

Epikut

SCIENTIFIC DENTAL JOURNAL



Smiles are the preeminent expression of the happiness we share in special moments with those we love, but they also represent gratitude respect, and many times, the result of a continuous work.

At S.I.N. Implant System, we believe that the smile of each of our partners help generate even more unique smiles.

Our purpose is to build this a ective and virtuous cycle, in which the smile is the biggest and most universal expression of joy.

That is why, for the coming years, we will live by this philosophy even more intensely:

S.I.N. Creating Smiles.



Watch our movie.





Epikut

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AUTHORS:

DR. FÁBIO JOSÉ BARBOSA BEZERRA

Specialist in Implant Dentistry INEPO - SP. Master in Periodontics UNIP - SP. Doctoral student in Biotechnology/IBB - UNESP Botucatu, Director of the Research & Product Development Department of S.I.N. Implant System. Author of 5 books, 18 book chapters, and more than 60 articles published in scientific journals. Dr. Bezerra has also given lectures in 16 countries, so far.

DR. BRUNA GHIRALDINI

Ph.D. in Implant Dentistry - Paulista University, MBA Business Management - Getúlio Vargas Foundation. Master in Periodontics - Paulista University. Specialist in Periodontics - Paulista University. Postgraduate in Implant Dentistry - INEPO. Postgraduate in aesthetics - SOESP. Coordinator of the Research and Product Development Department - SIN.

DR. ROBERTO SALES E PESSOA

Specialist in Periodontics ABO/EAP - Uberlândia; Master in Oral Rehabilitation - FOUFU - Uberlândia; Ph.D. in Periodontics/Implant Dentistry - FOA/UNESP - Araraquara; Post-Doctorate in Biomechanical Engineering - FEMEC/UFU - Uberlândia; Research Fellow - BME - Biomechanical Section - KULeuven - Belgium; Professor of Periodontics/Implant Dentistry - Centro Universitário do Triângulo Mineiro - UNITRI - Uberlândia-MG.

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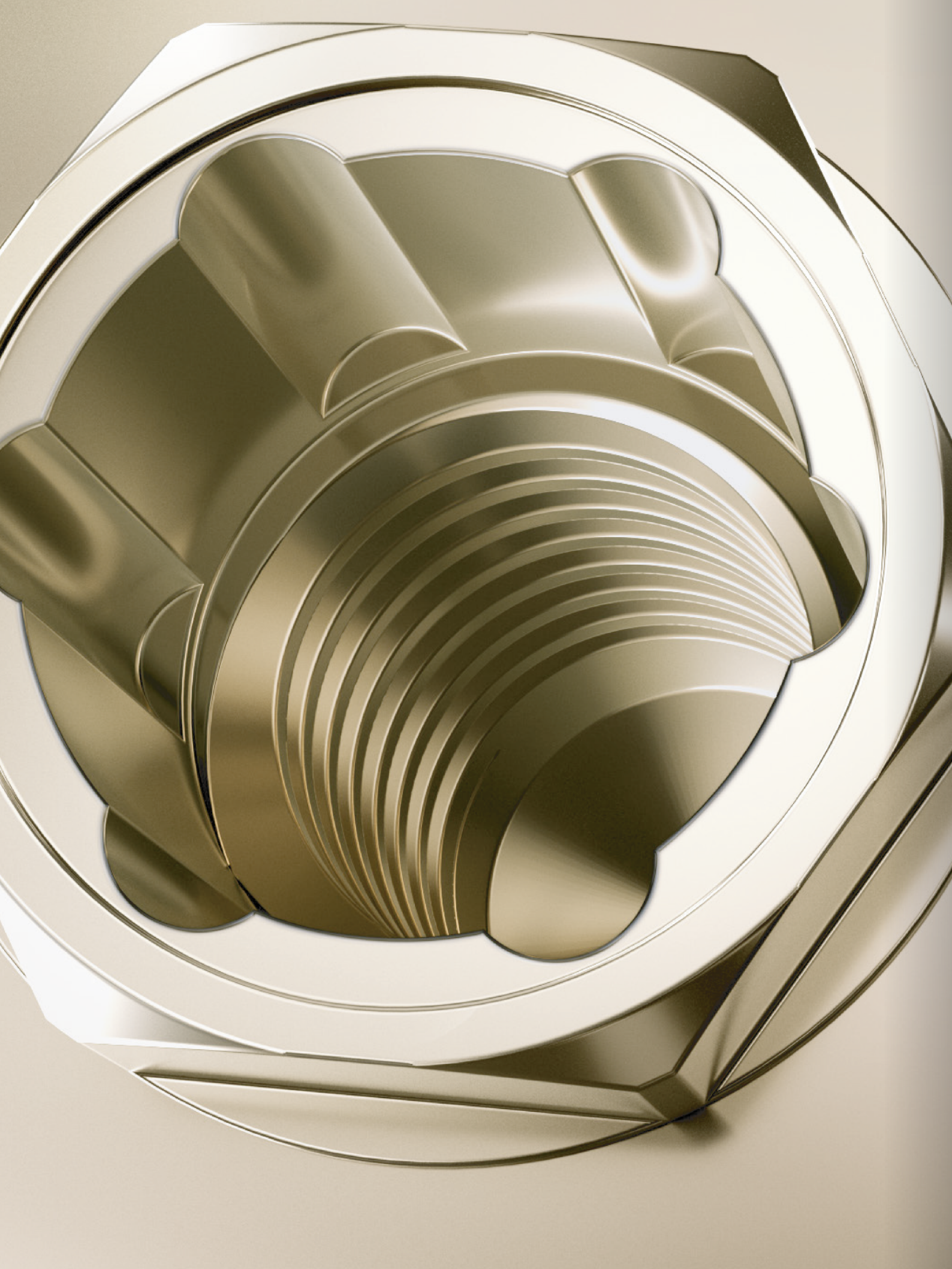
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EDITORIAL

We are delighted to introduce the Epikut and Epikut Plus implant line, from S.I.N. Implant System, one of the biggest global providers of implant dentistry solutions.

This new product line was developed with an original, innovative, and strong scientific foundation to raise the clinical level of difficult treatments like immediate loading, implant placement in post-extraction alveoli, and low-density bone, particularly in esthetic areas, with clinical and scientific validation adhering to best practices outlined by the literature and competent regulatory agencies like ANVISA, CE, and FDA.

In addition to having its surgical kit, which is small, innovative, and deceptively straightforward, it also has the clinical versatility necessary for the treatment of single, partial, and complete cases with high performance and ease of clinical use. These two versions of prosthetic coupling are Morse Taper and External Hexagon.

The Epikut line provides the security of a moderately rough surface produced by a double thermal acid etching, a process that is exclusive and patented by S.I.N. Implant System, while the Epikut Plus line improves this surface with a homogeneous bioactive nano-coating that is 20 nanometers thick, making this implant state-of-the-art in terms of biological response, healing acceleration, and osseointegration quality.

We would like to express our profound gratitude to all the academic institutions, researchers, S.I.N. ambassadors, and medical specialists who took up the challenge of developing an epic product with distinctive clinical and scientific differentiators.

We sincerely hope you enjoy this new product so that we can still work together in the future to further raise the standard of living for those we assist in the more than 25 nations in which we are currently active.

Best Regards.

Prof. Dr. Fábio Bezerra

Global Director of Research and Development Department S.I.N. Implant System.

BACKGROUND & DEVELOPMENT

The Research and Development Department at S.I.N. Implant System adheres to the strictest scientific and clinical standards recommended by the world's top regulatory organizations, including ANVISA, FDA, and CE, when creating new products that can provide dental professionals and their patients with advantages such as safety, efficacy, predictability, and high performance.

Following a dichotomous scientific hierarchy, the entire process of product conception, development, validation, and regulatory approval occurs before the products are commercially released. Development processes only advance if they produce excellent levels of scientific results as determined by stringent criteria of scientific literature, normative standardization (ISO), and Good Manufacturing Practices (GMP). In order to accomplish this, all processes begin with in vitro studies, such as biomechanical tests like Finite Element Analysis (FEA) or Accelerated Fatigue tests, as well as molecular and cellular analyses, such as Signal Transduction, which are predictive tests that avoid or reduce the use of animals in the early stages of development. Regulatory bodies demand animal testing for some items, and when this is essential, it is done in accordance with the standards set by CONCEA (National Committee of Animal Protection) and DBCA (Brazilian Directive for the Care and Use of Animals for Scientific and Didactic Purposes).

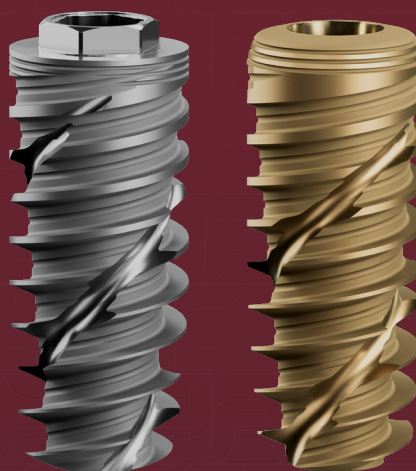
After these stages are completed, controlled clinical studies are started and governed by regulatory bodies both domestically and internationally. These studies also need the prior consent of Research Ethics Committees (CEP) registered in the Brazilian Platform.

Following this development hierarchy, we produce scientific knowledge, modify the usability of products,

and ensure their clinical efficacy at global standards. We continuously strive for excellence and a strong scientific foundation in prospective longitudinal randomized studies with control groups or reliable systematic reviews.

In light of this, we developed the newest implant line from S.I.N. Implant System: Epikut and Epikut Plus (HANano surface), the state-of-the-art for implants with high primary stability, primarily indicated for difficult clinical scenarios like immediate loading, post-extraction alveolar, and low-density bone.

This implant is clinically adaptable and yields outstanding outcomes thanks to its distinctive design, two prosthetic platforms (Morse Cone and External Hexagon), and two surface alternatives (Double Acid Etching (DAE) or HANano).



THE IMPACT OF BIOACTIVE SURFACES IN THE EARLY STAGES OF OSSEOINTEGRATION: AN IN-VITRO COMPARATIVE STUDY EVALUATING HANANO® AND SLACTIVE® HYDROPHILIC SURFACES.

BIOMED RESEARCH INTERNATIONAL

Rodrigo A. da Silva^{1,2,3}, Geórgia da Silva Feltran¹, Marcel Rodrigues Ferreira¹, Patrícia Fretes Wood¹, Fabio Bezerra¹ and Willian F. Zambuzzi

¹ Lab. of Bioassays and Cellular Dynamics, Department of Chemical and Biological Sciences, Institute of Biosciences, UNESP-São Paulo State University, 18618-970, Botucatu, São Paulo, Brazil

² School of Dentistry, University of Taubaté, 12020-340, Taubaté, São Paulo, Brazil

³ Program in Environmental and Experimental Pathology, Paulista University, São Paulo, 04026-002 São Paulo, Brazil.

The development of innovative active surfaces to quicken osseointegration is becoming more and more popular. One such surface is the covering of nano-sized crystalline hydroxyapatite (HANANO®). The data set was contrasted with SLACTIVE®, a titanium surface treated with sandblasting, in order to better understand the biological behavior of osteoblasts cultivated on the HANANO® surface. According to the methodology, osteoblasts were cultivated on both surfaces for up to 72 hours in order to evaluate cell adherence, viability, and the set of genes encoding proteins linked to adhesion, proliferation, and differentiation. Our results demonstrate that HANANO® have an interesting substrate to promote cell adhesion with cells that normally have a spreading morphology, whereas cells adhered to SLACTIVE® have a fusiform morphology. Our research shows that the cell adhesion mechanism was associated with an upstream expression of B1

integrin, Fak, and Src, favoring the assembling of focal adhesion platforms and coupling cell cycle progression (upmodulation of Cdk2, Cdk4, and Cdk6 genes) in response to HANANO®.

Additionally, via activating the Runx2, Osterix, and Alp genes, both bioactive surfaces promoted the differentiation of osteoblasts. Although Rankl gene expression was stimulated by both surfaces, Opg gene expression was higher on SLACTIVE®, and this difference was mirrored in the Rankl/ Opg ratio.

Finally, the Caspase gene was significantly upmodulated in response to HANANO®, suggesting a participation of the inflammasome complex. Collectively, this study provides enough evidence to confirm that the nanohydroxyapatite-coated surface provides the necessary microenvironment to drive osteoblast performance on dental implants and these stages of osteogenesis are expected during the early stages of osseointegration. ■



FULL ARTICLE

FAILURE MODES AND SURVIVAL OF ANTERIOR CROWNS SUPPORTED BY NARROW IMPLANT SYSTEMS.

BIOMED RESEARCH INTERNATIONAL

Edmara T.P. Bergamo¹, Everardo N.S. de Araújo-Júnior¹, Adolfo C.O. Lopes¹, Paulo G. Coelho², Abbas Zahoui¹, Ernesto B. Benalcázar Jalkh¹, Estevam A. Bonfante¹

¹ Department of Prosthodontics and Periodontology, Bauru School of Dentistry - University of São Paulo, Bauru 17012-980, Brazil.

² Department of Biomaterials and Biomimetics New York University College of Dentistry, Department of Biomedical Engineering New York University Tandon School of Engineering Brooklyn, Hansjörg Wyss Department of Plastic Surgery New York University Grossman School of Medicine, New York City 10010, NY, USA.

The successful functional, biological, and esthetic outcomes of the rehabilitation can be influenced by the recommendation of small diameter systems ($3,0 \leq \varnothing < 3,75$ mm). After four years of clinical follow-up, narrow implants have similar survival rates to conventional diameter implants, at about 95%. Although narrow implant systems have a high survival rate, it is still advisable to be cautious with their use because both, the implant and prosthetic components, may be prone to wear and, ultimately, fracture.

Using a laboratory fatigue test that is effective at simulating clinical failures modes, known as the Step-Stress Accelerated Life Testing (SSALT), this study assessed the biomechanical performance of newly developed implant systems, whose macrogeometry is composed of a reduced tapered body and neck diameter, as well as deeper threads and wider thread pitch. In order to do this, three implant systems with reduced diameter internal tapered connections were assessed ($\varnothing = 3,5$ mm x 10 mm) (n=18/system): (i) Active (Nobel Biocare), (ii) Epikut (S.I.N. Implant System) and (iii) BLX (Straumann).

Abutments were torqued to the implants, and standardized maxillary incisor crowns were cemented. The assemblies were subjected to step-stress accelerated life testing (SSALT) through load application over the incisal edge in the palatovestibular direction, at a 30-degree angulation, using a flat tungsten carbide drill until fracture or suspension (maximum load 500 N).

The Weibull distribution and the inverse power law were used to assess failure data using the cumulative damage model and the life-stress relationship. Calculations and plots were made to determine whether the implant systems would survive for a set mission of 100.000 cycles at tensions of 80 N and 120 N, which are compatible with the masticatory stress on the anterior region. Both the characteristic resistance—a load in which 63,2% of the samples would fail—and the Weibull modulus—a parameter that

assesses the variation of resistance in relation to the presence of defects—were calculated and graphically shown. To compare the three systems' modes of failure, the fractured samples were examined under a stereomicroscope.

According to the analysis of the failure data, all narrow implant systems would show a high probability of survival ($\geq 95\%$, confidence interval-CI: 85-100%) after a mission of 100.000 cycles at 80 and 120 N, with no statistical difference between them. The characteristic strength of Active was 271 N (CI: 260-282 N), Epikut was 216 N (205-228 N) and BLX was 275 N (264-285 N).

The data suggested a good reliability for the proposed geometry if we take into account the maximum masticatory force reported for the anterior region, 200 N, as the characteristic strength of all systems was above the reference value. The Weibull modulus for the reduced platform implants tested ranged from 6 to 14, which is consistent with results previously obtained for a number of implant systems when subjected to fatigue. This finding also suggests a homogeneous failure distribution and, as a result, satisfactory structural reliability (defect distribution) for all implants tested.

Although no narrow implants fractured, the failure mode was primarily characterized by abutment and/or abutment screw fracture. The favorable biomechanical behavior of internal tapered connections may be related to the high level of stress to fracture and predominate failure of the prosthetic component, even in narrow platform systems, in which the larger implant-abutment contact area reduces micromotion at the interface and favors stress distribution over the long implant axis, protecting the rehabilitation from mechanical overload. In conclusion, narrow implant systems demonstrated great reliability for physiological chewing forces in the anterior region, with failures being limited to abutment and abutment screw fracture. Prospective clinical studies should be conducted to evaluate the biomechanical performance of these new systems in the long term. ■



FULL ARTICLE

THE INFLUENCE OF NANOSTRUCTURED HYDROXYAPATITE SURFACE IN THE EARLY STAGES OF OSSEOINTEGRATION: A MULTIPARAMETER ANIMAL STUDY IN LOW-DENSITY BONE.

INTERNATIONAL JOURNAL OF NANOMEDICINE

Suelen Cristina Sartoretto^{1,2}, Jose de Albuquerque Calasans-Maia³, Rodrigo Figueiredo de Brito Resende⁴, Eduardo Câmara², Bruna Ghiraldini⁵, Fabio José Barbosa Bezerra⁶, Jose Mauro Granjeiro^{2,8}, Monica Diuana Calasans-Maia⁴.

¹Oral Surgery Department, Universidade Veiga de Almeida, Rio de Janeiro, RJ, Brazil; Oral Surgery Department, Universidade Iguazu, Nova Iguaçu, RJ, Brazil

²Post-Graduation Program in Dentistry, Universidade Veiga de Almeida, Rio de Janeiro, RJ, Brazil;

³Orthodontics Department, Dentistry School, Universidade Federal Fluminense, Niterói, RJ, Brazil;

⁴Oral Surgery Department, Universidade Federal Fluminense, Niterói, RJ, Brazil;

⁵Dental research Division, Dentistry School, Universidade Paulista, São Paulo, SP, Brazil;

⁶Laboratory of Bioassays and Cell Dynamics, IBB-UNESP, Botucatu, Brazil.

Dental implantation in partial or complete edentulous patients is a predictable treatment with high rates of long-term success; however, early osseointegration is still considered a challenge in areas with the most trabeculated bone (bone type IV) together with lower-density and thinner cortical bone, which is generally considered less suitable for supporting dental implants.

In recent years, new implant-surface technologies with micro to nanotopography, chemical compositions, loading protocols, and new surgical procedures have been introduced to improve osseointegration and reduce treatment time, allowing immediate or early functional loading in patients with reduced bone density.

Mechanical, chemical, and physical methods have all been researched to enhance the surfaces of dental implants. Because calcium phosphate is identical to the mineral component of bone tissue and has a sufficient

capacity for cell adhesion, it has been widely used as a bone substitute, dental implant covering, and carrier of proteins, growth factors, and antimicrobials. Due to its biocompatibility, safety, predictability, infinite availability, lower patient morbidity, and cost-benefit, hydroxyapatite in particular has been chosen among calcium phosphates. These features offer important benefits and make it a good choice for dental implant surface coatings.

The use of nanostructured hydroxyapatite when coating titanium-implant surfaces, increases the strength of the bond between titanium and bone, enhances the rate of osseointegration, and reduces the length of the treatment period, especially in patients whose bone quality is poor.

There is a steady growth in research for the creation of innovative bioactive surfaces to reduce the osseointegration period in low-density bone. This study sought to compare the bone response of HAnano® (S.I.N. Implant System, São Paulo, Brazil) with known hydrophilic surfaces such as SLActive® (Straumann, Basel, Switzerland) and TiUnite® (Nobel Biocare, Gothenburg, Sweden) by histomorphometric analysis of Bone-to-Implant Contact (BIC) and Bone Area Fraction Occupancy (BAFO) in a low-density bone ovine iliac crest model. ■



FULL ARTICLE

IMMEDIATE POST-EXTRACTION IMPLANT PLACEMENT IN MOLAR REGION USING A NEW IMPLANT WITH THE INTRARADICULAR PREPARATION TECHNIQUE AND ALVEOLAR PRESERVATION.

JOURNAL OF MULTIDISCIPLINARY DENTISTRY

Sérgio Henrique Lago Martins¹, Gustavo Henrique Apolinário VIEIRA¹, Fabio Jose Barbosa Bezerra, Bruna Ghiraldini, Sérgio Luís Scombatti de Souza

¹Departamento de Cirurgia e Traumatologia Buco-Maxilo-Facial e Periodontia, Faculdade de Odontologia de Ribeirão Preto, Universidade de São Paulo.

Fabio Jose Barbosa BEZERRA <https://orcid.org/0000-0003-0330-2701>

Bruna GHIRALDINI <https://orcid.org/0000-0002-3693-3035>

Sérgio Luís Scombatti de SOUZA <https://orcid.org/0000-0002-6199-7348>

Extraction in posterior teeth tend to be neglected because they are not in an aesthetic area, causing more tissue loss after the extraction. The resorption of residual tissues is significantly decreased by adopting immediate procedures, enabling improved stability in implant-supported rehabilitations with regard to the height of the gingival margin, and preventing overcontoured prosthetic crowns. Immediate placement associated with bone grafting may be a practical choice for preserving bone architecture. Thus, the purpose of this report is to outline the benefits of adopting a new implant with advantageous macro and nanostructures for immediate placement in a clinical case in the posterior region of the mandible. A 42-year-old female patient with no systemic involvement came to the dental clinic for rehabilitation of tooth 46 with a dental implant due to coronal damage.

An implant with high primary stability (Epikut Plus®, S.I.N. Implant System, So Paulo, Brazil) was chosen, along with a xenogenous bone graft gap filling, and the alveoli were sealed with a customizable thermoplastic organic polymer healing cap. A good tissue healing and a gain of keratinized tissue were observed in the postoperative area after 30 days. Perfect tissue maintenance was evident in the 2-month post-operative control, allowing quality gingival tissue for peri-implant mucosa conditioning during the provisionalization period. After 3 months of treatment, periapical radiography was requested, and a screw-retained prosthesis was done over the implant. The implant's appropriate features allowed the use of an immediate technique after the extraction, with optimal primary stability provided by the macrogeometry, and early bone formation due to the nanostructured surface. This combination of elements made it possible to complete a successful oral rehabilitation in a short period of time. ■



FULL ARTICLE

NEW IMPLANT CONCEPT FOR HIGH PRIMARY STABILITY IN LOW-DENSITY BONE AND POST-EXTRACTION ALVEOLI.

IMPLANTNEWS - ORAL REHABILITATION FROM A TO Z

Nelson R. F. A. Silva¹, Felipe Moura Araújo², Roberto Sales e Pessoa³, Mônica Diuana Calasans-Maia⁴, Bruna Ghiraldini⁵, Fábio J. B. Bezerra⁶.

¹Master and PhD in Prosthetics - FOB-USP; Post-Doctoral in Biomaterials - NYU; Associate Professor, Dept. of Restorative Dentistry - School of Dentistry, UFMG. Orcid: 0000-0002-9876-6017.

²PhD student in Implant Dentistry - University of Guarulhos; Coordinator of the specialization course in Implant Dentistry - ABO/SP and ETEC/MG. Orcid: 0000-0001-6160-9512.

³PhD in Periodontics and Implant Dentistry - FOAr/Unesp; Professor of the Dept. of Periodontics and Implant Dentistry - University of Triângulo Mineiro. Orcid: 0000-0003-1763-3691.

⁴Specialist and MSc in CTBMF - UFRJ; PhD in Pathology and Associate Professor of the Minor Oral Surgery Dept - Universidade Federal Fluminense. Orcid: 0000-0001-5759-7926.

⁵Doctor in Implant Dentistry - Unip; Coordinator of the Research and Development Department - S.I.N. Implant System. Orcid: 0000-0002-3693-3035.

⁶PhD in Biotechnology - Institute of Biosciences/Unesp; Director of the Dept. of Research and Development - S.I.N. Implant System. Orcid: 0000-0003-0330-2701.

Objective: This article proposes a new implant with specific characteristics for difficult clinical cases.

Material and Methods: All implants were placed by specialists who had at least ten years of previous

experience, adhering to the manufacturer's instructions. Data collection involved filling out a form with information about the patients' gender, age, implant placed type, alveoli type (fresh or healed), use or not of simultaneous bone grafting, trans- or postoperative complication, clinical or x-ray scan alterations, and bone-integration obtaining. Two representative cases were photographed and presented.

Results: In total, 161 implants (109 MT, 52 EH; diameters: 3.5 mm - 4.5 mm, lengths: 10-13 mm) were placed in 91 patients (68% male, 32% female, 50 years old on average), with 65% of the implants in post-extraction alveoli and 53% associated with intra-alveolar grafts. The mean insertion torque was 45 N.cm, allowing immediate loading when clinically indicated. The overall survival rate was 99.37%.

Conclusion: within the limitations of this study, the cases presented suggest the efficiency of using this new implant for cases of low-density bone or when immediate loading is indicated. ■



CLINICAL CASES

IMMEDIATE REPLACEMENT OF A POORLY POSITIONED IMPLANT



BY DR. FAUSTO FRIZZERA

Master's Degree and Post-Doctoral in Periodontics from FOAr-Unesp; Doctor in Implantology by FOAr-Unesp; Professor of Periodontics and Implantology at FAESA; Author of the book "Estética Integrada em Periodontia e Implantodontia" (Integrated Esthetics in Periodontics and Implantology).

CASE INTRODUCTION

The positioning of the implant is essential for long-term success. Implant placing mistakes can result in changes to the bone and mucosa tissue's esthetic or functionality, as well as hygiene and rehabilitation difficulties.

EXPLANATION OF THE TREATMENT

The implant, which had previously been placed in the 36 region, was submerged. The radiograph showed a change in positioning as well as a peri-implant bone loss. A full flap was performed and thus confirmed the implant malposition with suppuration. The implant was removed using a ratchet wrench with manual reverse torque. Cutting drills were used to prepare a new surgical bed, and a 4.5x10 mm implant (Epikut) was immediately placed with a torque of 50 N.cm. The existing bone defect was filled with biomaterial, a healing cap placed, and the flap was sutured with 5-0 nylon thread.

Restorative procedure performed by Dr. Bianca Vimercati.

PATIENT'S MEDICAL RECORD

61 years old, female patient.

Chief Complaint: tooth missing in region 36, implant had been placed at the same time of the extraction.

Anamnesis: no systemic changes.

Planning: removal of a poorly positioned implant and immediate placement of a new implant with bone reconstruction.

BEFORE



1

A variation in positioning (mesio-distal and cervico-apical) and peri-implant bone loss were detected, according to the x-rays.

DURING



2

A full flap was performed and thus confirmed implant malposition with suppuration.

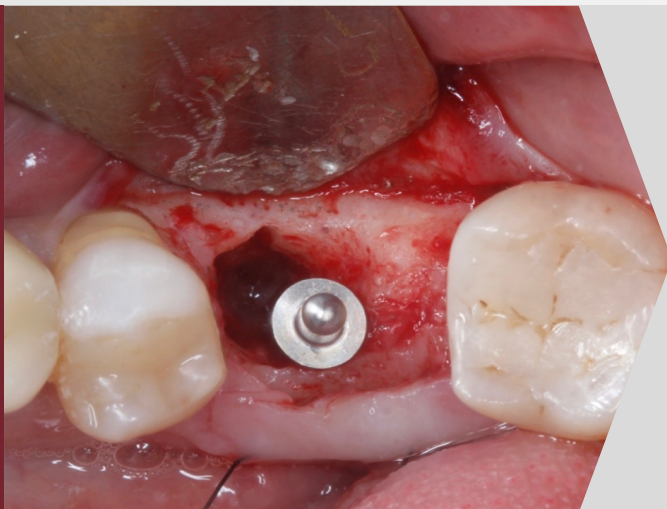
DURING



3

The implant was osseointegrated and was removed using a ratchet wrench with manual reverse torque. A new surgical bed was prepared with cutting drills.

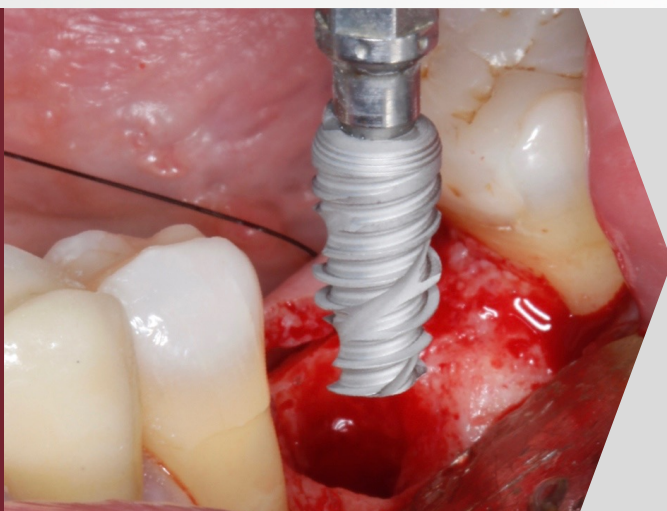
DURING



4

Evaluation of the positioning after drilling with parallelism pins.

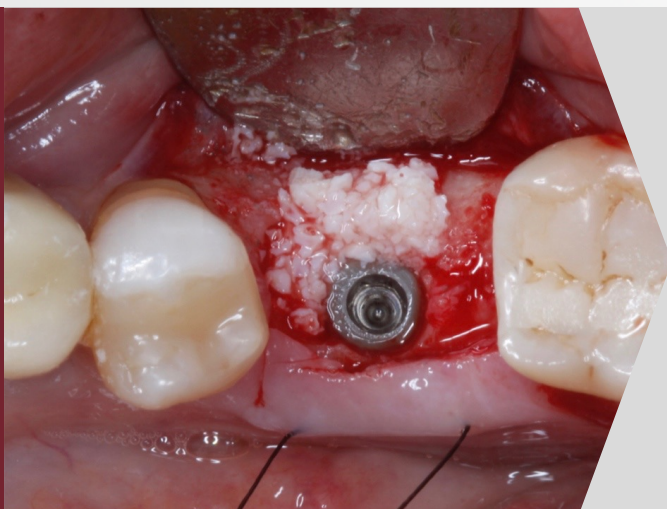
DURING



5

Immediate placement of a 4.5x10 mm Epikut implant was performed with a torque of 50N.cm.

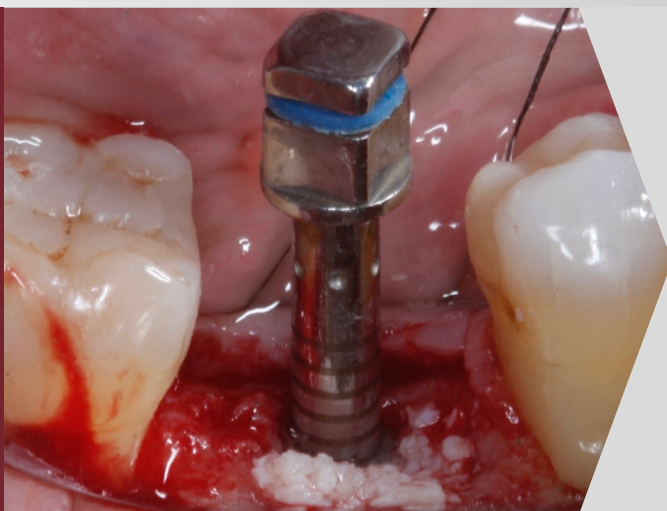
DURING



6

Appearance after implant placement and bone regeneration.

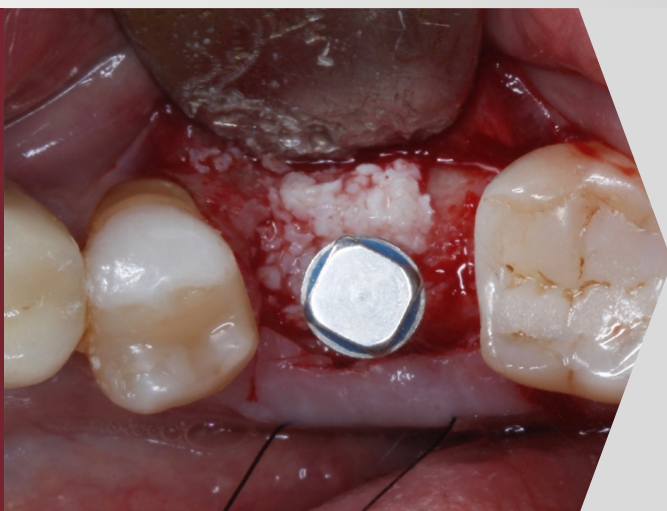
DURING



7

*Ratchet wrench
in position to
demonstrate
mesio-distal and
cervico-apical
positioning.*

DURING



8

*Ratchet in
position to
demonstrate
mesio-distal and
bucco-lingual
positioning.*

DURING



9

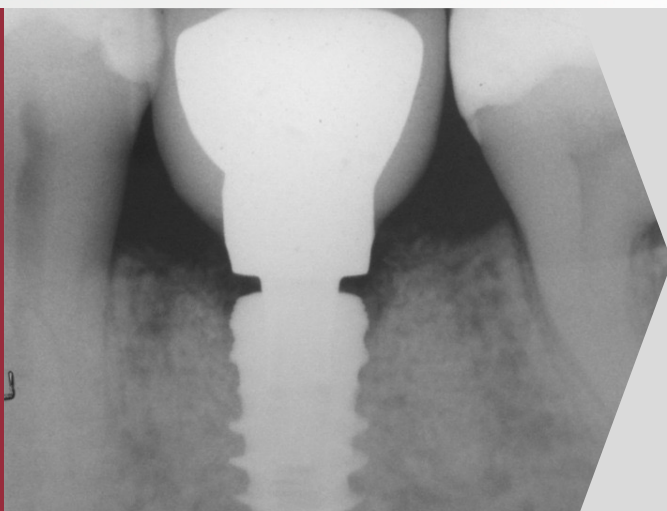
*Final appearance
after healing cap
filling and flap
suturing, one
surgical stage.*

DURING

**10**

Confection and capture of provisional, for gingival reconditioning.

AFTER

**11**

X-ray with definitive crown in position. Rehabilitation case completed.

AFTER

**12**

Final crown in position. Rehabilitation case completed. Prosthetic rehabilitation conducted by Dr. Bianca Vimercati.

ABSENCE OF THE CENTRAL INCISOR



BY DR. FELIPE MOURA

Master's degree, specialist in Implantology; PhD student in implantology; Coordinator of Master's course in implantology at Abo São Paulo; Coordinator of Master's course in implantology at Arnaldo College in Belo Horizonte.

CASE INTRODUCTION

The absence of an anterior tooth requires careful planning and management. We know that the non-preservation of alveolar bone over time causes significant bone atresia, and in borderline cases, it is essential to use distal resources, such as CT scans and guided surgery, to ensure the correct three-dimensional positioning of the implant.

EXPLANATION OF THE TREATMENT

We planned and performed guided surgery in the region of the 21st in a healed alveolus. We performed the incision and flap to associate GBR technique. The guide was positioned and the implant was placed with 60N.cm. Then, we finished with GBR technique to minimize the esthetic defect, placing a provisional crown with resorbable suture.

PATIENT'S MEDICAL RECORD

21 years old, Male Patient.

Chief Complaint: missing tooth, affecting esthetics.

Anamnesis: no systemic changes.

Planning: guided surgery to place implant, through GBR technique and provisional for immediate esthetics.

BEFORE

**1**

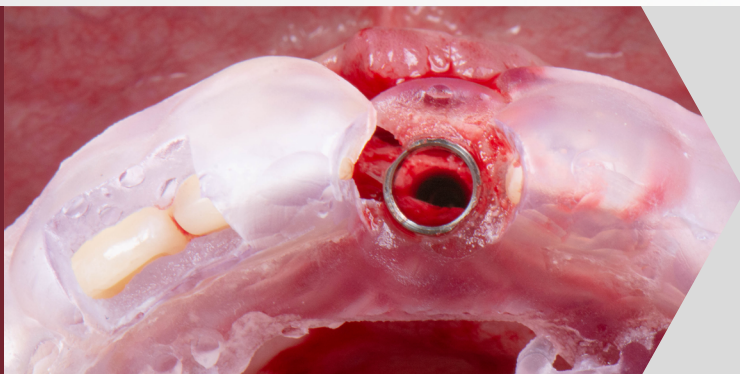
Initial condition,
with absence of 21
and good gingival
condition.

DURING

**2**

Full flap,
showing bone
thickness.

DURING

**3**

Surgical alveoli
performed through
guided surgery.

DURING

**4**

Connective graft
applied with surgery to
correct volume loss.

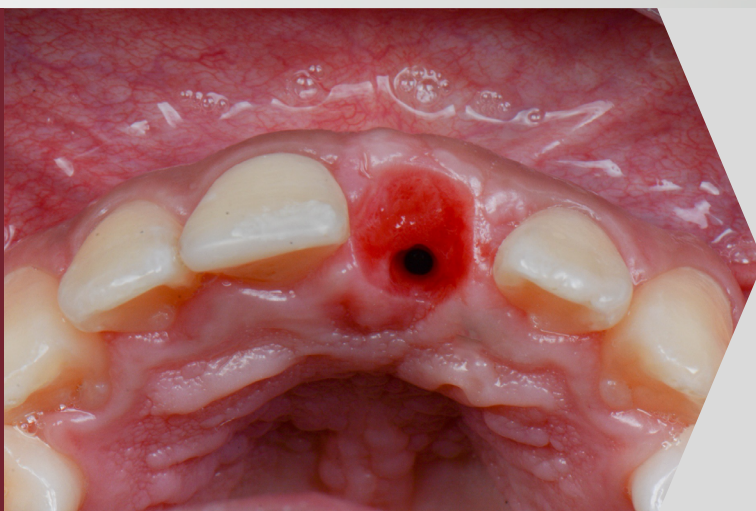
DURING



5

Immediate
post-operative photo,
with provisional and
suture, finished.

DURING



6

Acquired tissue
stability and
emergence profile.

AFTER



7

Definitive
prosthesis in
position, resulting
in satisfactory
function and
esthetics.

COMPROMISED ALVEOLAR BY THE EXISTENCE OF RESIDUAL ROOT, ASSOCIATED WITH A BONE DEFECT



BY DR. FERNANDO HAYASHI

MSc and PhD in Periodontics from FOU SP; Professor of Master courses and Initiation in Implantology courses at UNIP - SP and author of the book "Implants in Esthetic Areas" (Ed. Napoleão, 2011).

BY DRA. BARBARA MARTINS YAMAMOTO

Specialist in Oral and Maxillofacial Surgery by FOUNIP and specialist in Implantology.

CASE INTRODUCTION

Immediate implant placement in compromised alveoli is a typical challenge in implantology practice. There are a number of solutions that may be employed to prevent the formation of bone and cosmetic defects around the immediate implant, one of which is the filling of the defect with bone substitutes.

EXPLANATION OF THE TREATMENT

According to clinical examination, the root of tooth 14 had a residual form. CT scan showed resorption and a bone defect. A full flap was performed, extending up to the region of tooth 16. The root was removed atraumatically, and a new surgical alveolus was performed, placing a 4.5x10 mm (14) and a 4.5x11.5 mm (16) implant, both Epikut Plus, with a torque of 45 N.cm. The bone defect was then filled with bovine biomaterial, sutured, and after 5 months the prosthetic rehabilitation started.

PATIENT'S MEDICAL RECORD

46 years old, Female patient.

Chief Complaint: treatment after crown fracturing of tooth 14 and absence of teeth 15 and 16.

Anamnesis: no systemic changes.

Planning: implant placement in the region of tooth 16 and removal of tooth 14 root, followed by immediate implant placement and treatment of the bone defect for future implant-supported rehabilitation.

BEFORE



1

Initial aspect of the ridge, exposing the presence of residual root of tooth 14 and absence of teeth 15 and 16.

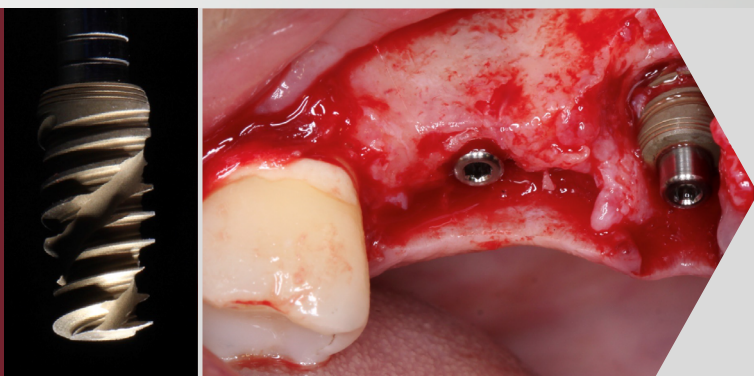
DURING



2

A full-thickness flap with a relaxing incision on the distal of the 13 was performed. The flap was lifted to access the bone defect in the region of the 14 alveolar.

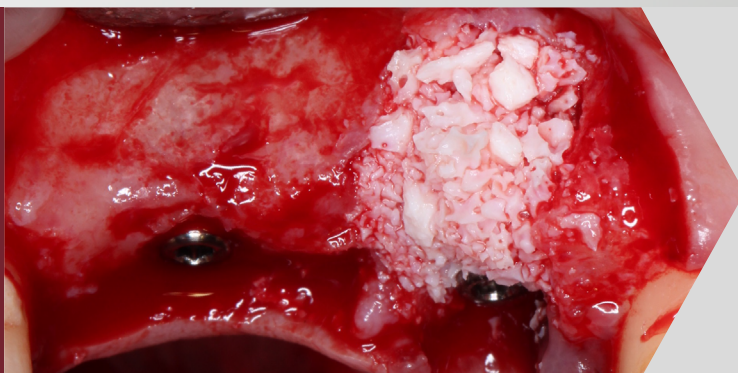
DURING



3

The implants placed were anchored to the maxillary sinus floor to increase primary stability. Around the implant in region 14, there was a defect exposing the vestibular threads of the implant.

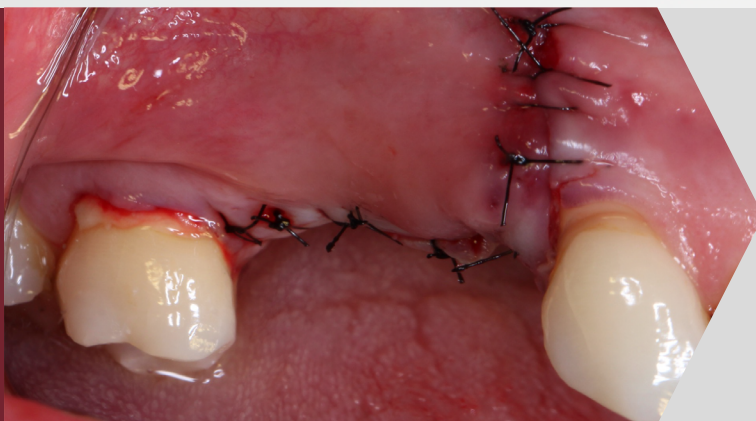
DURING



4

The defect around the implant in region 14 was filled with particulate bovine mineral bone that was well accommodated due to the remaining bone walls.

BEFORE



5

Mono-nylon suture performed at the end of surgery.

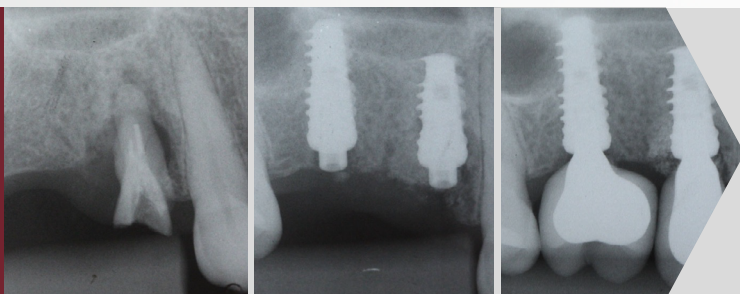
DURING



6

Healing caps placed in the re-opening surgery, initiating the prosthetic phase. Metal-ceramic single prostheses were then confectioned.

DURING



7

X-ray sequence, showing good prosthetic adjustment and good bone formation.

AFTER



8

Final aspect achieved with definitive prosthesis in position.

MISSING TOOTH IN THE HEALED RIDGE



BY DR. RAPHAEL CANGUSSU

Specialist, Master and PhD student in Implantology (SLMandic/SP); Specialist in Periodontics (FBB/ABO-BA); Coordinator of the Courses of Periodontal Plastic Surgery and Peri-implant Plastic Surgery (Grupo Plástica Perio-implantar/BA).

CASE INTRODUCTION

Challenge in healed ridges, with esthetic involvement, demanded prosthetic rehabilitation performed by Dr. Danilo Ferraz, along with regenerative maneuvers in bone/gingival tissue. Consequently, predictable and lasting long-term results were achieved.

EXPLANATION OF THE TREATMENT

Male patient, with missing teeth 25 and 36 and loss of tissue volume, gingival recession on tooth 24 associated with abfraction, and occlusal/incisal tooth wear on teeth 24 and 23.

Rehabilitation with implants in regions 25 and 36; connective tissue graft to correct the vestibular defect of the 25 and partial covering of the 24, combined with composite resin restorations in the cervical of the 24, as well as in the incisal third of the 23 and 24 for aesthetic correction and restoration of the canine guidance combining health, function, and aesthetics

PATIENT'S MEDICAL RECORD

28 years old, male patient.

Chief Complaint: missing teeth in region 25 and 36, with aesthetic involvement.

Anamnesis: no systemic changes.

Planning: guided surgery along with a single-stage surgical conjunctival graft.

BEFORE



1

Absence of teeth in region 26 and 36 with loss of tissue volume.

BEFORE



2

Aspect of the initial natural smile, showing esthetic harmed by the absence of teeth.

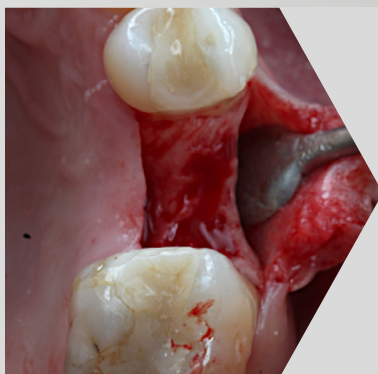
BEFORE



3

The patient underwent imaging exams (cone beam CT scan of the regions to be implanted) and intra-oral scanning. From the planning in the virtual environment, two printed surgical guides were made.

DURING



4

Full-thickness flap (with incision in the more displaced ridge to the palate), showing good bone residual. The elevation of the flap was done in order to increase the vestibular volume by bringing tissue from the ridge.

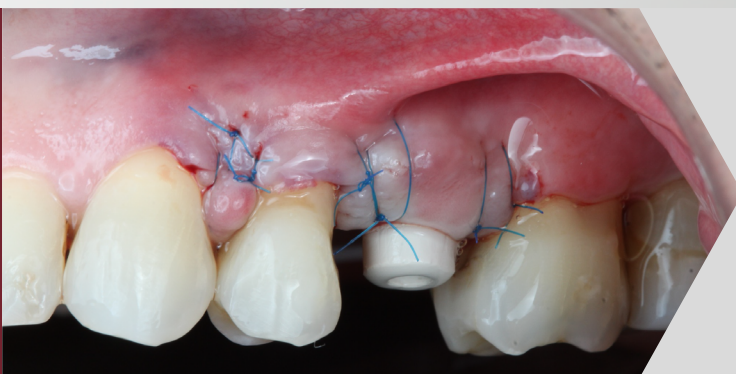
DURING



5

The drilling sequence was performed using the surgical guide and the guided surgery kit.

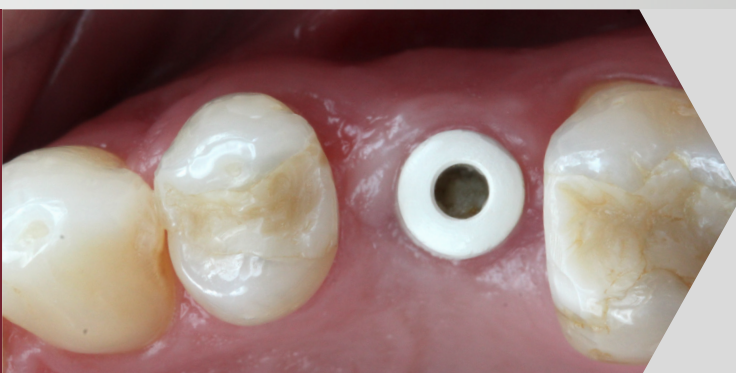
DURING



6

Conjunctival graft was performed in the implant region (25) and for partial root covering of 24. Final surgical appearance, with suspending sutures anchored after the 3.5x10 mm Epikut implant placement and 4.5 mm peek healing cap.

DURING



7

Postoperative aspect, 60 days afterwards.

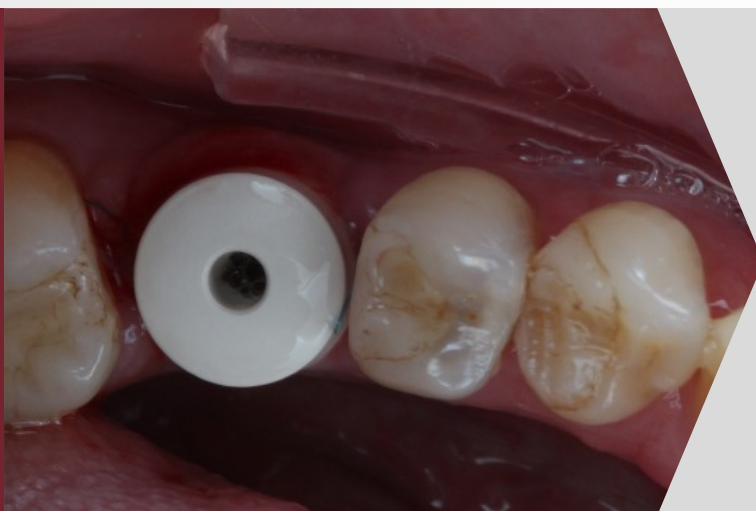
DURING



8

Initial aspect of the 36 region.

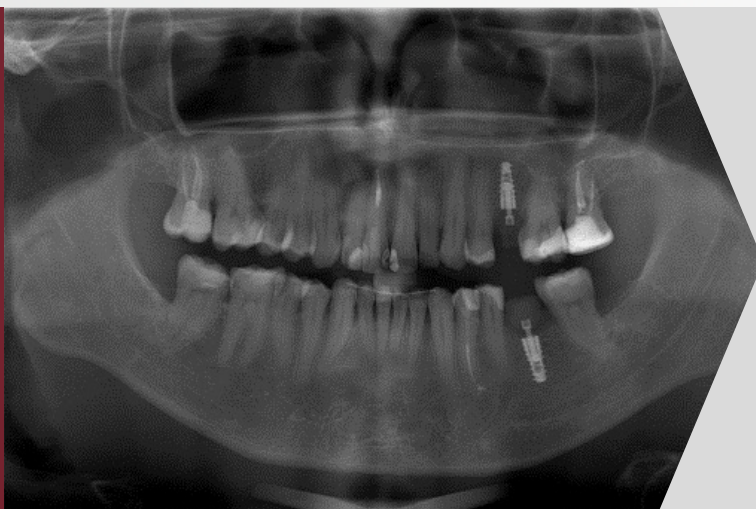
DURING



9

Final surgical aspect, with suture and 8mm diameter healing cap in position (36). It is important mentioning that the peek healing cap were fitted in the cervical region, resulting subcontoured, favoring a better emergence profile for prosthetic rehabilitation.

DURING



10

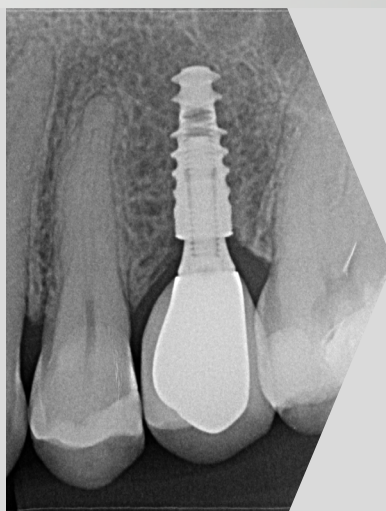
X-ray image after surgery.

DURING

**11**

Customized transfer molding, duplicating the emergence profile set up by the provisional over implant of the 25 and the peek healing cap of the 36, for final prosthesis confection.

DURING

**12**

Case concluded, final prosthesis (zirconia infrastructure with titanium metal link) in position with adequate tissue contours.

Final periapical X-ray (Left Upper Premolar region).

AFTER

**13**

A reestablishment of the canine guidance is observed through the restorative procedure.

This ceramic and composite resin rehabilitation had a very interesting aesthetic outcome.

ADJACENT IMPLANTS IN ESTHETIC AREAS



BY DR. SÉRGIO LAGO

Specialist in Periodontics at the Hospital of Rehabilitation of Craniofacial Anomalies [HRAC/USP]; Master & Doctor in Periodontics at Ribeirão Preto School of Dentistry [USP]; Coordinator of the Master's Course in Implantology and Periodontics; Co-author of books, author of articles and literature about Periodontics and Implantology. ImPerio Team Member.

CASE INTRODUCTION

A 58-year-old female patient came to the clinic for rehabilitation of teeth 11 and 21, which had a poor prognosis. Minimally invasive extraction was performed with immediate Epikut implant placement and immediate provisionalization with peek healing cap.

EXPLANATION OF THE TREATMENT

Teeth 11 and 21, due to their poor prognosis, were then submitted to extraction. Evaluation of the CT scan revealed the chance of immediate implant placement in the region. To preserve the integrity of the remaining bone and gingival tissues, a minimally invasive extraction was chosen as a procedure. After bed preparation, two 3.5 x 11.5 mm implants (Epikut Plus) were immediately placed, with 40 and 45 N.cm torque in teeth 11 and 21, respectively. A connective tissue graft and gap filling with xenogenous bone graft was performed, and sutures were made with 5.0 blue nylon thread.

PATIENT'S MEDICAL RECORD

58 years old, Female patient.

Chief Complaint: teeth 11 and 21 were moving, X-ray examination showed root resorption and interproximal bone loss.

Anamnesis: no systemic changes.

Planning: extraction of teeth 11 and 21 with immediate Epikut implants placement, along with soft tissue treatment.

BEFORE

**1**

Initial aspect, with gingival contour and volume alteration.

BEFORE

**2**

Minimally invasive extractions performed with the aim of maintaining bone and gum tissues.

DURING

**3**

Parallelism and positioning being checked.

DURING



4

Suture performed with healing caps in position, and stabilized connective tissue graft.

DURING



5

Emergence profile with stabilized tissue.

AFTER



6

Provisional crowns.

TEETH LOST DUE TO MECHANICAL TRAUMA (CAR ACCIDENT)



BY DR. SÉRGIO MAIA

Graduated in Dentistry at UNP- Natal/RN; Specialist in Periodontics APCD-Bauru/SP; Specialist in Implantology USP-Bauru/SP; Master in Implantology UNISA-SP/SP; Professor Coordinator of the Advanced Course in Implantology ABO-Natal/RN; Professor of Master's Course in Implantology CPGO-Natal/RN; Co-author of the book "Esthetics in Orthodontics - a smile for every face. Câmara, CA. Private practice in Natal/RN.

CASE INTRODUCTION

The greatest challenge in the rehabilitation of adjacent areas in the esthetic region is the preservation of a natural peri-implant architecture, with stable gingival margin and papillae support. In situations that require time-saving solutions, such as trauma-related tooth loss, the challenge becomes even greater.

EXPLANATION OF THE TREATMENT

After odontosection of teeth 11 and 21, the palatal fragments were removed. The vestibular portions were preserved and prepared in order to produce fragments that were about 2 mm thick and maintained the periodontal ligament's integrity on the vestibular and proximal surfaces. By doing this, the original gingival architecture was completely preserved without any scar volume loss. Bone beds were prepared with the drills included in the Epikut drill kit, and Epikut Plus MT 4.5x13 mm implants were placed with a torque of 40 N.cm. Immediate provisional were made on 3.5 mm diameter temporary cylinders.

Prosthetic phase conducted by Dr. Bruno Maia.

PATIENT'S MEDICAL RECORD

42 years old, Male patient.

Chief Complaint: The patient suffered a fracture of the upper central element roots in an automobile accident.

Anamnesis: no systemic changes.

Planning: containment and control of the initial acute condition with subsequent extraction of the central elements with immediate implants and immediate provisionalization.

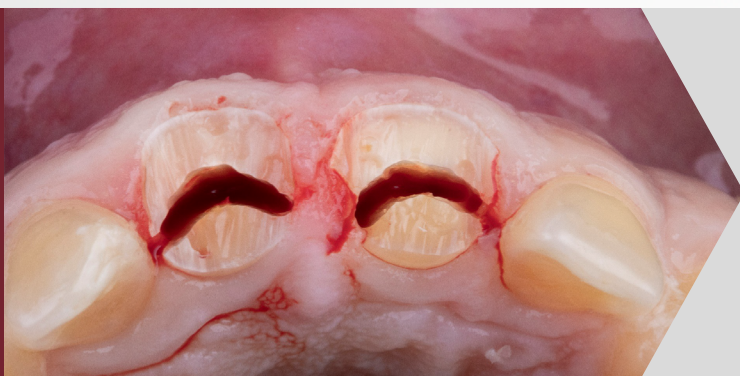
BEFORE



1

Initial appearance
after stabilization
of the case.

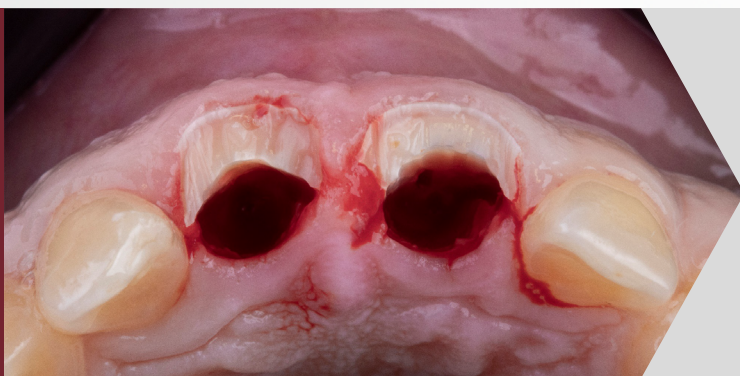
DURING



2

Cautious odontosection
to preserve the structure
of the gingival and bone.

DURING



3

Atraumatic initial
extraction of the palatal
portion of the root, with
preservation of
vestibular bone plate
and architecture.

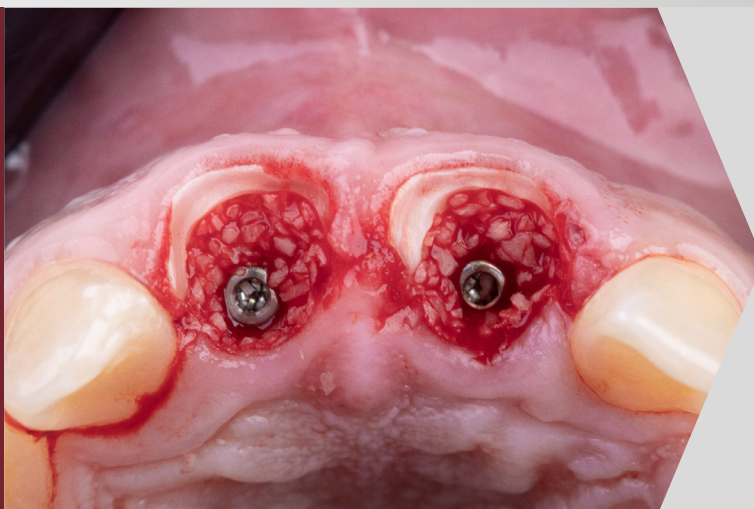
DURING



4

Implants placed
after vestibular
volume reduction,
root-supported.

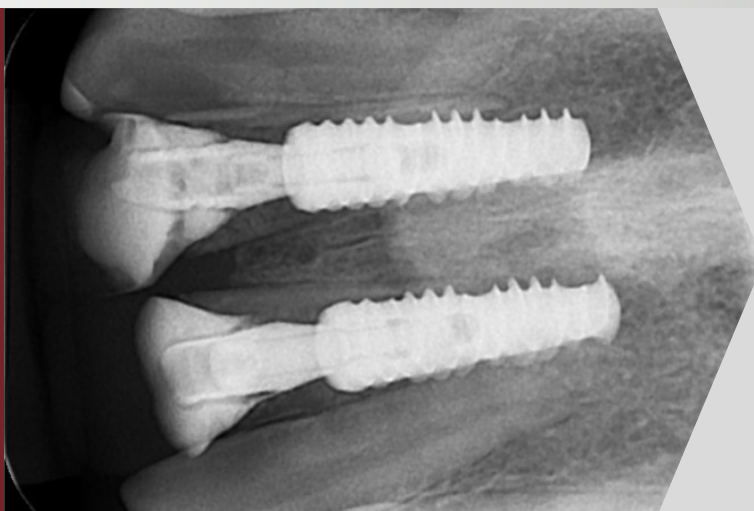
DURING



5

*Implant placed
with regeneration
achieved.*

DURING



6

*X-ray verifying tissue
preservation as well as
prosthesis positioning and
settlement.*

AFTER



7

*Case finished, esthetics
and tissue stability.
Prosthetic phase
performed by
Dr. Bruno Maia.*

MULTIPLE MISSING UPPER TEETH AND FRAGILE OR FRACTURED REMAINING TEETH



BY DR. SÉRGIO MAIA

Graduated in Dentistry at UNP- Natal/RN; Specialist in Periodontics APCD-Bauru/SP; Specialist in Implantology USP-Bauru/SP; Master in Implantology UNISA-SP/SP; Professor Coordinator of the Advanced Course in Implantology ABO-Natal/RN; Professor of Master's Course in Implantology CPGO-Natal/RN; Co-author of the book "Esthetics in Orthodontics - a smile for every face. Câmara, CA. Private practice in Natal/RN.

CASE INTRODUCTION

There is a significant psychological benefit when we have the possibility of having a fixed prosthesis on implants placed immediately after removing dental elements. The surgery has a high aesthetic value and is quick thanks to the care that is taken during the extraction using minimally invasive techniques and the philosophy of partial extraction of dental components.

EXPLANATION OF THE TREATMENT

The patient underwent bilateral sinus grafting procedure and six months later extractions of teeth 13, 11, 21 and 23 were performed using the "Partial Tooth Removal" technique, as well as burial of tooth 12. Epikut Plus MT 3.5x10 mm implants were placed in the previously grafted regions (17, 16, 24 and 26) with torques that varied between 30 and 40 N.cm. In the extraction alveoli, implants were placed (Epikut Plus MT 3.5x15 mm in 13 and 23 - and; 11 and 22 - Epikut Plus MT 3.5x11.5 mm) with torques ranging between 40 and 50 N.cm. Multi-unit abutments (3.5x2 mm) were adapted and a provisional fixed prosthesis, made of acrylic resin, was captured.

Prosthetic phase conducted by Dr. Daniele Dória.

PATIENT'S MEDICAL RECORD

68 years old, Female patient.

Chief Complaint: absence of upper posterior elements and instability of fixed prosthesis and crowns in the anterior region of the maxilla.

Anamnesis: no systemic alterations.

Planning: bilateral maxillary sinus lifting and subsequent full mouth extraction with a fixed prosthesis on implants with immediate loading.

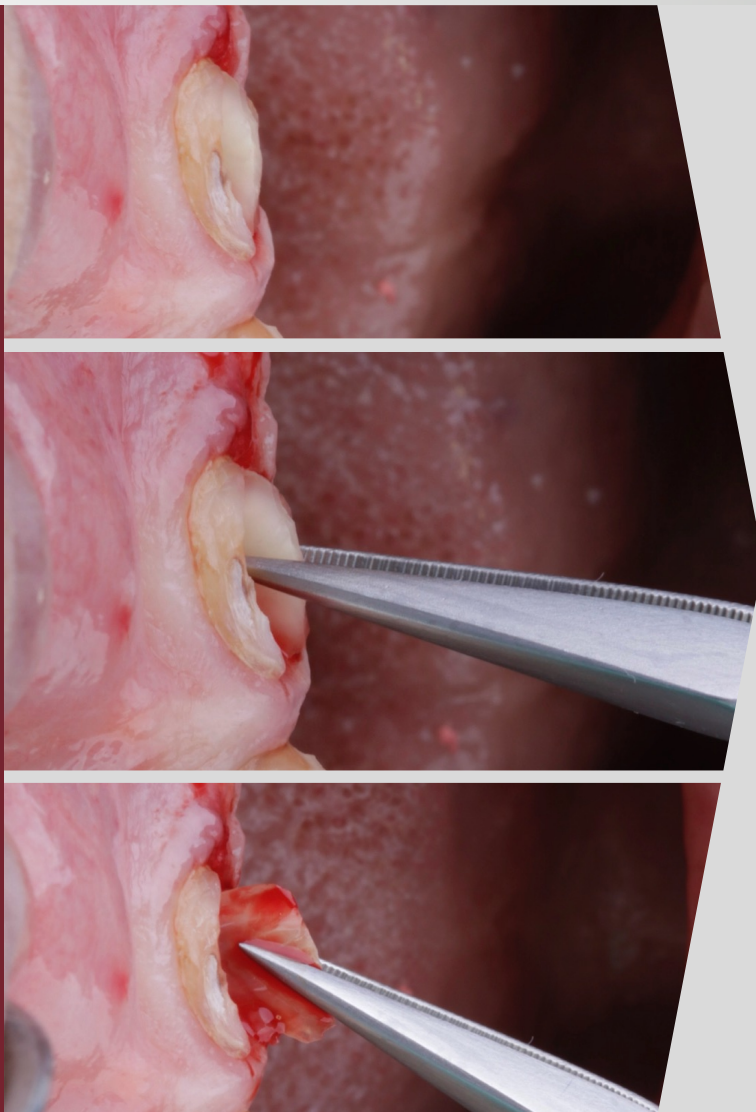
BEFORE



1

*Initial aspect with
absent teeth, residual
roots, excess crowns.*

DURING



2

*Close-up images of
atraumatic extractions
performed using the
Socket Shield technique.*

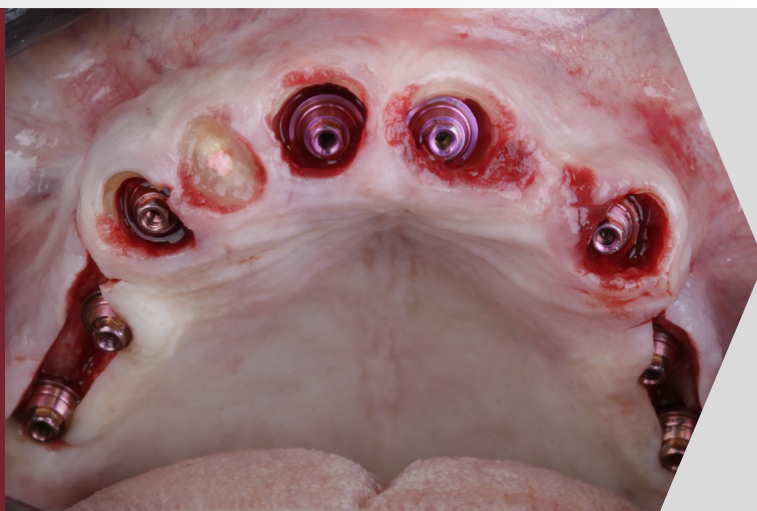
DURING



3

Socket shield,
preservation of the
vestibular portion of the
root, preserving tissue
architecture, with
implants in position.

DURING



4

Abutments
immediately
placed.

AFTER



5

Immediate prosthesis
placed soon after
surgery. Prosthetic
rehabilitation performed
by Dr. Daniele Dória.

COMPLETE ABSENCE OF LOWER TEETH



BY DR. FELIPE MOURA

Master, specialist in Implantology; PhD student in Implantology; Coordinator of the Master's course in Implantology at Abo São Paulo; Coordinator of the Master's course in implantology at Arnaldo College in Belo Horizonte.

CASE INTRODUCTION

Immediate loading in inferior Brånemark Protocol.

EXPLANATION OF THE TREATMENT

The Brånemark protocol is currently the recommended treatment for both total tooth loss cases and dental implant rehabilitation, and when possible, immediate loading restores quality chewing function to the patient in a more dynamic and comfortable manner.

PATIENT'S MEDICAL RECORD

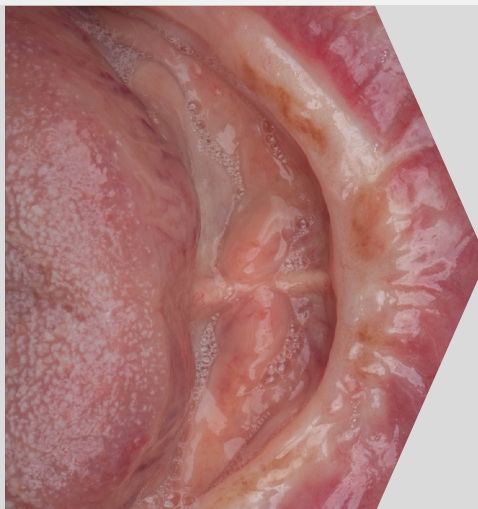
75 years old, Female patient.

Chief Complaint: complete absence of lower teeth.

Anamnesis: no systemic changes.

Planning: we placed 4 Epikut EH implants in the all-on-four technique, with the placement of multi-unit abutments. Immediate loading performed and the prosthetic rehabilitation done in 24 hours.

BEFORE

**1**

We can clinically see the atrophic region that we will rehabilitate.

BEFORE

**2**

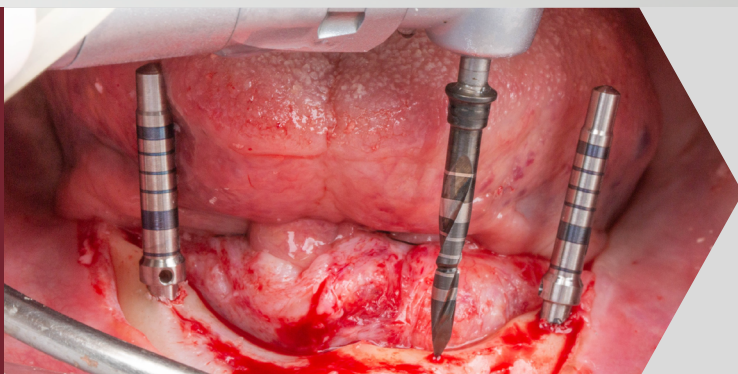
Incisions are made in the keratinized mucosa line and a relaxing incision is made for better detachment and better tissue repair during the post-operative period.

BEFORE

**3**

Regularization of the ridge, in order to provide a better prosthetic adaptation and facilitate the implants' drilling.

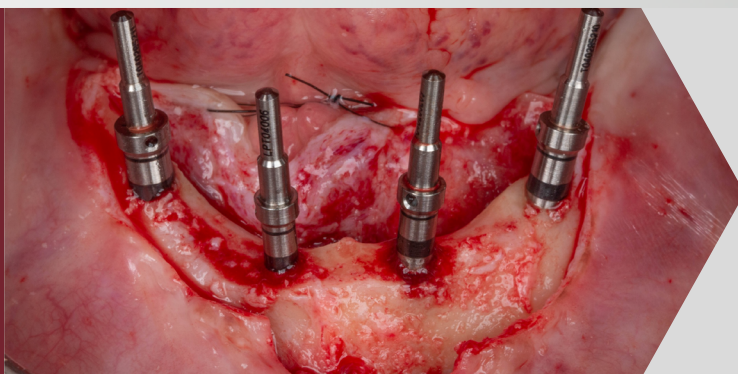
DURING



4

Surgical bed drilling using the lance drill of the Epikut surgical kit.

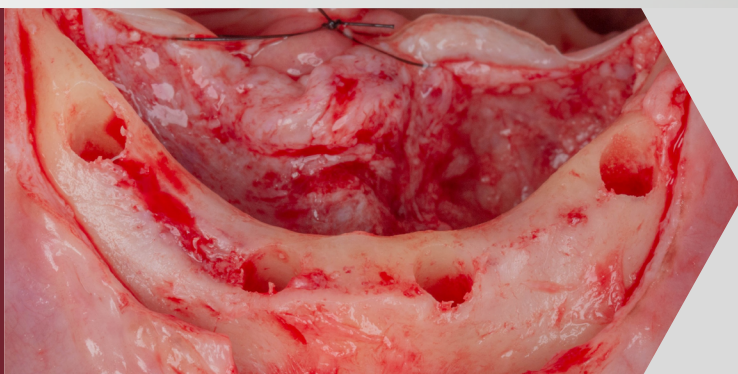
DURING



5

Use of the depth and parallelism indicators, in order to verify the positioning of the drilling.

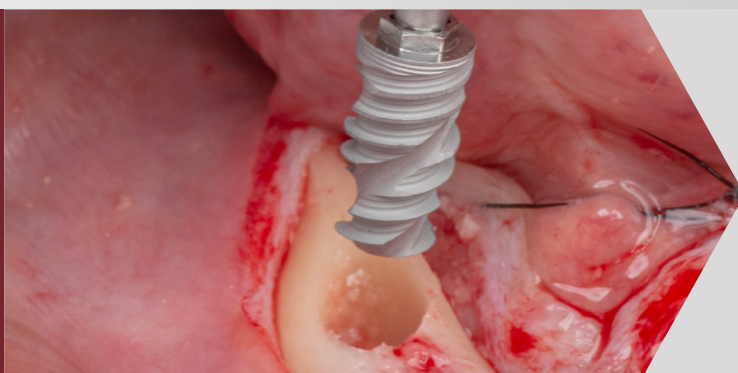
DURING



6

Alveoli of the drilled implants.

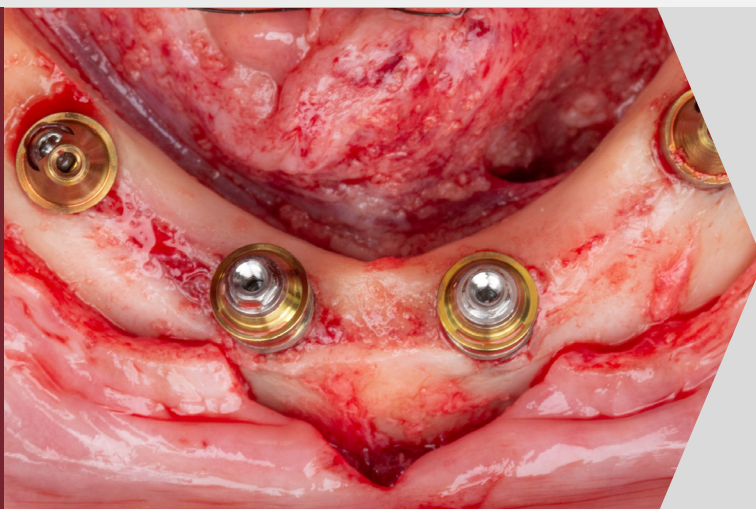
DURING



7

The Epikut EH was used to obtain greater fixation predictability, in order to perform immediate loading.

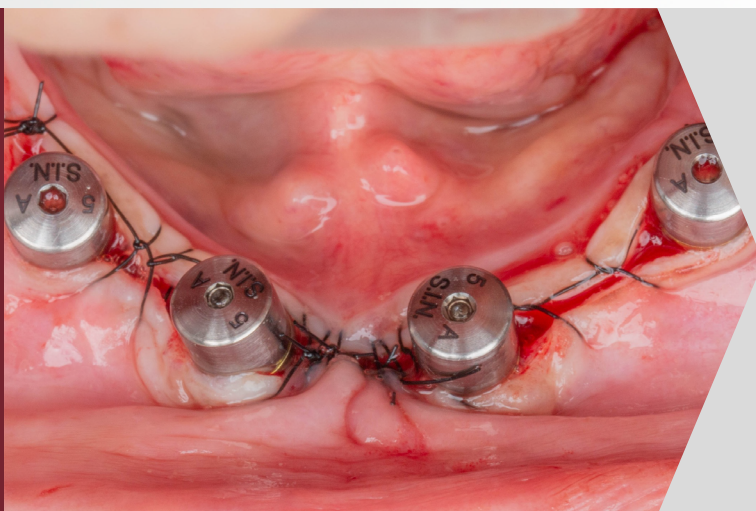
DURING



8

Multi-unit abutment placement for better reversibility and load distribution.

DURING



9

Performing simple and continuous sutures with healing caps placement to perform the laboratory work.

DURING



10

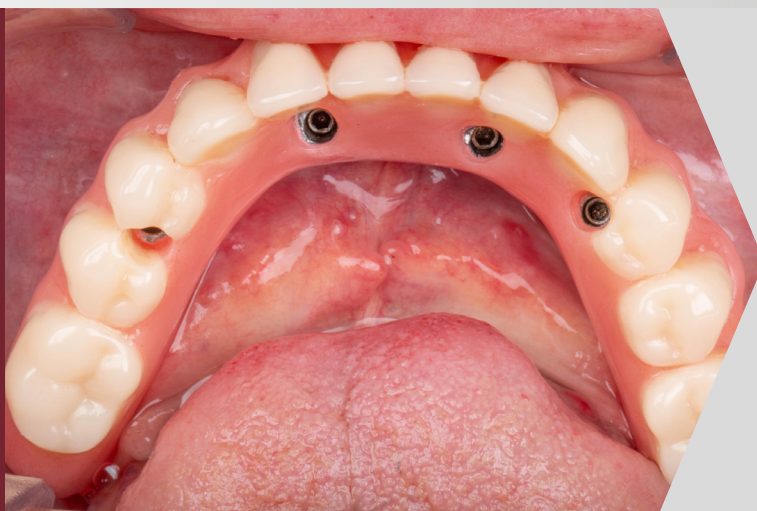
Protocol prostheses finished in the laboratory, without retentive areas.

DURING

**11**

Front view of the
finished laboratory
prosthesis.

DURING

**12**

Occlusal view of
placed protocol.

AFTER

**13**

Final photo of the case,
with the prosthesis placed,
restoring function
and esthetics.

COMPLETELY EDENTULOUS MAXILLA



BY DR. FELIPE BORBA

Dental Surgeon, Specialist in Implantology; Specializing in Dental Prosthesis; Accredited in the Use of Botulinum Toxin in Dentistry; Accredited in advanced surgery of bone grafts; Specialist in Implant Dentistry - INEPO; Specialist in Dental Prosthesis - INEPO.

CASE INTRODUCTION

Completely edentulous maxilla, in bone type III, with good residual bone volume and adequate gingival profile.

EXPLANATION OF THE TREATMENT

All digital planning was performed, with CT scan and intraoral scanning for guide confection. The guided surgery was then performed, and after preparing the beds, the Epikut Plus implants were placed with a stability of 45-60N.cm, and an immediate loading sequence was performed, completing the surgical and prosthetic process in about 4 hours.

PATIENT'S MEDICAL RECORD

64 years old, Female patient.

Chief Complaint: her entire denture caused her discomfort when chewing and in social interactions. A healthy bone and gingival remnant was seen after a clinical evaluation.

Anamnesis: no systemic changes.

Planning: guided surgery in an upper edentulous arch with Epikut Plus implants placement in immediate loading.

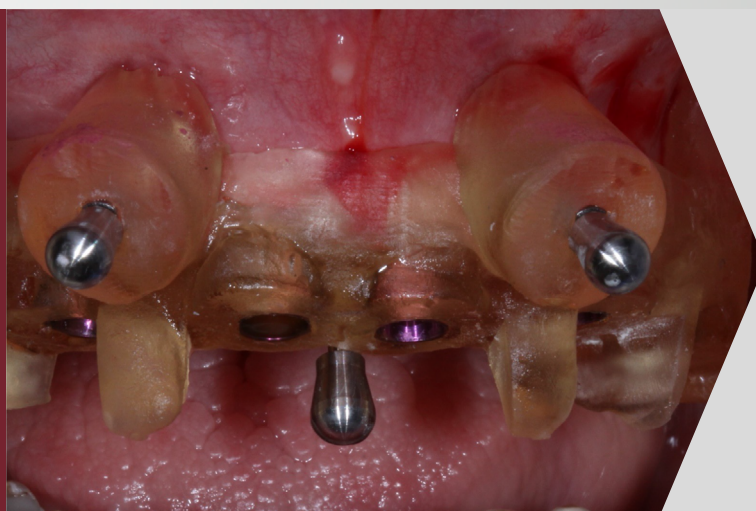
BEFORE



1

Natural smile without prosthesis and with total prosthesis. Altered aesthetics and dimensions, impairing function and aesthetics.

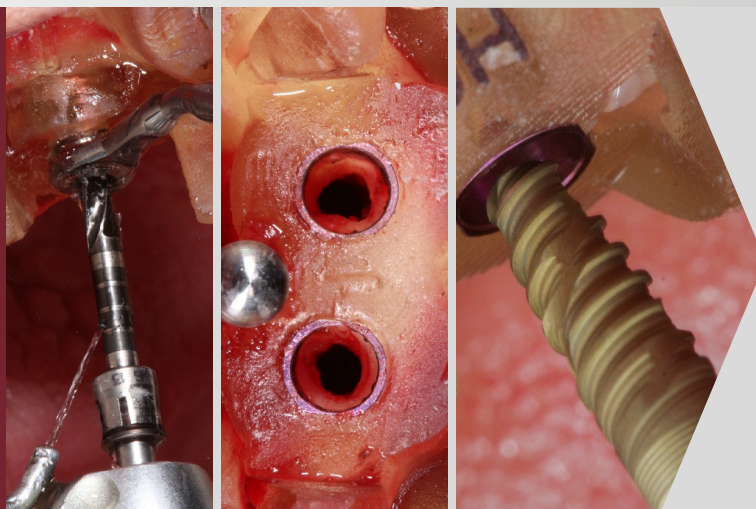
DURING



2

Completely Edentulous maxilla, in bone type III, with good residual bone volume and adequate gingival profile.

DURING



3

Drilling sequence, alveolus set and implant placement. Surgery with minimal bleeding.

DURING



4

Clinical record of immediate post-operative, adequate positioning and minimal edema and bleeding.

DURING



5

Temporary prosthesis, printed at the same time as the surgical guide and placed immediately after surgery. Final aspect of tissue conditioning after 60 days, start of the definitive rehabilitation.

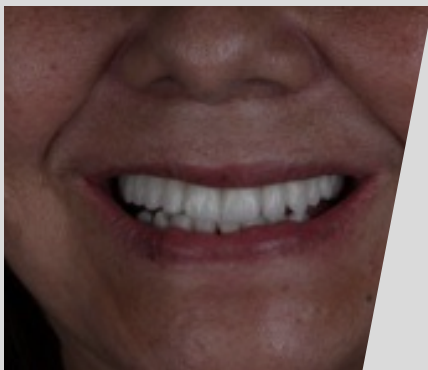
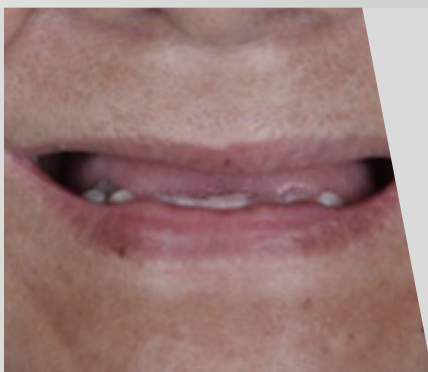
DURING



6

Prosthetic sequence with metal framework placement and a ceramic one afterwards. Notice the occlusal photo showing perfect distribution and positioning of the implants.

DURING



7

Case conclusion, before and after. Facial rejuvenation and harmony with return of aesthetics and function.

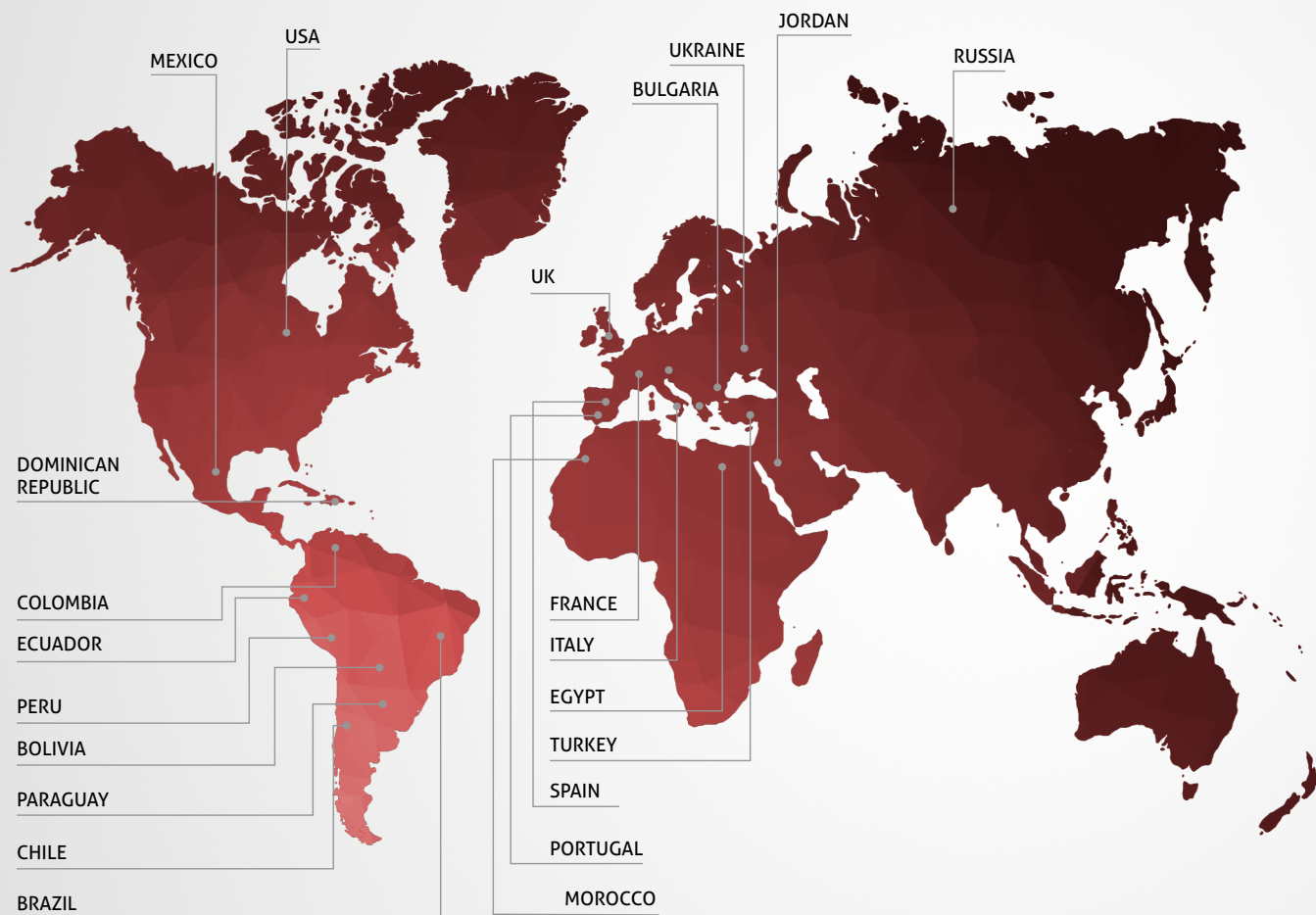
BEFORE



8

Close-up of the profile and natural smile.

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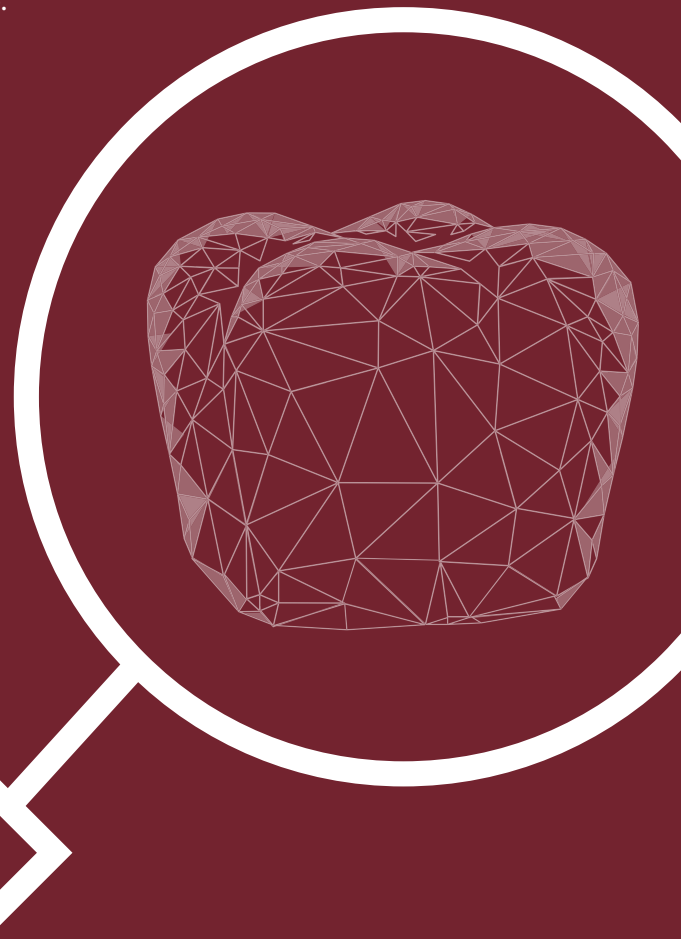
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