included 44 partially edentulous patients with a residual bone height of <5 mm who underwent tSFE and implant placement. After 10 years of loading, implant survival, Marginal Bone Loss (MBL) and graft stability were assessed. Initially, logistic regression was attempted to assess several predictive variables; however, due to perfect separation, analysis was focused on new bone percentage after 6 months of healing (%NB) using an independent Student's t-test and ROC curve analysis, calculating the Area Under the Curve (AUC) and identifying the threshold predictive of implant failure.

Results: the 10-year implant failure rate was 13.9%, with marginal bone loss averaging 0.60±1.19 mm.

Mean graft vertical shrinkage was 3.79±2.14 mm, with no significant correlations to age, gender, smoking, or residual bone height. ROC analysis confirmed %NB as a perfect predictor of implant survival after 10 years (AUC = 1.0), indicating implant failure when %NB was below the threshold of 2.10%.

Conclusions: after 10 years, implants placed via transcrestal sinus elevation demonstrate satisfactory long-term stability, with minimal marginal bone loss and acceptable graft volume preservation. The formation of new bone is fundamental for long-term implant survival, especially when residual bone height is less than 5 mm.

CLINICAL AND BIOCHEMICAL EVALUATION OF TWO DIFFERENT TYPES OF IMPLANT SCREW RETAINED SINGLE CROWNS

Luzi A, Auletta A, Antonelli A, Evolo F, Prosperi N, Gherardi G, Martini V, Zanza A, Leporale S, Cianfriglia M, Testarelli L, Reda R

Department of Oral and Maxillo-Facial Sciences, Sapienza University of Rome, Rome, Italy

Aim: the aim of the study is to verify if a significant difference in tissue response can be defined, between a chromium-cobalt/ceramic and a titanium/zirconia implant retained crown. Two kinds of rehabilitation in the posterior areas, evaluate 18 months after delivery.

Methods: a total of 20 participants were included in the study, each of whom had at least two implants in the posterior sectors prosthetically treated with one of these two solutions. The values of Il-1β, IL-6, IL-8 were evaluated, together with periodontal indices plaque index, gingival index, probing depth, bleeding on probing, gingival recession.

Results: during the time of clinical observation, at 1 month, 9 months and 18 months after the delivery, both types of crowns performed acceptably. It is possible to define that there are no statistically significant differences between the two techniques, although Cr-Co/Cer has slightly higher values than the other.

Conclusions: based on the highest values, it is possible to hypothesize that this difference could lead to a clinically visible difference in the longer term. The reason could be the difference between the interface with the titanium implant between chromium- cobalt and titanium. Furthermore, the ceramic that is layered directly on the Cr-Co does not show a connection interface with it, other than the areas hand-finished by the technician, vice versa, the Ti-Zir crown shows an area in which the milled zirconia product is bonded onto the titanium abutment with a resin-based cement.

EVALUATION OF THE BIOCOMPATIBILITY OF BIOHPP PROSTHETIC SUPRASTRUCTURES IN IMPLANT-SUPPORTED REHABILITATIONS: PRELIMINARY RESULTS OF A CLINICAL AND RADIOGRAPHIC PROSPECTIVE STUDY

Pogliani A[1,2], Bernardi A[1,2], Cusaro B[1,2], Creminelli G[1,2], Capella A[1,2], Poli P[1,2]

[1]Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy
[2]Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Implant Center for Edentulism and Jawbone Atrophies, Maxillofacial Surgery and Odontostomatology Unit, Milan, Italy

Aim: to evaluate the biocompatibility of a hybrid PEEK-based, ceramic-reinforced high-performance polymer (BioHPP) used to manufacture prosthetic suprastructures in implant-supported rehabilitations.
Methods: partially edentulous patients rehabilitated with BioHPP suprastructures were consecutively recruited. Biocompatibility was evaluated by means of clinical assessment of the peri-implant mucosa considering in particular PPD, BoP/SoP, and KM width. Radiographic analysis of the marginal bone levels was performed on digital intraoral radiographs to determine Marginal Bone Remodeling (MBR). Aesthetic analysis was also conducted adopting the Pink Esthetic Score (PES). Data was submitted to parametric and non-parametric tests with a level of significance set at $\alpha = 0.05$.
Results: overall, 74 implants rehabilitated in 47 patients were assessed. No implant failures were noted up to a 16-month follow-up. Considering prosthetic complications, only one case of fracture of the vestibular portion of a temporary prosthetic crown occurred. Clinically, BOP+ was present in 8.4% of the sites, with PPD values <5 mm in all cases. An average MBR of 0.05 mm (range 0-2.7 mm) was calculated. Considering the PES, a mean value of 10.71 was observed. KMW ≥2 mm appears to be correlated with better outcomes of PES and MBR.
Conclusions: BioHPP suprastructures may be considered a promising solution in terms of biocompatibility, resulting in healthy and stable peri-implant hard and soft tissues on the short term. A longer follow-up extended to a wider population is needed to corroborate these findings.

CLINICAL AND RADIOGRAPHIC EVALUATION OF MARGINAL BONE RESORPTION AROUND ONE-PIECE IMPLANTS IN FULL-ARCH REHABILITATIONS WITH FULL-DIGITAL APPROACH: A PROSPECTIVE COHORT STUDY ON 108 IMPLANTS

Bernardi A, Capella A, Creminelli G, Cusaro B, Pogliani A, Beretta M

Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Implant Center for Edentulism and Jawbone Atrophies, Maxillofacial Surgery and Odontostomatology Unit, Milan, Italy

Aim: the use of intermediate abutments to facilitate prosthetic restoration presents some drawbacks such as screw loosening, risk of fracture and bacterial infiltration among others, potentially compromising peri-implant bone stability. Thus, monophasic implants with integrated multiunit abutment have been developed to remove micromovements at the bone level, simplify the surgical and prosthetic workflows, and enhancing peri-implant tissue health. This study evaluated the stability, effectiveness, and predictability of full-arch rehabilitations by means of one-piece implants and immediate loading, with a digital workflow.
Methods: this prospective observational cohort study included patients with total or partial edentulism undergoing full-arch implant-supported rehabilitation of the maxilla or mandible. Suitability was assessed via CBCT to ensure adequate bone thickness for guided implant placement without the need for horizontal augmentation. Intraoral radiographs were performed to evaluate Marginal Bone Loss (MBL).
Results: among 108 implants, the mean bone remodelling at one year was 1.3±0.09 mm, aligned with Albrektsson's success criteria. No implant failures or prosthetic complications were reported. Statistical analyses found no significant differences in MBL in relation to implant position, implant diameter, abutment angulation, or placement timing. No adverse postoperative events were observed.
Conclusions: the use of one-piece implants in association with digital workflows resulted in good marginal bone level stability over time. The clinical expertise of the surgeon is however a variable that should not be underestimated.

A NOVEL ASSESSMENT WORKFLOW OF IMPLANT ACCURACY BY MEANS OF STACKABLE GUIDES: A CASE SERIES

Cusaro B[1,2], Bernardi A[1,2], Capella A[1,2], Creminelli G[1,2], Pogliani A[1,2], Poli P[1,2]

[1]Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy
[2]Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Implant Center for Edentulism and Jawbone Atrophies, Maxillofacial Surgery and Odontostomatology Unit, Milan, Italy

Aim: the aim of this study was to evaluate the accuracy of one-piece implant placement using stackable surgical guides, incorporating a novel stent known as the "number guide", which is secured to a fixed base template to enhance the intra-surgical registration of the scan bodies.
Methods: a digital workflow was employed for the planning and placement of one-piece implants. Participants were chosen according to specific inclusion criteria. Stackable guides facilitated fully-guided implant placement with immediate provisional loading. The accuracy of implant placement was evaluated by comparing pre- and post-operative data recorded using the aid of the number guide. Data was assessed with parametric tests, and the level of significance was set at $p < 0.05$.
Results: forty-seven one-piece implants were placed in both the maxilla and mandibole of ten participants. All implants achieved sufficient primary stability, enabling immediate loading. The achieved 3D accuracy was evaluated through linear and angular deviations, with greater precision observed in the mandible. Implant characteristics showed statistically significant variations in terms of accuracy.
Conclusions: the fully guided digital workflow ensured accurate one-piece implant placement. The incorporation of the "number guide" enabled precise evaluation of the system's accuracy, allowing assessment of linear and angular deviations and demonstrating its potential for post-operative accuracy assessment in a reproducible way.

ADJUVANT EFFECTS OF DIFFERENT NON-SURGICAL PROTOCOLS FOR PERI-IMPLANT MUCOSITIS TREATMENT

Belmonte A, Rigotti P, Polizzi A, Isola G

Department of General Surgery and Surgical-Medical Specialties, Unit of Periodontology, School of Dentistry, University of Catania, Catania, Italy

Aim: to evaluate the effects of Non-Surgical Peri-Implant submarginal instrumentation (NSPI), performed with or without the use of Chlorhexidine (CHX)-based solutions, in the treatment of Peri-implant Mucositis (PM).
Methods: sixty patients with peri-implant mucositis were assigned to two groups (n = 30 per group). The test group received NSPI treatment combined with 0.12% CHX mouthrinse, subgingival irrigation with CHX, and tongue brushing with 1% CHX gel. The control group received the same NSPI protocol with a placebo. The main periodontal clinical indices were recorded: Bleeding On Probing (BOP), Probing Depth (PPD), modified Gingival Index (mGI), modified Plaque Index (mPII), Full Mouth Plaque Score (FMPS), and Full Mouth Bleeding Score (FMBS). The proportions of *Aggregatibacter actinomycetemcomitans*, *Porphyromonas gingivalis*, *Tannerella forsythia*, and *Treponema denticola* were quantified. Assessments were performed at baseline, 1, 3 and 6 months.
Results: at six months, both groups showed a significant reduction in the clinical parameters. The protocol adopted in the test group proved to be more effective than that of the control group in reducing Bleeding on Probing (BOP), with a percentage of 49.2% against 40.1%. It also determined a reduction in the modified plaque index (mPII, $p = 0.040$) and in the percentage of *Treponema denticola* ($p = 0.030$).The reduction of BOP was influenced by type of treatment ($p < 0.001$), history of periodontitis ($p = 0.005$), high cigarette consumption ($p = 0.004$), and higher presence of *Porphyromonas gingivalis* ($p = 0.012$) and *Tannerella forsythia* ($p = 0.025$).
Conclusions: NSPI+CHX treatment was more effective than placebo in the management of peri-implant mucositis. The presence of a higher proportion of *Porphyromonas gingivalis* and *Tannerella forsythia* had a negative impact on Bleeding on Probing (BOP).

INSERTION OF SHORT IMPLANTS IN THE POSTERIOR AREAS OF THE MAXILLARY USING THE EARLY LOADING TECHNIQUE: 5-YEAR EVALUATION

Maddaloni G[1], Catalano I[1], Bizzoca ME[1], Annicchiarico C[2], Lo Muzio L[1], Mastrangelo F[1]

[1]Department of Clinical and Sperimental Medicine, University of Foggia, Foggia, Italy
[2]Private practice, Bari, Italy

Aim: to assess marginal bone loss, implant survival, and soft tissue health in 7-mm implants over 5 years.

Methods: NS and BMKS 7-mm implants were placed in healed or extraction sites using flapless or flap techniques, with bone grafting allowed. All implants were inserted with at least 30 Ncm torque and immediately loaded. Follow-ups occurred at 3, 6, 12, 36, and 60 months. Periapical radiographs tracked bone changes, while implant survival and soft tissue health (bleeding on probing, papilla index, and plaque) were assessed.

Results: four centers placed 86 short implants (61 NS, 25 BMKS) in 38 patients, 94% in the posterior region and 67% in the mandible. Restorations included single crowns (55%) or fixed bridges. A total of 31 patients (49 NS, 20 BMKS) were followed for 5 years. Three implants failed (two NS, one BMKS), with a cumulative survival rate of 96.5%. After initial remodeling in the first 6 months, bone levels remained stable up to 5 years ($p = 0.633$). The papilla index and plaque significantly improved ($p \leq 0.001$), while bleeding on probing showed improvement but was not statistically significant ($p = 0.065$).

Conclusions: short 7 mm implants are a reliable option in demanding conditions such as immediate loading, ensuring stable bone levels up to 5 years.

COMPARISON BETWEEN FREE GINGIVAL GRAFT AND STRIP TECHNIQUE IN INCREASING KERATINIZED MUCOSA WIDTH AROUND DENTAL IMPLANTS: PRELIMINARY DATA FROM A PROSPECTIVE OBSERVATIONAL STUDY

Creminelli G[1,2], Bernardi A[1,2], Capella A[1,2], Cusaro B[1,2], Pogliani A[1,2], Manfredini M[3,2]

[1]Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy
[2]Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Implant Center for Edentulism and Jawbone Atrophies, Maxillofacial Surgery and Odontostomatology Unit, Milan, Italy
[3]Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy

Aim: the present prospective cohort study aimed to compare the clinical efficacy of two surgical techniques to increase peri-implant Keratinized Mucosa Width (KMW): Free Gingival Graft technique (FGGt) and the Strip technique (St).

Methods: a total of 26 sites in 10 patients were treated. Subjects were enrolled if presenting with <2 mm KMW before the re-entry surgery. All procedures were performed by a single operator to ensure methodological consistency. Primary outcomes focused on apico-coronal KMW gain at 1, 3, 6 and 12 months. Secondary objectives included aesthetics assessment using the Pink Esthetic Score (PES) at 1, 3, 6 and 12 months and evaluation of postoperative discomfort through OHIP-49 and Visual Analog Scale (VAS) questionnaires during the first 3 post-operative days. Data was submitted to parametric tests and generalized linear models.

Results: of the 26 sites, 15 were treated with the St while 11 with the FGGt. Both techniques effectively increased KMW. After 1 year, all except one site in the FGGt group showed KMW ≥2 mm. The St resulted in greater KMW gain at all study intervals, improved aesthetic integration, and reduced postoperative discomfort, including less pain and swelling compared to the FGGt. Conversely, the FGGt exhibited superior dimensional stability and less shrinkage over time.

Conclusions: the St associated with collagen matrices offered significant advantages in consideration of aesthetics and patient comfort while providing clinical effectiveness in terms of KMW gain. The limited sample and reduced follow-up should be considered.

CLINICAL AND RADIOGRAPHIC EVALUATION OF THE EFFECTIVENESS OF PREFORMED TITANIUM MESH IN THE TREATMENT OF LOCALIZED PERI-IMPLANT DEHISCENCE DEFECTS: A PROSPECTIVE STUDY ON 25 IMPLANTS

Creminelli G[1,2], Bernardi A[1,2], Capella A[1,2], Cusaro B[1,2], Pogliani A[1,2], Beretta M[1,2]

[1]Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy
[2]Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Implant Center for Edentulism and Jawbone Atrophies, Maxillofacial Surgery and Odontostomatology Unit, Milan, Italy

Aim: the purpose of the present prospective study was to evaluate whether a preformed titanium grid can support and protect the bone regeneration process in atrophic ridges with simultaneous placement of an implant in a prosthetically guided position.
Methods: implants exhibithing buccal dehiscence-type defects reconstructed with a mixture of autogenous and xenograft particles protected by preformed titanium mesh were included. Clinical measurements of the residual and augmented alveolar crest thickness were performed intrasurgically and after 6 months respectively. Similarly, radiographic evaluations by means of CBCT scans were performed before the surgical procedure and after 6 months to assess the horizontal bone gain. Intraoral digital radiographs were conducted to evaluate marginal bone levels yearly up to 5 years.
Results: overall, 25 implant sites were evaluated. An average radiographic bone gain of 3.24 mm and a ridge width of 8.69 mm were recorded after 6 months, in agreement with the clinical results. Grid exposure occurred in 16% of cases, however no additional grafting procedures were required. A progressive bone remodelling was observed during the follow-up up to 3 years, with a mean bone loss of 0.13±0.62. Afterwards, a substantial plateau was observed up to 5 years.
Conclusions: the use of preformed titanium mesh allowed obtaining ≥ 2mm of peri-implant bone thickness, which is recommended for a long-term clinical success. Longer follow-up time and increased patient population should be carried out to solidify these results.

CLINICAL, RADIOGRAPHIC AND HISTOMORPHOMETRIC ANALYSIS OF REMOVED FAILED DENTAL IMPLANTS: A SINGLE COHORT PROSPECTIVE OBSERVATIONAL STUDY

Leo R[1], Minuti F[1], Cinquini C[1], Priami M[1], Nisi M[1], Iezzi G[2], Barone A[1]

[1]Department of Surgical, Medical, Molecular Pathologies and of the Critical Area, University of Pisa, Pisa, Italy
[2]Department of Medical, Oral and Biotechnological Sciences, University G. d'Annunzio Chieti-Pescara, Chieti, Italy

Aim: implant failure may result from a lack of osseointegration, peri-implant infection, malposition, or fractures of the implant or prosthetic components, often necessitating removal. This study aimed at analysing the clinical, radiographic, and histomorphometric characteristics of failed implants that required removal.
Methods: this study included patients who required the removal of one or more dental implants. For each patient, medical history, clinical, radiographic data were collected, as well as surgical information and the reason for implant removal. All the specimens underwent histomorphometric analysis.
Results: the sample included 21 patients (17 females) with 33 implants. Five implants were removed using forceps and 28 with trephine burs. The reasons for implant removal were peri-implantitis (13), implant neck fracture (6), malposition (10), recurrent abscess (2), and persistent pain in 2 cases. According to the histological analysis, all the failed implants removed by using trephine burs were osseointegrated. The bone-implant interface showed mature, compact lamellar bone with numerous remodeling areas. The 13 implants removed due to peri-implantitis exhibited signs of inflammation at the coronal level.
Conclusions: the histomorphometric analyses of the removed implants revealed that, in the portions that remained osseointegrated, the bone tissue was healthy and metabolically active. These findings support the potential for both surgical and non-surgical interventions aiming at treating failing implants, rather than choosing removal.

EVALUATION OF THE EFFECTIVENESS OF FLAPLESS STATIC COMPUTER-AIDED IMPLANT SURGERY IN ONCOLOGICAL AND NON-ONCOLOGICAL PATIENTS

Albini A, Brauner E, Laudoni F, Terribile L, Guerrieri E, Cardo S, Grifa F, Sforza E, Giuncato F, Pranno N, De Angelis F, Di Carlo S

Department of Odontostomatological and Maxillofacial Sciences, Sapienza University of Rome, Rome, Italy

Aim: the aim of this study is to assess whether the effectiveness of the static computer-aided implant surgery protocol in oncological patients is comparable to that in non-oncological patients.

Methods: 85 patients were included in this study. They were divided into oncological patients (12) and non oncological patients (73). The protocol used for digital implantoprosthetic surgical planning was the same in both groups and it involved different decision-making algorithms depending on whether the patient was partially or completely edentulous. Only flapless surgery was performed in this study. In case of intercalated edentulism without loss of vertical dimension, implant-prosthetic rehabilitation proceeded directly; instead, in case of severe occlusal and vertical dimension alterations, temporary rehabilitation was performed to stabilize occlusion. For totally edentulous patients, the absence of stable landmarks complicated the alignment of CT dental scan/CT cone beam, so the Evobite device was used. Survival rate was evaluated in a medium follow-up of 1,5 years.

Results: the analysis of the acquired data showed that the implant survival rate in a medium follow-up of 1,5 years in oncological patients (98,2%) was comparable to that in patients without neoplastic diseases (99,5%).

Conclusions: this study shows how flapless static computer-aided implant surgery has led to high survival rates (comparable to those achieved in non-oncological patients) even in patients with neoplastic diseases, who are therefore medically compromised.

THE MENTAL FORAMEN: A CBCT EVALUATION AND ANATOMICAL CLASSIFICATION WITH SURGICAL IMPLICATIONS

Trocciola A, Scognamiglio B, Acerra A, Chiacchio A, Caggiano M, Giordano F

Department of Medicine, Surgery and Dentistry, Scuola Medica Salernitana, University of Salerno, Salerno, Italy

Aim: the aim of the study is to evaluate, through CBCT scans, the anatomy of the Mental Foramen (MF) in edentulous patients about to undergo implant surgery and to identify different anatomical situations that imply distinct surgical handling of soft tissue to avoid inferior alveolar nerve or mental nerve injury during flap incision.

Methods: a cross-sectional study analyzed 45 CBCT scans with at least one edentulous hemi-mandible for implant planning and identified three anatomical patterns of Mental Nerve Emergence (MNE). Out of 90 hemi-mandibles, 15 were excluded due to teeth or poor image quality. A total of 75 hemi-mandibles, acquired between March 2018 and February 2024, were evaluated by two observers (98% agreement, SD = 0.12). For each MF, the distance between MF and Bone Crest (BC) was measured in sagittal and 3D reconstructions.

Results: three patterns were identified. In Class 1 (49.33%) MF was located on the buccal side and emerged vertically; in Class 2 (30.66%) MF emerged horizontally, but mandibular resorption was incomplete, leaving a residual bone ridge on the lingual side. Class 3 (20.00%) presented a complete alveolar resorption, MF was located at the cranial mandible, emerging horizontally.

The mean distance MF-BC was 3.88±2.96 mm while in presence of the teeth distance MF-BC was 6.20±2.98 mm; in fully edentulous was 3.48±2.79 mm.

Conclusions: mental nerve injury can cause sensory deficits. Careful flap design is critical in oral surgery procedure, especially in Class 2 and 3 cases (50.66%), to minimize nerve damage and improve patient outcomes.

CLINICAL EFFECTIVENESS AND SATISFACTION RATE OF SUBJECT REHABILITATED WITH MANDIBULAR OVERDENTURES SUPPORTED BY MINI-IMPLANTS: A CROSS-SECTIONAL STUDY

De Gregoriis P, Guidone C, Tari RS, Lorusso F

Department of Innovative Technologies in Medicine and Dentistry, University G. d'Annunzio Chieti-Pescara, Chieti, Italy

Aim: edentulous patients often develop an impaired functional, phonetic, and esthetic status, resulting in a compromised quality of life; hence, mandibular overdentures have been considered the standard implant treatment for such patients. This study aims to assess the effectiveness of mandibular overdentures retained using mini-implants on patient-reported satisfaction and long-term survival.

Methods: a database search regarding patients' medical records for eligible subjects has been conducted, screening and inviting patients that received a mandibular overdenture anchored on mini-implants over ten years ago. A numerical rating scale from 0 (the worst) to 10 (the best) has been used to assess four aspects: comfort, retention, chewing ability, and speaking ability, before and after having mini-implants. Kaplan-Meier analysis was conducted to determine their survival.

Results: forty-eight medical compromised patients received a mandibular overdenture anchored on four permucosal mini-implants have been included. All patient-reported satisfaction (comfort, retention, chewing ability, and speaking ability) was significantly improved after supporting mandibular overdentures with mini-implants (p-values <0.05), with retention and chewing ability being the most substantially enhanced. The 10- and 15-year mini-implant survival rates were both 97.9%.

Conclusions: mandibular overdentures with mini-implants can be considered a valuable alternative to conventional implant-supported overdentures in patients with atrophic ridges, medically compromised, and the elderly.

USE OF METAL ARTIFACT REDUCTION ALGORITHM ON CBCT SCANS OF DENTAL IMPLANTS: AN *EX VIVO* ANIMAL STUDY

Rocco G, Cernera M, Armogida NG, Esposito L, Rodriquez V, Rengo C, Soltani P

Department of Neurosciences Reproductive and Odontostomatological Sciences, University of Naples Federico II, Naples, Italy

Aim: this study investigated the effect of a Metal Artifact Reduction (MAR) algorithm on Cone-Beam Computed Tomography (CBCT) images of titanium and zirconia implants, considering their placement both inside and outside the Field of View (FOV).

Methods: an *in vitro* experiment was conducted using a dry monkey mandible positioned in a CBCT scanner, with only the left quadrant included in the FOV. Titanium and zirconia implants were alternately placed in the extraction sockets of the right and left second premolars. CBCT scans were performed with and without MAR activation. Three Regions of Interest (ROIs) were selected relative to a resin block, and the Contrast-to-Noise Ratio (CNR) was calculated for each region. A two-way analysis of variance was used to assess the data (alpha = 0.05).

Results: the implementation of the MAR algorithm significantly improved CNR both inside and outside the FOV for both implant materials (P <0.05). Zirconia implants exhibited lower CNR values and produced more artifacts compared to titanium implants (P <0.05). Although placing implants outside the FOV slightly reduced image quality compared to positioning them within the FOV, this difference was not statistically significant (P >0.05).

Conclusions: the findings highlight the significant role of the MAR algorithm in reducing artifacts in CBCT imaging. Titanium implants generated fewer metal-related artifacts than zirconia implants. Additionally, while implant placement outside the FOV led to a slight increase in artifact formation, this effect did not reach statistical significance.

THE EFFECTS OF ULTRASONIC SCALING ON THE MICROTOPOGRAPHY OF IMPLANT SURFACES

Iommelli S[1], Accardo S[1], Punzo A[1], Gianfreda F[2], Marenzi C[3], Allegretti G[4], Miniello A[3]

[1]Department of Neuroscience, Reproductive Science and Dentistry, School of Specialization in Oral Surgery, University of Naples Federico II, Naples, Italy
[2]Department of industrial Engineering, University of Rome Tor Vergata, Rome, Italy
[3]Department of Neuroscience, Reproductive and Odontostomatological Science, University of Naples Federico II, Naples, Italy
[4]Department of Medicine, Surgery and Dentistry, Scuola Medica Salernitana, University of Salerno, Salerno, Italy

Aim: the aim of this *in vitro* study was to evaluate the effects of bicarbonate air-abrasive powders use and ultrasonic scaling with stainless steel tips on surface roughness and fibroblast growth on implant surfaces.
Methods: three sample surfaces were used: RS (machined surface) as control, UTM (Ultrathin Threaded Microsurface), and XA (Thin Machined surface). The surfaces were initially debrided for 30 seconds with bicarbonate powder, followed by ultrasonic cleaning using a stainless-steel ultrasonic tip, and then re-treated with bicarbonate powder. After decontamination, human dermal fibroblasts were cultured on each sample for 5 days; then it was compared to the fibroblast growth between the different samples using SEM.
Results: after bicarbonate air-abrasive powders and ultrasonic scaling the UTM and XA sample decreased their roughness, whereas in RS discs the roughness increases. The observed increase in roughness was associated with an enhancement in fibroblast growth on the decontaminated discs.
Conclusions: the study underscores the complex interplay between surface topography and microbial biofilm. The same materials might experience various difference in microtopography based on the different types of surface treatment. Our study reveals that the degree of nanoscale roughness post-decontamination may be conducive to enhanced fibroblast attachment and soft tissues integration.

MORPHOLOGY AND MICROCHEMISTRY STUDY OF THREE COMMERCIAL DENTAL IMPLANTS

Aliberti A[1], Piscopo M[2], Ruggiero G[2], Mastrosimone A[2], Ausiello P[2]

[1]Department of Neuroscience, Reproductive Science and Dentistry, School of Specialization in Oral Surgery, University of Naples Federico II, Naples, Italy
[2]Department of Neuroscience, Reproductive Science and Dentistry, University of Naples Federico II, Naples, Italy

Aim: this study aims to analyze the surface characteristics of three commercial threaded dental implants to evaluate the effects of different materials and manufacturing processes on their morphology and microchemistry.
Methods: three commercial dental implants were investigated: two made of pure titanium and one of Ti6Al4V alloy. The surface morphology was analyzed using Scanning Electron Microscopy (SEM), while X-ray Photoelectron Spectroscopy (XPS) was used to determine the surface chemical composition. The influence of manufacturing processes, including mordanting and sandblasting, was examined.
Results: SEM analysis revealed significant differences in surface topography among the implants. Implant A exhibited a uniform surface with small dimples (1-2 μm). Implant B displayed an irregular morphology with larger dimples (>10 μm) on the thread tops and smaller dimples (~1 μm) along flanks and valleys. Implant C had a heterogeneous distribution of dimples across its surface. XPS analysis confirmed the presence of TiO_2 in all implants, with additional Al_2O_3 and V_2O_5 detected in the Ti6Al4V alloy implant. A layer of Mg_2SiO_4 was found on Implant A, suggesting a specific surface treatment aimed at enhancing osseointegration.
Conclusions: the findings highlight the influence of material composition and surface treatments on the morphology and chemical characteristics of dental implants. The presence of Mg_2SiO_4 on Implant A suggests a strategy for improving osseointegration. Understanding these variations can aid in optimizing implant design and enhancing their clinical performance.

PROBING DEPTH REDUCTION FOLLOWING PERI-IMPLANTITIS TREATMENT: A SYSTEMATIC REVIEW AND COMPONENT NETWORK META-ANALYSIS

Zama Montagnana A[1], Liu Y[2], Sun Y[3], Simonelli A[1,4,5], Farina R[1,4,5], Trombelli L[1,4,5], Wang C[6], Tu Y[2]

[1]School of Dentistry, University of Ferrara, Ferrara, Italy
[2]Institute of Health Data Analytics and Statistics, College of Public Health, National Taiwan University, Taipei, Taiwan
[3]Department of Public Health, National Taiwan University, Taipei, Taiwan
[4]Research Centre for the Study of Periodontal and Peri-Implant Diseases, University of Ferrara, Ferrara, Italy
[5]Operative Unit of Dentistry, Azienda Unità Sanitaria Locale (A.U.S.L.) of Ferrara, Ferrara, Italy
[6]School of Dentistry, National Taiwan University, Taipei, Taiwan

Aim: to compare the effects of surgical and non-surgical treatments for peri-implantitis through the Component Network Meta-Analysis (CNMA) with Probing Depth (PD) reduction as the outcome.

Methods: literature search was conducted in 3 databases. Randomized Controlled Trials (RCTs) comparing treatments for peri-implantitis with 6 to 12 months of follow-up and reporting changes in PD, were included. Treatment effects were assessed using a CNMA model based on additivity assumption. The Intraclass Correlation Coefficient (ICC) was calculated to adjust the standard errors for multiple implants within the same patient.

Results: 44 RCTs were selected, including 46 treatment regimens consisting of 15 components. These RCTs formed a disconnected network consisting of 11 subnetworks. Surgical treatments with bone grafts and membranes generally attained greater PD reduction than non-surgical treatments, although bone grafts and membranes as components provided moderate benefits. The effect size of antibiotics is greater in non-surgical than surgical treatments, while there is considerable uncertainty regarding the effect size of implantoplasty. The effectiveness of components varied between surgical and non-surgical treatments.

Conclusions: current evidence does not yield sufficiently robust estimates for identifying optimal surgical and non-surgical treatment regimens for peri-implantitis. A coordinated strategy is required for designing future trials to fill the gaps in our current knowledge and develop more reliable recommendations.

SJÖGREN'S SYNDROME. IS IT A RISK FACTOR FOR DENTAL IMPLANT PLACEMENT?

Patrone G, Satira E, Plutino V, Maratia G, La Rosa D, Signorini L, Belleggia F

Saint Camillus University of Health Science, Rome, Italy

Aim: Sjögren's Syndrome (SS) is a chronic autoimmune disorder primarily affecting the exocrine glands, leading to severe xerostomia and alterations in the oral environment. These changes may negatively impact wound healing, bone remodeling, and overall implant success. The goal of our study is to evaluate the implants placement in subject affected by Sjögren's syndrome, and if the latter could be a risk factor and a controindication through literature review.

Methods: the search was performed using PubMed and GoogleScholar focusing on clinical studies, systemic review and case report published in the last 15 years. The keywords used included "Sjögren's syndrome AND dental implants", "autoimmune diseases AND dental implants", "Sjögren's syndrome AND implant survival".

Results: the number of studies in literature on dental implants in SS is not so high and 12 articles were considered for this work. Based on the regarding data, the survival rate of implants in SS is relatively high, with an average range comparable to healthy subjects (93-97%). Some studies suggest the presence of marginal bone loss, but with not clinically valuable dates and without significantly differences compared to healthy subjects.

Conclusions: the literature suggests that dental implants can be a safe, viable and predictable rehabilitation option for patients with Sjögren's syndrome (SS), with low marginal bone loss and low biological complications. Further longitudinal studies are required to evaluate the long-term stability of implants in this patient population.

EFFECTIVENESS OF CONICAL PROSTHETIC JOINT CONTACT ANGLE ON PERI-IMPLANT BONE STABILITY AROUND TAPERED IMPLANT PROSTHETIC CONNECTIONS: A SYSTEMATIC REVIEW WITH NETWORK META-ANALYSIS

Tricca F[1], Guidone C[1], Falisi G[2], Scogna G[1], Khater AGA[3]

[1]Department of Innovative Technologies in Medicine & Dentistry, University G. d'Annunzio Chieti-Pescara, Chieti, Italy
[2]Department of Life, Health and Environmental Sciences, University of L'Aquila, L' Aquila, Italy
[3]Faculty of Dental Medicine and Oral Health Sciences, McGill University, Montreal, QC, Canada

Aim: implant gap at the implant abutment connections represents a bacterial reservoir that might be responsible for the onset of peri-implant pathologies. Even though the impact of systemic diseases on peri-implant health is not yet fully elucidated, recent studies have suggested that peri-implant diseases might increase systemic inflammation due to increased levels of pro-inflammatory cytokines. The aim of this study was to provide a comparative evaluation regarding the impact of different prosthetic joints in the context of bone stability and mechanical complications 6 months after the loading.

Methods: following the PRISMA guidelines a comprehensive electronic search was performed in the Pubmed/MEDLINE, Google Scholar, Scopus, and Web of Science databases. External hexagon (EI), Internal Hexagon (HI), Cone Morse (CM) (<8◦ contact angle), and internal conical connections (>8◦ contact angle) were compared.

Results: a total of 19637 patients and 44109 implants have been evaluated. 133 articles were included in the qualitative synthesis and 13 in the NMA. Conical connections had better reductions in mechanical complications and lower incidences of marginal bone loss compared to internal and external implant-abutment designs. There were no significant differences in marginal bone stability when comparing conical prosthetic joint contact angles (<8◦ and of >8◦).

Conclusions: based on the current evidence, conical connections seem to be favorable prosthetic joints regarding bone stability and mechanical complications in the short-term.

ORAL REHABILITATIONS WITH IMMEDIATE LOADED POST-EXTRACTIVE IMPLANTS FOLLOWING RADIOTHERAPY OF THE HEAD AND NECK DISTRICT

Properzi G[1], Mariangeloni C[2], Rueca F[3], Bertuccio B[2], Mascolo GL[2]

[1]Department of Medicine and Surgery, Degree Course in Dentistry and Dental Prosthetic, University of Perugia, Perugia, Italy
[2]Department of Medicine and Surgery, Degree Course in Dentistry and Dental Prosthetic, chair in Oral Surgery, University of Perugia, Perugia, Italy
[3]La Nuova Odontotecnica, Dental Laboratory, Roma, Italy

Aim: the esthetic and functional rehabilitation of oncologic patients following radiotherapy of the head and neck district represents one of the greatest challenges for clinicians. Radiotherapy side effects involving the oral cavity may require invasive rehabilitations and removable prostheses are often refused. This work suggests a successful rehabilitative solution with immediate loaded post-extractive implants.

Methods: the proposed treatment plan includes compromised teeth extraction followed by implants insertion with fixed prosthesis.

The combination of pentoxifylline, clodronate and alpha-tocopherol along with antibiotic therapy is carried out to reduce thrombus formation in the microcirculation, improving irradiated bone tissue's quality. The reported clinical cases show the treatment's steps.

Results: this treatment minimizes risks of osteoradionecrosis in radiotherapy patients and individuals' functional and esthetic needs are met. The radiographic images at 1.5 years and 5 years of follow-up show the absence of complications.

Conclusions: patients who have received radiotherapy with irradiation doses higher than 60 Gy may report various oral complications which often require extensive oral rehabilitations. As shown in this work, the combination of surgical treatment and pharmacological therapy is essential to achieve high-performance rehabilitations which satisfy patients' functional and esthetic requests, therefore increasing their quality of life.

IMPLANT SURVIVAL RATE AND PROSTHETIC COMPLICATIONS OF FULL-ARCH IMPLANT-SUPPORTED FIXED PROSTHESES IN EDENTULOUS UPPER JAWS: A COHORT STUDY

Prosperi N, Morgante A, Luzi A, Adamo L, Cianfriglia M, Maccari E, Auletta A, Bramucci C, Abbagnale R, Di Nardo D, Testarelli L, Reda R

Department of Oral and Maxillo-Facial Sciences, Sapienza University of Rome, Rome, Italy

Aim: full-arch implant-supported fixed dental prostheses, which the patient must carefully manage in home oral hygiene procedures, is the fixed alternative to a mucosal/implant -supported prosthesis. Clinically, the execution of this rehabilitation requires six implants for the upper jaw.
The aim of the present study is to verify the survival-rate of implants for implant-fixed prostheses in the edentulous upper jaw.
Methods: this retrospective study was carried out on patients who received an upper full-arch fixed prostheses on six implants for rehabilitation. A total of 36 patients (232 implants) were included and evaluated from a clinical and radiographical point of view. The follow-up period in which the data were collected on the upper full-arch is between 60 and 84 months.
Results: the total implant survival rate is 93.1%, a value which is like previous studies already published on the topic. Considering the use of temporary cement for stabilization, 3 de-cementations occurred in these 48-72 months of observation. Compared to implant-supported prostheses, the incidence of fracture of veneers or teeth is considerably higher, considering the extent of the forces that are not attenuated by the prosthetic material due to the presence of the metal framework.
Conclusions: considering the overall results of the study, the loss of implants after loading is in any case lower than the percentage obtained by the same authors using the same implants, but with a removable prosthetic device. Most of these full-arch achieves good clinical results in this study at 84 months.

BIOMECHANICAL EFFECTS OF A SINGLE-UNIT IMPLANT ABUTMENT WITH A SOLID DESIGN

Mancone A[1], Aliberti A[1], Piscopo M[2], De Durante G[2], Tribst JPM[3]

[1]Department of Neuroscience, Reproductive Science and Dentistry, School of Specialization in Oral Surgery, University of Naples Federico II, Naples, Italy
[2]Department of Neuroscience, Reproductive Science and Dentistry, University of Naples Federico II, Naples, Italy
[3]Department of Reconstructive Oral Care, Academic Centre for Dentistry Amsterdam (ACTA), Universiteit van Amsterdam and Vrije Universiteit, Amsterdam, the Netherlands

Aim: the aim of the current study was to provide further theoretical insight into the biomechanical effects of two dental implant designs under the same loading conditions (i.e., a vertical force of 200 N applied to the upper surface of the crown), with a special focus on the stress transfer mechanism along the bone-implant interface.
Methods: the study used Finite Element Analysis (FEA) to compare two dental implants: Implant A (Dura-vit 3P) and Implant B (solid abutment). Geometric models were created with CATIA and refined in AnsysSpaceClaim. A 200 N vertical force was applied, and stress distribution in cortical and trabecular bone was analyzed under linear static conditions. Results assessed biomechanical differences between the two designs.
Results: FEA showed that Implant A generated higher stress in trabecular bone (8.45 MPa) and lower stress in cortical bone (19.27 MPa) compared to Implant B, which had 5.63 MPa in trabecular bone and 26.38 MPain cortical bone. These differences suggest that implantdesign significantly affects stress distribution, influencing bone health and implant stability.
Conclusions: the study confirmed that implant design impacts stress distribution in bone. Implant A reduced cortical bone stress while increasing trabecular bone stress, potentially promoting bone remodeling and minimizing resorption. Both implants remained within safe limits, ensuring mechanical stability. Future studies should include clinical validation and dynamic loading analysis to optimize implant performance.

HORIZONTAL RIDGE AUGMENTATION THROUGH A MINIMALLY INVASIVE TUNNEL APPROACH WITH XENOGENEIC BONE, HYALURONIC ACID, AND ACELLULAR DERMAL MATRIX

D'Albis G[1], Forte M[1], Bove B[1], Montaruli A[1], Artin A[1], Fioriello MC[1], Marini L[2], Capodiferro S[1]

[1]Department of Interdisciplinary Medicine, University of Bari Aldo Moro, Bari, Italy
[2]Section of Periodontics, Department of Oral and Maxillofacial Sciences, Sapienza University of Rome, Rome, Italy

Aim: traditional bone regeneration techniques for implant placement often involve complications such as flap dehiscence. To improve outcomes and reduce morbidity, alternative strategies are emerging. Acellular dermal matrices help prevent soft tissue collapse and increase gingival thickness, supporting long-term stability. Hyaluronic acid, with its regenerative properties, also enhances graft integration and healing. This study presents preliminary results from two cases of horizontal ridge augmentation using a tunnel technique with xenogeneic bone, hyaluronic acid, and an acellular dermal matrix.

Methods: two patients with horizontal ridge deficiencies in posterior edentulous areas were treated. A single vertical incision was made mesial to the defect, and a subperiosteal tunnel was created. A dermal matrix was shaped and inserted, followed by the placement of sticky bone between the matrix and buccal bone plate. Periosteal integrity was preserved to support vascularization. Digital scans were taken at baseline, five months post-op, and two months after implant placement.

Results: no clinical complications were observed. Four implants were placed with minimal trauma and low morbidity. Digital analysis showed an average horizontal thickness gain of 3.00±0.15 mm.

Conclusions: the tunnel approach appears effective in reducing flap dehiscence while achieving significant horizontal bone gain. The addition of dermal matrices and hyaluronic acid may further enhance soft tissue stability and regenerative outcomes. Further research is needed to validate this technique.

MINI MAXILLARY SINUS LIFT IN THE MANAGEMENT OF ATROPHIC POSTERIOR UPPER MAXILLA: EVALUATION OF A SAMPLE OF 1500 IMPLANTS

Fabbri A[1], La Carpia E[1], Guerra D[2], Guerra G[2], Fioroni A[2], Dodaj G[2], Sciarrone L[2,3], Paiella G[3], Palazzo L[3]

[1]Section of PerioImplantology, University of Perugia, Prof. L. Palazzo, Perugia, Italy
[2]Odontostomatological Department, Director: Dr. M. Guerra, USL Umbria 1, Gubbio, PG, Italy
[3]Odontostomatological Department, Referent: Dr. L. Palazzo, USL Umbria 1, Marsciano, PG, Italy

Aim: the present study aims to evaluate the share of bone gained as a result of mini sinus lift with simultaneous implant insertion; to analyze the final entity of peri-implant bone on the alveolar site and to demonstrate that the technique of the mini sinus lift even if performed without the use of filler materials.

Methods: the sample implants consisted of 1500 units from USL Umbria1 offices of Gubbio and Marsciano. Of these, 15% (225 implants), were treated with the mini sinus lift procedure. The study was carried out retrospectively, doing measurements on digital orthopanoramic radiographies, carried out before and after the surgery. Preoperative bone height (T0) was measured mesially and distally to the implant placement site, respectively referred to as MHT0 and DHT0. Postoperative bone height (T1) was measured tangent to the mesial (MHT1) and distal (DHT1) margins of the implant itself. Once the measurements of MHT0, DHT0, MHT1, DHT1 were obtained, their difference on the mesial and distal site was calculated through this formula: MHT1 – MHT0) + (DHT1 – DHT0)/2.

Results: the floor of the maxillary sinus has been increased by a height average of 2.5 mm (range: 2.1 to 2.9 mm). The peri-implant marginal bone was stable, with a mean follow-up of 48 months (range: 24 to 72 months). The implant success rate of the implants analyzed in this study is 98%.

Conclusions: mini sinus lift is a generally safe and effective procedure with a high rate successful implants and a good amount of bone augmentation achieved, accompanied by a low complication rate.

EVALUATION OF THE IMPACT OF ANTIRESORPTIVE DRUGS ON PERI-IMPLANT BONE LOSS IN PATIENTS WITH OSTEOPOROSIS: RETROSPECTIVE STUDY

Russo G, Crupi A, Dalmasso L, Saba M, Lanzetti J, Carlucci G, Ambrogio G, Gibello U, Pera F

Department of Surgical Sciences, Division of Implant and Prosthetic Dentistry, University of Turin, Turin, Italy

Aim: this pilot study investigates how antiresorptive drugs such as bisphosphonates and denosumab affect the stability of dental implants in osteoporotic patients. Considered conditions include postmenopausal osteoporosis, Paget's disease, osteogenesis imperfecta, and cancer-related osteoporosis. Primary outcomes are the assessment of Marginal Bone Loss (MBL) and the risk of Medication-Related Osteonecrosis of the Jaw (MRONJ).

Methods: clinical data on peri-implant bone loss were collected through MBL analysis using intraoral radiographs. Implant survival was assessed via Probing Depth (PD), Bleeding on Probing (BOP), Plaque Index (PI), and MRONJ occurrence. Follow-ups were scheduled at baseline, 3, 6, and 12 months.

Results: a significant variability in MBL was observed among patients under antiresorptive therapy. Those treated with denosumab (e.g., Xgeva, Prolia) generally showed MBL <1 mm. Patients on bisphosphonates (e.g., alendronate, zoledronate) had average MBL values between 0.6-1.5 mm, though some exceeded 2 mm. Most implants remained stable; no MRONJ cases were detected during follow-up. MBL appears influenced by the drug type, administration route, and therapy duration.

Conclusions: the data highlights the importance of specific guidelines for implant procedures in patients undergoing antiresorptive therapy. Ongoing follow-up may provide further insight to support clinical decision-making and ensure safer outcomes.

ESTHETIC COMPARISON OF PRE-EXISTING NATURAL TOOTH *VERSUS* IMMEDIATE SINGLE IMPLANT-RESTORATION IN THE ANTERIOR MAXILLA: A RETROSPECTIVE 5 TO 8 YEARS FOLLOW-UP

D'Alba L, Signoriello A, Gualtieri M, Corrocher G, Lombardo G

Dentistry and Maxillo-Facial Surgery Unit, Department of Surgery, Dentistry, Paediatrics and Gynaecology (DIPSCOMI), University of Verona, Verona, Italy

Aim: the objective of this study was to assess the stability and esthetics of peri-implant soft and hard tissues following tooth extraction and immediate implant placement in the anterior maxilla.

Methods: the study involved 21 patients, including 6 men and 15 women, each presenting with a failing maxillary incisor. All patients underwent immediate implant placement using a locking taper connection with a sloping shoulder. Radiographic evaluations were conducted at three times: T0 (before extraction), T1 (12 months after placement), and T2 (71 months after placement, ranging from 46 to 96 months). The clinical parameters recorded included the Pink Esthetic Score and White Esthetic Score (PES/WES), hard tissue level, and implant success criteria. Data was collected and analyzed using Microsoft Excel 365 and StataCorp software.

Results: a total of 21 dental implants were placed in the maxillary anterior region, distributed among 1 canine, 6 central incisors, and 14 lateral incisors. All implants were immediately placed following extraction. The mean distance from the cementoenamel junction of the adjacent tooth to the implant abutment connection was 4.52±1.18 mm. At the follow-up survival rate and success rate was respectively 95,45% and 66,67%. The mean total PES/WES score of the pre-existing tooth at T0 was 15.32±2.92 (range: 9 to 20), at T1 was 16.03±3.35 (range: 9 to 20), and at T2 was 16.14±2.92 (range: 10 to 20).

Conclusions: immediate implant placement with a locking-taper connection demonstrated reliable clinical and esthetic outcomes over the long term in the replacement of single teeth in the maxillary esthetic zone.

STABILIZATION OF THE LOWER DENTURE THROUGH THE USE OF FINE MINI-IMPLANTS: RETROSPECTIVE STUDY

Di Giovenale A[1], Botticelli G[2], Caporaletti L[1], Falisi G[2], Pizzolante T[2], Rastelli S[2], Gerardi D[2,3], Severino M[1]

[1]Section of Odontostomatologic Surgery, University of Perugia, Perugia, Italy
[2]Department of Life, Health and Environmental Sciences, University of L'Aquila, L'Aquila, Italy
[3]Department of Innovative Technology in Medicine and Dentistry, University G. d'Annunzio Chieti-Pescara, Chieti, Italy

Aim: the purpose of this retrospective work is to evaluate the survival rate of mini implants (THE EASY IMPLANT MACO) to stabilize the total prosthesis in patients affected by mandibular atrophy.
Methods: twenty-five patients (average age: man 74,5 and women 71,5) were evaluated according to a clinical and radiographic protocol with a 24-month follow-up. The selected subjects underwent implant surgery using 4 mini-implants had a length of 10 mm, a diameter of 2 mm, and a monolithic spherical connection in the interforaminal area. In the same session, the patients' prostheses were stabilized through o-ring attacks. Follow-up included periodic visits with radiographic checks to assess implant response over time. Repeated measures ANOVA with time (T0, T1, and T2) as a within-subjects factor and Bone Quality (D1, D2, D3/D4) as a between-subjects factor was performed, with a statistical significance $p < 0.05$.
Results: the success rate was higher in patients with D1 and D2 interforaminal bone quality. Four subjects had a D1 quality, 14 had a D2 quality and 7 had a D3 quality. No statistical significance was found among these groups. Regarding the interaction between time and bone quality, significant differences between D1-T2 and D3-T2, D2-T2 and D3-T2, D1-T3 and D2-T3 ($p < 0.001$). A strong effect of bone quality as a factor was found among subjects with $p < 0.001$.
Conclusions: the technique provides for the immediate stabilization of removable prostheses with minimal economic and biological costs, offering a valid alternative to implant-supported prostheses.

MONITORING IMPLANT STABILITY: VARIATIONS THROUGH HEALING AND METHODOLOGICAL COMPARISONS

Castellini A, Lumetti S

University of Parma

Aim: Resonance Frequency Analysis (RFA) is a non-invasive method used to assess the stability of a dental implant by measuring frequency (kHz) at which it vibrates with the greatest amplitude, denoting the stiffness of the bone-implant interface. RFA is converted into the Implant Stability Quotient (ISQ), numerical scale that ranges from 1 to 100. Unlike the Insertion Torque (IT), RFA is a repeatable method over time. This study aimed to evaluate the osteointegration of Straumann BLX Implants using the OSSTELL beacon device by measuring ISQ at two distinct time points: at implant insertion and at the time of definitive prosthetic impression taking. The study had also the purpose of analyzing the correlation between ISQ value at insertion and at impression with the initial IT.
Methods: nine patients receiving eighteen BLX Straumann dental implants were consecutively recorded. At the time of implant placement, the IT was filed and the initial ISQ value was measured using the OSSTELL device. A second ISQ measurement was done when implants were deemed ready for definitive impressions.
Results: the mean ISQ value at implant placement increased from 63.72±2.97 to a weighted mean at definitive impression taking of 67.21±3.48, despite the presence of outliers in a patient. A positive correlation was found between initial IT (37,72±4,85) and ISQ value at implant insertion and at the time of definitive impression.
Conclusions: ISQ value correlates with IT although not linearly. It provides additional information on the quality of osseointegration and long-term stability.

SURGICAL PERI-IMPLANTITIS RECONSTRUCTIVE THERAPHY: 5-YEAR FOLLOW-UP

Runco A, Signoriello A, Gualtieri M, Mottaran S, Lombardo G

Dentistry and Maxillo-Facial Surgery Unit, Department of Surgery, Dentistry, Paediatrics and Gynaecology (DIPSCOMI), University of Verona, Verona, Italy

Aim: to evaluate the 5-year clinical and radiographic outcomes of peri-implantitis intrabony non-contentive defects treated with surgical reconstructive protocol.

Methods: the treatment was performed on 18 patients and 21 implants in both arches. The surgical protocol included: (I) exposure of the peri-implant bone defect, (II) decontamination of the implant surface using a desiccant agent based on polysulfonates and an abrasive spray based on sodium bicarbonate, (III) filling of the defect with a self-hardening composite graft made of a mixture of bovine deproteinized bone and biphasic calcium sulfate, without the use of membranes, ensuring a trans-gingival healing around the prosthesis or healing screw.
At the 5-year follow-up after surgery, implant survival, treatment success, parameters related to soft tissues: PPD (Probing Pocket Depth), CAL (Clinical Attachment Level), BOP (Bleeding on Probing), mBI (modified Bleeding Index), mPLI (modified Plaque Index), SUPP (Suppuration), REC (Recession) and KT (Keratinize Tissue); and bone level parameters: F-BIC (First Bone Implant Contact), CBL (Crestal Bone Level), BDD (Bottom Defect Depth), FILLING DEFECT and FILLING ANGLE were evaluated.

Results: implant survival and success were 93,7% and 56,3%, respectively. There was a significant reduction in inflammation of the peri-implant soft tissues and PPD, CAL, mBI, and KT. There was a significant increase in mucosal recession and bony defect filling, while a slight crestal bone resorption was noted.

Conclusions: based on the results on 5-year-follow-up have proven to be predictable in terms of survival, success, soft tissue health, and stability of peri-implant bone levels. Further investigations, larger patient sample, a longer follow-up period and materials comparison needed.