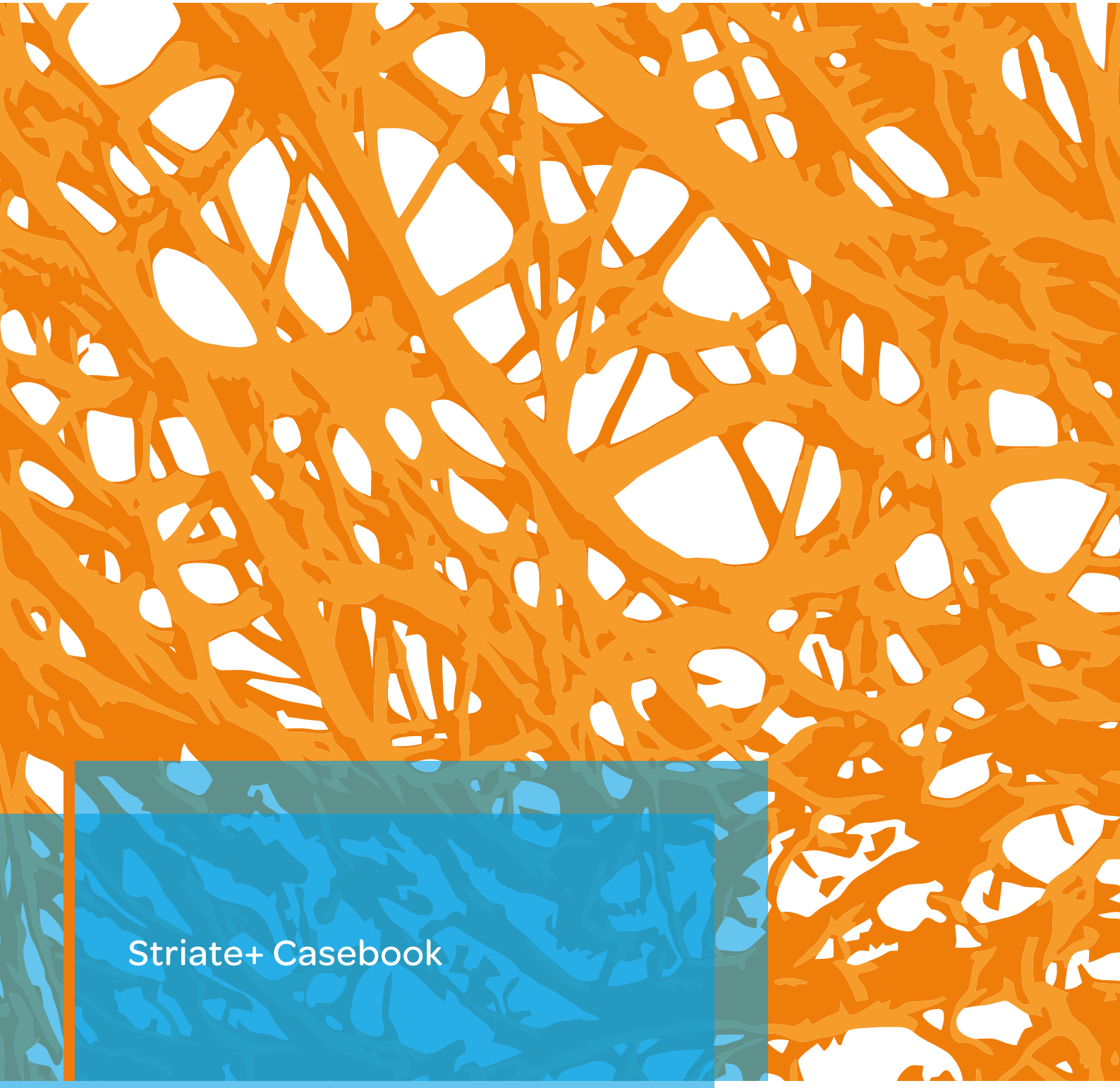
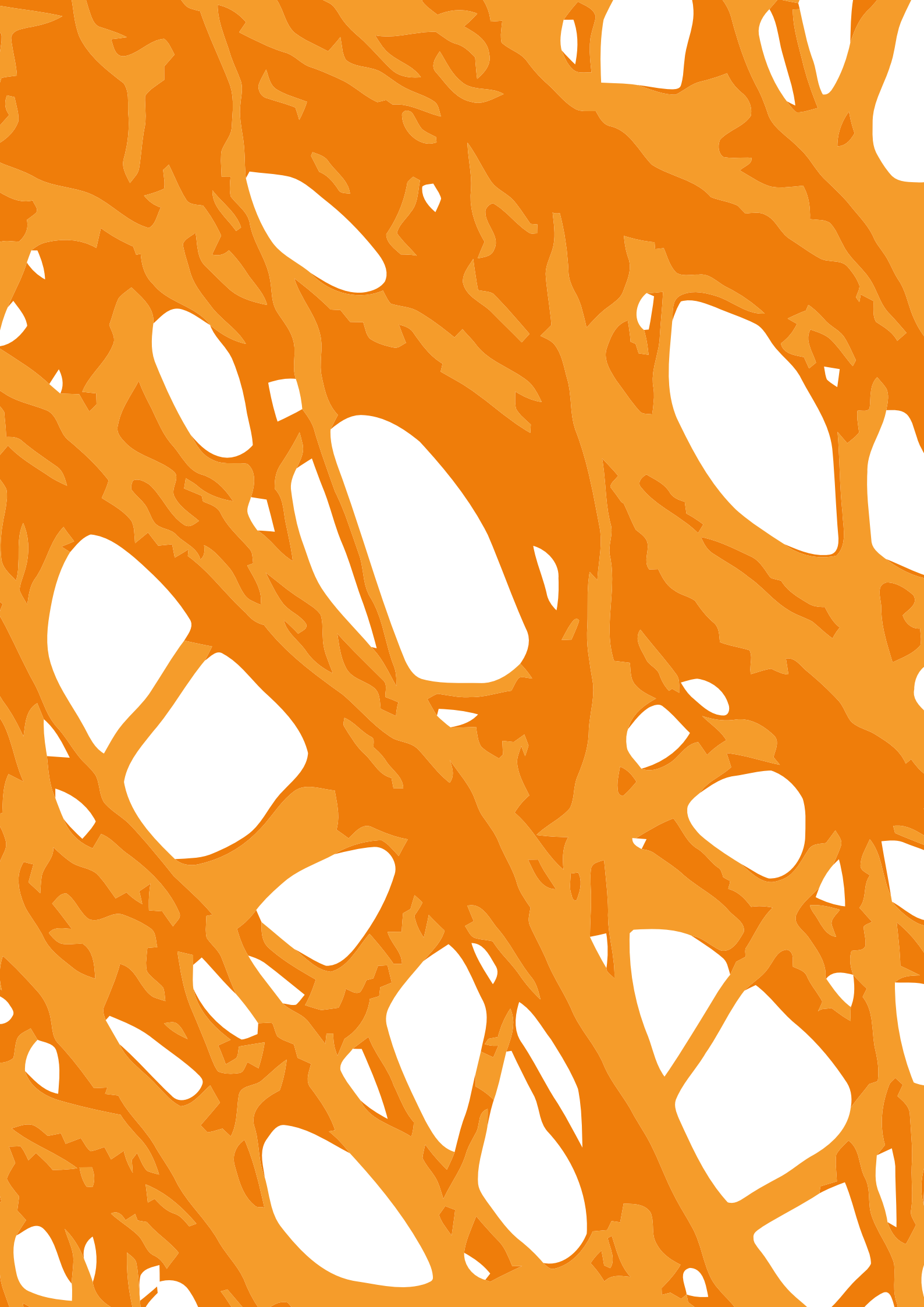
BIOHORIZONS® biologics



Striate+ Casebook

Inspiring excellence in oral reconstruction

biohorizons camlog



Creating art means creating new.
In dentistry, Striate+ creates smiles!

By supporting osteogenesis,
Striate+ takes guided bone regeneration
to the next level making it an art:

The Art of Regeneration.

Scan to learn more!

Content

Preamble

Univ.-Prof. Dr. Dr. Peer Kämmerer; Dr. Redouan Mahou; Dr. Phil Donkiewicz
Membranes for guided bone and tissue regeneration: A retrospective look 6

Ridge Reconstruction / Augmentation

Dr. Rémy Tanimura
The replacement of a misplaced dental implant in the aesthetic zone with simultaneous hard and soft tissue regeneration 8

Dr. Maurizio Grande
Treatment of multiple lesions in the maxilla and staged placement of implant-supported crowns 10

Dr. Filippo Fontana
Guided bone regeneration in the posterior mandible with simultaneous implant placement 12

Andreas van Orten
Immediate implant placement with simultaneous bone augmentation and soft tissue thickening 14

Prof. Dr. Dr. Andres Stricker
Ridge reconstruction with autologous bone blocks 16

Dr. Florian Lechner
Immediate implantation and horizontal augmentation with tenting screws 18

Dr. Duc Pham
Implantation with guided bone regeneration in the mandibular posterior region 20

PD Dr. Florian Rathe
Immediate implant placement with guided bone regeneration in the posterior mandibular region 22

Dr. Margret Bäumer
Implantation with guided bone regeneration and open healing in the maxilla 24

Sinus Floor Elevation

Dr. Giuliano Garlini
Crestal sinus lift with simultaneous bone augmentation and implant placement 26

Dr. Maurizio Grande
Lateral maxillary sinus elevation with staged implant placement 28

Prof. Dr. Dr. Andres Stricker
External sinus lift with simultaneous implantation 30

Prof. Dr. Dr. Andres Stricker
Implantation with combined sinus lift and guided bone regeneration 32

PD Dr. Gerhard Iglhaut
Sinus floor elevation with antral access and simultaneous implantation 34

Univ.-Prof. Dr. Dr. Peer Kämmerer
Augmentation of atrophic maxilla with sinus lift and titanium mesh 36

Socket Preservation

PD Dr. Gerhard Iglhaut
Socket preservation with delayed implantation in the upper jaw 38

Dr. Dr. Helmut Hildebrandt
Socket preservation with open healing 40

Dr. Roman Beniashvili
Socket preservation with delayed implantation and guided bone regeneration in the anterior area 42

Dr. Silke Stuff
Ridge preservation with open healing after cystectomy 44

Shell Technique

Dr. Nikolaos Vourakis
Three-dimensional bone reconstruction in the anterior maxilla with simultaneous soft tissue augmentation 46

Dr. Ramon Gomez Meda
Three-dimensional bone reconstruction in the anterior maxilla with simultaneous implant placement 48

Univ.-Prof. Dr. Dr. Peer Kämmerer
Alveolar ridge regeneration with allogeneic cortical plates and sinus lift 50

Disclaimer 52

Membranes for guided bone and tissue regeneration: A retrospective look

Peer Kämmerer MD, DMD, PhD, MA, FEBOMFS, Deputy director of the clinic and polyclinic for oral and maxillofacial surgery – Plastic surgery. University Medical Center of the Johannes Gutenberg-University Mainz. Germany.
Redouan Mahou PhD, Biomaterials Brand Manager EMEA. CAMLOG Biotechnologies GmbH. Basel. Switzerland.
Phil Donkiewicz PhD, Key Account Manager Biomaterials D-A-CH. CAMLOG Vertriebs GmbH. Wimsheim. Germany.

Guided bone and tissue regeneration has become a cornerstone of modern dental and periodontal treatments, offering predictable solutions for complex cases. While the basic principles remain unchanged, the materials and techniques have continuously evolved to meet the growing demands of clinicians and patients alike.
Guided tissue regeneration (GTR) is a therapeutical approach aiming to regenerate periodontal tissues damaged by trauma or diseases. Originally described by Nyman et al.,[1-3] GTR relies on a "physical barrier" to prevent the migration of gingival and epithelial cells into the defect site, thus allowing periodontal ligament cells to selectively populate the wound and regenerate the desired type of tissue. The approach was extended to alveolar ridge bone, commonly called guided bone regeneration (GBR). Since Dahlin et al. demonstrated the proof of concept,[4] GBR has received increased attention to become a predominantly applied procedure in modern dentistry.

The success of GBR relies on four biological principles [5]: achieve primary closure to ensure undisturbed and uninterrupted healing, establish a perfused vasculature to support cell survival, maintain space to facilitate the ingrowth of osteogenic cells, and induce the formation of a stable blood clot. Various dental membranes that differ in composition, physical properties, or preparation process have been investigated regarding their ability to support these principles. A non-exhaustive overview of these membranes is provided in Figure 1.

Non-resorbable membranes

Since the efficacy of using a Teflon barrier to regenerate alveolar bone was reported [4], membranes made of polytetrafluoroethylene (PTFE), either expanded (e-PTFE) or dense (d-PTFE), became popular for GBR procedures. E-PTFE membranes are generally dual-layered with an open microstructure on one side and cell occlusive on the other. They have been used to promote osteogenesis around implants with or without bone grafts [7, 8]. However, if exposed during the healing process, the ingrowth of bacteria occurs and can be detrimental to bone regeneration. Therefore, e-PTFE membranes are recommended in submerged healing when primary closure is achievable, and exposure is unlikely. Further, the porous microstructure facilitates the attachment of soft tissues to the surface of the membrane, which compromises its removal. To overcome these limitations, dense material (d-PTFE) with low porosity (< 0.3 µm) that is impervious to bacteria has been developed. d-PTFE membranes are particularly adapted for procedures during which the membrane is deliberately left exposed (i.e., open-healing) to avoid extensive flap mobilization and improve aesthetic results. Both e-PTFE and d-PTFE exist as titanium-reinforced membranes; the embedded titanium framework provides additional stability in large defects and allows fitting various shapes easily. Although very popular during the 90s, shortcomings related to their stiffness promoting tissue dehiscence [9-12] and the need for a second surgery to retrieve them have fostered research on new membranes that better fit the requirements of GBR.

Resorbable membranes

They hold the promise of combining barrier function with resorbability. Their use circumvents the need for surgical removal, thus ensuring patient comfort, reducing costs, shortening chair time, and eliminating risks of crestal bone resorption due to flap elevation [13, 14]. Raw materials including synthetic poly-ε-caprolactone (PCL), polylactide acid (PLA), polyglycolic acid (PGA), polylactic acid-co-glycolic acid (PLGA), as well as naturally occurring alginate, chitosan, cellulose, and silk were used to manufacture resorbable membranes. [15] However, none have reached the same level of acceptance as collagen due to low manipulation capabilities, short degradation cycles, and potential inflammatory foreign-body responses to their degradation by-products.

On the other hand, membranes made of collagen possess, in addition to the barrier function and resorbability, several beneficial attributes such as tissue integration, rapid vascularization, chemotactic action for fibroblasts, hemostatic potential, low immunogenicity, and capability to promote wound healing. Consequently, they have established themselves as the standard membranes for GBR. [16-21] Additional cross-linking can be conducted to strengthen the membrane and extend its resorption period. However, such chemical treatments might increase the prevalence of soft tissue dehiscence and induce marginal bone loss. [22-24]

Striate+

BioHorizons Camlog has recently launched Striate+, a resorbable collagen membrane derived from the porcine peritoneum that exhibits physical and biological features suitable for GBR. Striate+ is easy to handle and can be used without prior hydration; when positioned into the surgical site, it quickly absorbs body fluids and conforms to the defect contours. Although non-cross-linked, its tensile strength is twice as much as competing membranes [25], facilitating fixation by pinning and suturing. A systematic evaluation study highlighted the biological purity and reported residual DNA signals in a benchmark membrane but not in Striate+. [26] The study also revealed low porosity, which might

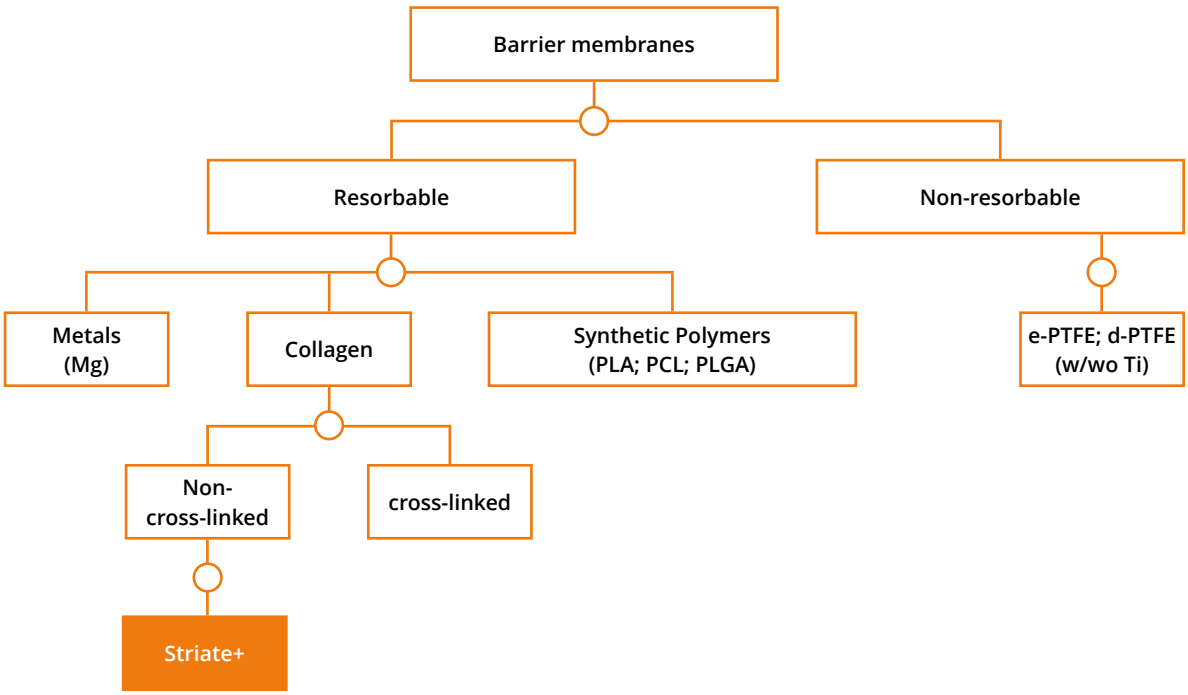


Figure 1: Schematic representation of the most used barrier membranes classified by degradation profile, composition, and processing. w/wo Ti: with or without titanium reinforcement. PCL: poly-ε-caprolactone; PLA: Polylactic acid; PLGA: polylactic acid-co-glycolic acid. Although other products such as platelet-rich fibrin clots, acellular dermal matrices [6], or titanium meshes/cages might be used as barrier membranes, however, they are not considered in this classification.

Features and Benefits of Striate+	Reference
100% increase in tensile strength compared to a competing membrane.	25
Less porous and thus might improve cell-occlusiveness.	26
Thinner than competing membranes, which facilitates achieving tension-free closures.	26
RT-PCR detected a DNA signal in competing membranes but not in Striate+.	26
Pre-clinical studies showed substantial equivalence in safety and efficacy between Striate+ and the predicate dental membrane.	28

translate into improved cell-occlusiveness. Further, a comparative study investigating membrane efficacy in GBR with dental implant placement in animal models concluded substantial equivalence of Striate+ to an established dental membrane. [27]

Combining ease of handling, high tensile strength, and biological purity, Striate+represents a new milestone in GBR and addresses clinicians' key challenges during regenerative procedures. Designed for optimal clinical performance, Striate+ simplifies handling and supports predictable outcomes in challenging cases.

This Casebook compiles a selection of clinical cases showcasing the versatility and efficacy of Striate+ in various GBR applications. These examples highlight how this innovative membrane can transform daily practice, offering clinicians and patients the benefits of cutting-edge regenerative technology.

Enjoy exploring the possibilities with Striate+.

References

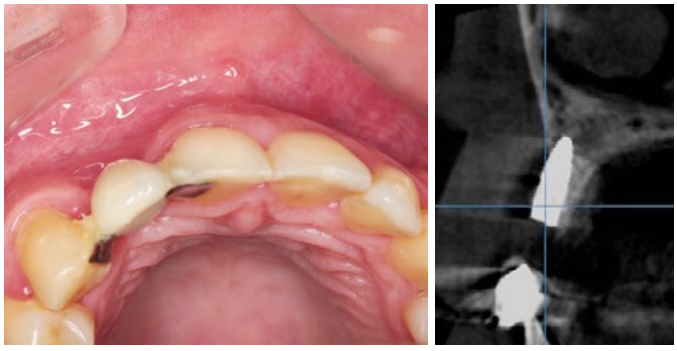
[1] Nyman et al. J Clin Periodontol 1980. 7: 394401.
[2] Nyman et al. J Clin Periodontol 1982a 9: 257-265.
[3] Nyman et al. J Clin Periodontol. 1982b.9: 290-296.
[4] Dahlin et al. Int. J. Oral Maxillofac. Implants. 1989. 4: 19-25.
[5] Wang HL, Boyapati L. Implant Dent. 2006; 15(1): 8-17.
[6] Pabst A, Kämmerer PW. Quintessence International. Volume 51, number 4. April 2020.
[7] Dahlin et al. Scand J Plast Reconstr Surg Hand Surg. 1990. 24:13–9.
[8] Nevins M, Mellonig JT. Int J Periodont Restorat Dent. 1992. 12:96-111.
[9] Hoffmann et al. J Periodontol. 2008. 79:1355–69.
[10] Selvig et al. J Periodontol. 1992. 63:974-8.
[11] Tempro PJ, Nalbandian J. J Periodontol. 1993. 64:162-8.
[12] Nowzari H, Slots J. Int J Oral Maxillofac Implants. 1995. 10:67-73.
[13] Misch CM, Misch CE. Implant Dent. 1995. 4: 261-7.
[14] Pihlstrom et al. J Clin Periodontol. 1983. 10:524 41.
[15] Wang et al. Polymers 2016. 8, 115.
[16] Klinge et al. Clin. Oral Implants Res. 2010. 21, 873-876.
[17] Thoma et al. Clin. Oral Implants Res. 2012, 23, 1333-1339.
[18] Owens, K.W.; Yukna, R.A. Implant Dent. 2001. 10, 49-58.
[19] Rothamel et al. Clin. Oral Implants Res. 2005. 16, 369-378.
[20] Rothamel et al. Int. J. Oral Maxillofac. Implants 2012. 27, 146-154.
[21] Benic, G.I.; Haemmerle, C.H.F. Periodontol. 2000. 2014. 66, 13-40.
[22] Becker et al. Clin Oral Implants Res. 2009. 20:742-749.
[23] Annen et al. Eur J Oral Implantol. 2011. 4:87-100.
[24] Lee et al. J Oral Implantol. 2015. 41: 445-448.
[25] Allen et al. https://doi.org/10.21203/rs.3.rs-26801/v1.
[26] Tai et al. Biomater Transl. 2023. 4: 41-50.
[27] Nguyen et al. Article in Review. https://doi.org/10.21203/rs.3.rs-4543229/v1.
[28] 510(k) Premarket Notification (K201241).

The replacement of a misplaced dental implant in the aesthetic zone with simultaneous hard and soft tissue regeneration

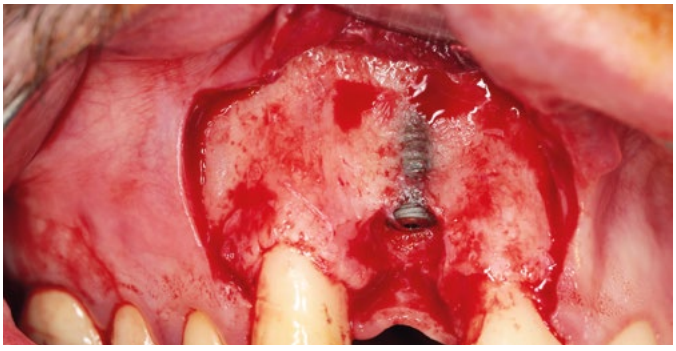
32-year male patient presented with a Maryland temporary bridge. X -ray examination revealed inappropriate implant placement and complete resorption of the buccal plate. The treatment plan consisted of replacing the misplaced implant and concomitantly conduct guided bone regeneration and autologous connective tissue graft to regenerate hard and soft tissues, respectively.

Dr. Rémy Tanimura
Paris, France

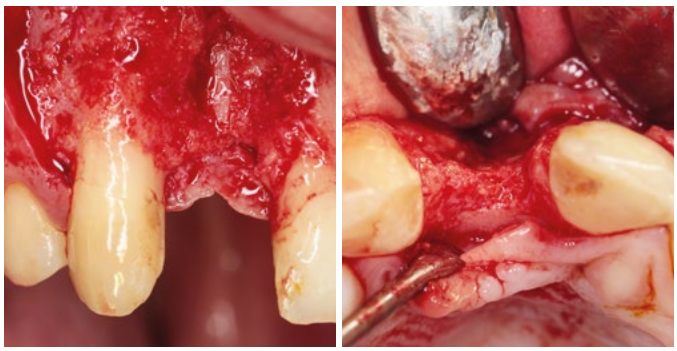
- Oral Implantology Certificate (Nice University Sophia Antipolis 2004)
- Doctor of dental surgery (Lyon University 1995)
- Member of French Esthetical Dentist Association (SFDE)
- Member of the Academy of Osseointegration (AO)
- Member of the European Association of Osseointegration (EAO)
- Scientific consultant for dental and implant bio-technological companies
- Lecturer at various universities and scientific associations in France and internationally



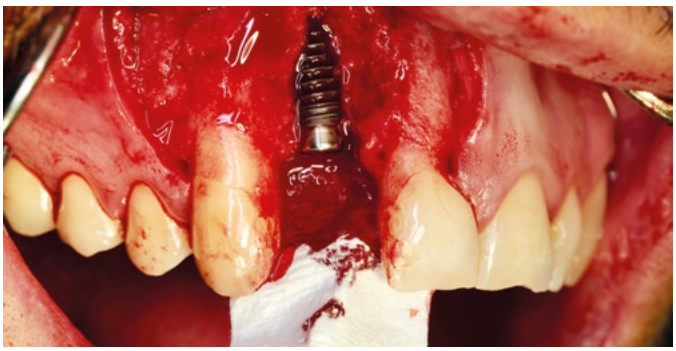
1 Pre-operative situation: Left: The patient presented with loss of facial volume and peri-implant recession. Right: Cone beam computed tomography confirmed the resorption of the buccal plate.



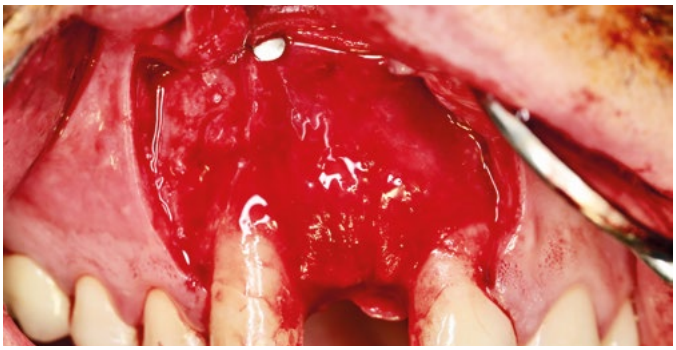
2 A full-thickness periosteal flap was elevated with a view to removing the misplaced implant.



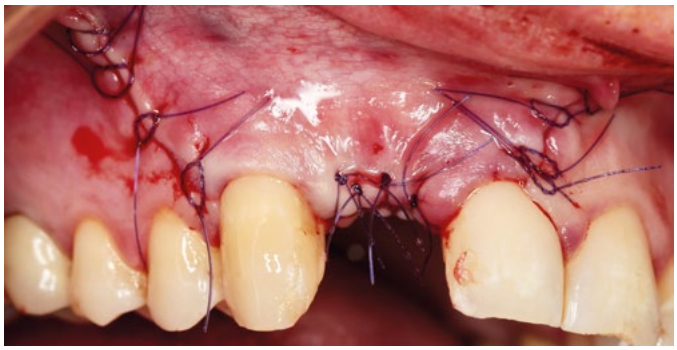
3 After a healing period of six weeks, re-entry revealed a significant horizontal bone defect (left: buccal view; right: occlusal view).



4 The implant bed was prepared according to the manufacturer's protocol. A CONELOG® PROGRESSIVE-LINE implant with a healing abutment of 2 mm was placed. Striate+ was further fixed on the palatal side using titanium tacks. Thanks to its high wettability, the membrane was placed and fixed without prior hydration.



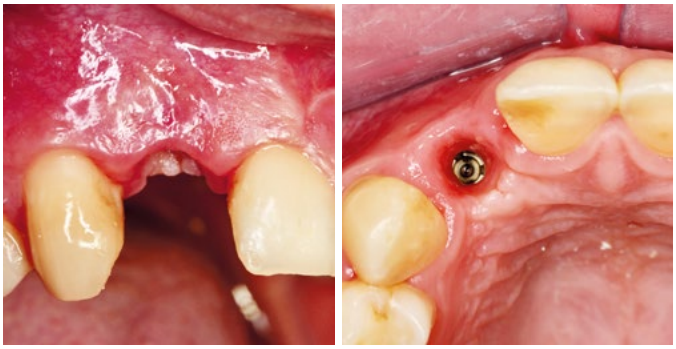
5 Porcine cancellous bone (MinerOss XP) was mixed with autologous bone chips and used as bone substitute. Striate+ was pulled onto the buccal side and tacked. Buccal view showing the membrane after fixation with tacks.



6 Tension-free primary closure was achieved using sutures.

7 Good soft tissue healing was observed after 10 days (with the Maryland temporary bridge mounted).

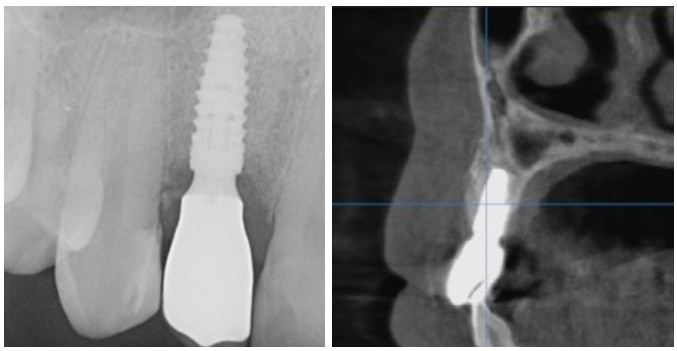
8 Four months later, a connective tissue graft was harvested from the palate and applied to thicken the mucosa around the implant. Simultaneously, a screw retained temporary crown was placed.



9 Advantageous soft tissue healing was observed one month later. Buccal (left) and occlusal (right) views.

10 Frontal view of the clinical situation after the placement of a screw retained zirconia ceramic crown with a Titanium-bases of 2 mm gingival height.

11 The frontal view of the clinical situation one-year post-operative showing excellent aesthetic outcomes.



12 The X-ray examination confirmed the appropriate placement of the implant (left). At one-year post-operative, cone beam computed tomography revealed a significant bone regeneration of the buccal plate (right).

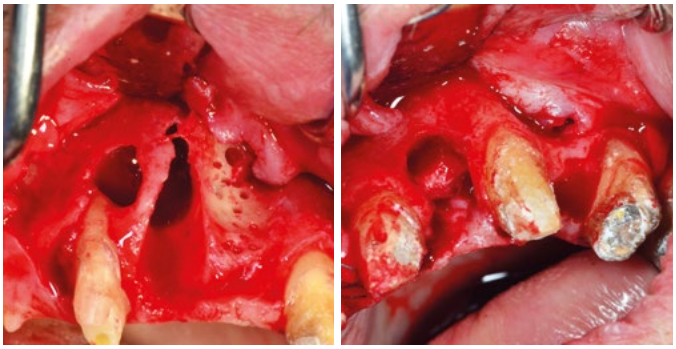
Treatment of multiple lesions in the maxilla and staged placement of implant-supported crowns

A 56-year patient, non-smoker, in good health conditions, and with adequate oral hygiene presented with multiple lesions including atrophic edentulous sites in regio 12 and 24, a root fracture of tooth 22, and a cyst extended through the full-thickness of the upper jaw. Large endo-periodontal lesions were also present in the lower arch. Upon agreement with the patient, rehabilitation of the upper jaw was conducted first. The treatment plan consisted of extracting teeth 13 and 14 and the surgical removal of the cyst. GBR was applied to augment the alveolar ridge.

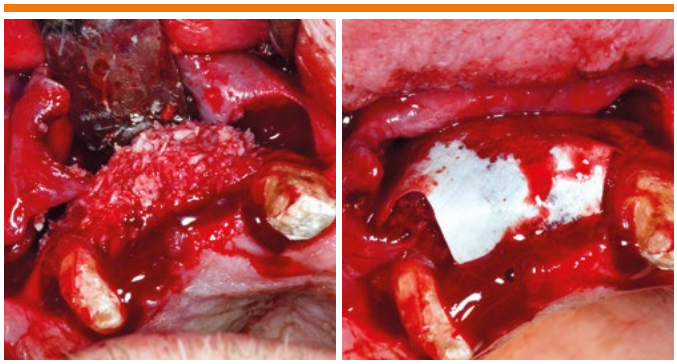
Dr. Maurizio Grande
Rome, Italy

- Professor at the University of Camerino (2016 to 2018). In 2018, he founded and became the president of the scientific association AGISI
- Winner of the 1st Prize for the Esthetic Dental Care awarded by an international jury (2008)
- Awarded the best original research in the dental materials section at the 11th National Congress of the College of Dentistry Teachers (2004)
- Postgraduate degree in prosthetics and prosthetic materials (University of Siena; 1995) and specialized in implant prosthetics
- Graduated in dentistry (University of Rome Tor Vergata; 1995) and expert in aesthetic prosthetics
- Member of the Chicago Dental Society and serves on the Editorial Board of the International Journal of Experimental Dental Science since 2012
- Published extensively in peer-reviewed journals and lectured in national and international conferences

1 Pre-operative x-ray imaging (above) and complementary cone beam computed tomography (not shown) revealed a cystic lesion covering the full-thickness maxilla from vestibular to palatal sides. Regio 12 and 24 appeared severely atrophic in the horizontal dimension, while the tooth 22 was diagnosed with an endo-periodontal lesion and root fracture.



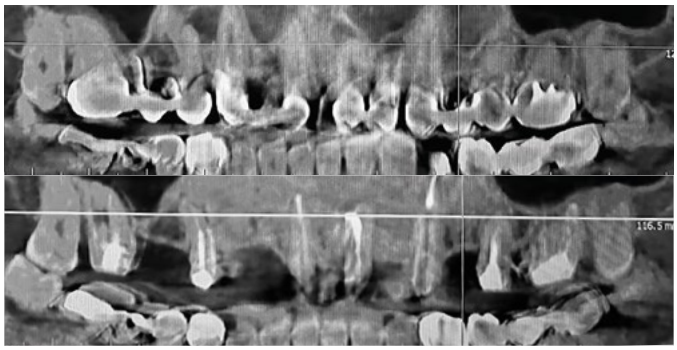
2 Following mucoperiosteal flap elevation, cysts were surgically removed from regio 13 (left) and 22–24 (right) yielding multiple bone defects.



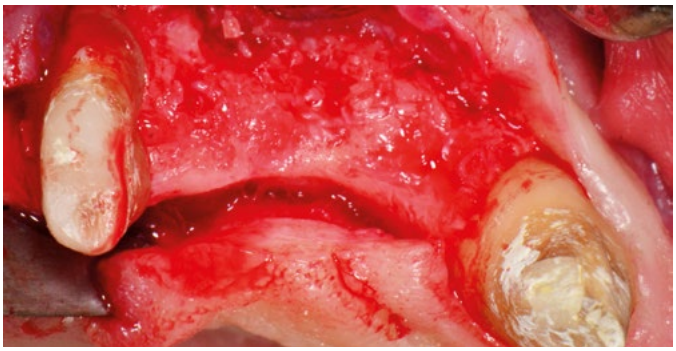
3 Guided bone regeneration was conducted in regio 13. A mixture of bovine bone minerals (MinerOss X) and allografts was used as bone substitute. Striate+ was cut to desired shape and applied dry.

4 Similar surgical steps were followed to conduct socket preservation in regio 22 and achieve bone augmentation in regio 24.

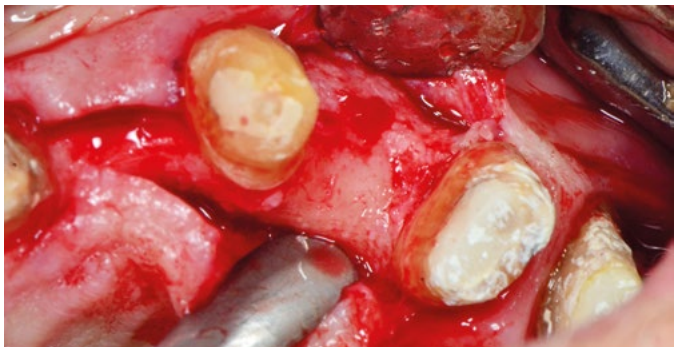
5 Advantageous soft healing was observed at six months (occlusal view).



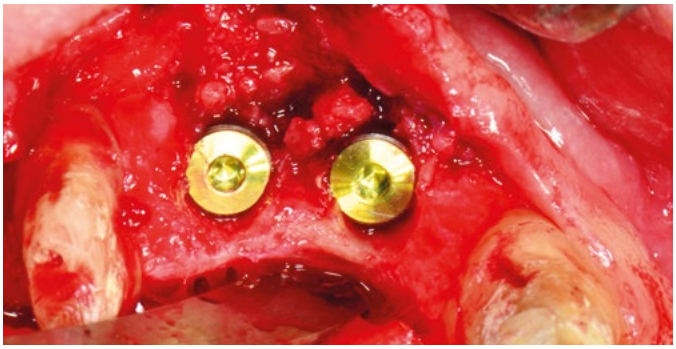
6 Successful bone regeneration in regio 24 was confirmed six months later by cone beam computed tomography (Top: pre-operative; bottom: Post-operative). Similar results were obtained in regio 12 and 22 (data not shown).



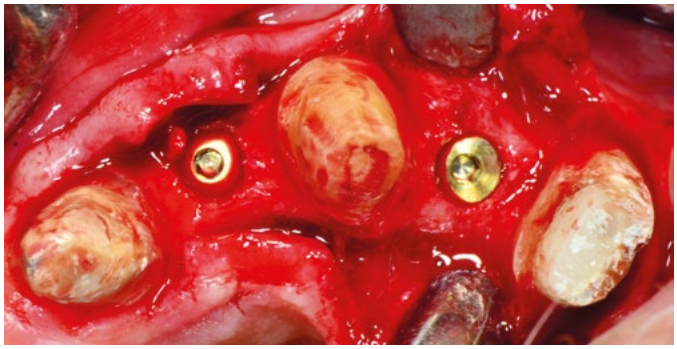
7 A well vascularized alveolar ridge with adequate dimensions was obtained in regio 12–13.



8 Similarly, alveolar ridge with adequate dimensions was observed in regio 22 and 24.



9 Implants were placed in regio 12 and 13 according to the manufacturer's protocol.



10 ... as well as in regio 22 and 24.

11 Healing abutments were placed five months later and were removed after six months of transmucosal healing. Visual observation after abutment removal revealed excellent soft tissue conditions (occlusal view).

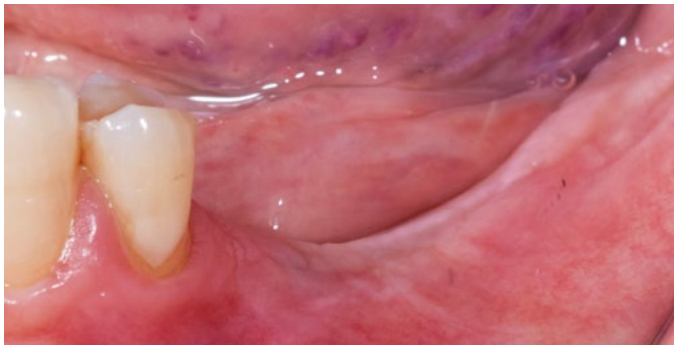
12 Final restoration consisting of zirconium crowns was produced with full digital technique.

Guided bone regeneration in the posterior mandible with simultaneous implant placement

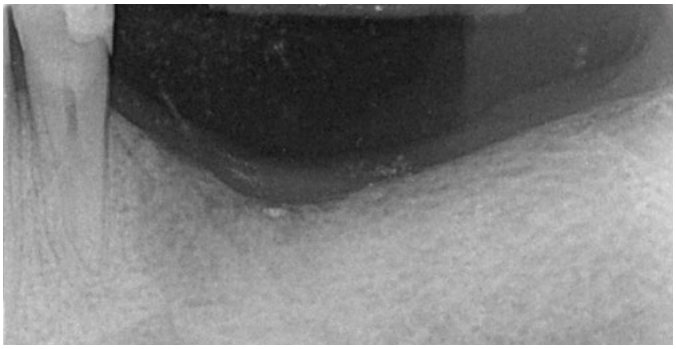
68-year male patient presented with atrophic edentulous posterior mandible. The treatment plan consisted of placing two implants in regio 35 and 36 with simultaneous guided bone regeneration. Healing abutments were mounted four months later. The final screwed zirconia crowns were placed after two months.

Dr. Filippo Fontana
Milan, Italy

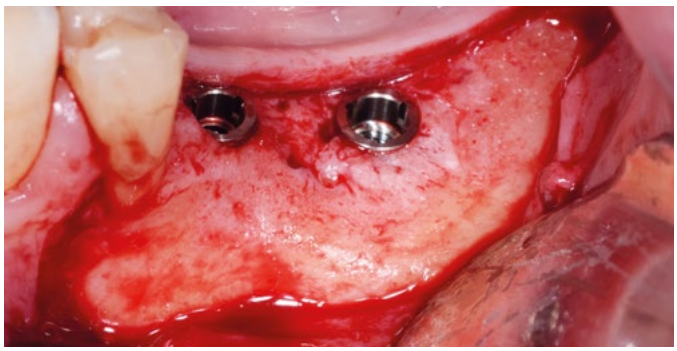
- 2017: National habilitation as Associate Professor
- Visiting Professor at the School of Oral Surgery of the University of Milano from 2012 to 2016
- Master of science in oral surgery with the score of 70/70 cum laude at the University of Milan in 2009
- 2002: scholarship award as research assistant at the Department of Oral Medicine, Infection and Immunity of Harvard School of Dental Medicine (Boston, MA, USA)
- 2000 to 2016: Clinical assistant at the Department of Implantology of the University of Milan
- Graduated in dentistry with the score of 110/110 cum laude at the University of Milan in 2000
- Active member of the Italian Academy of Osseointegration (IAO)
- Author of several articles on implantology with particular focus on bone regeneration



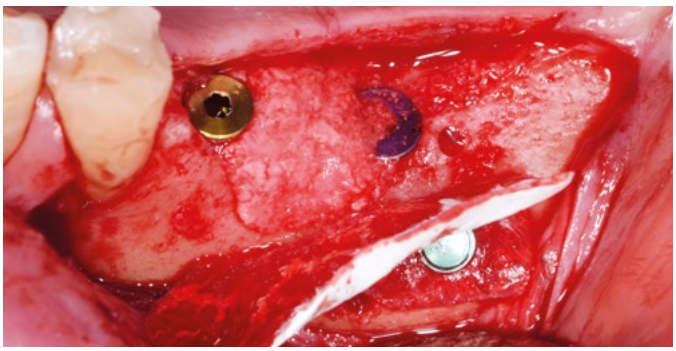
1 The patient presented with edentulous posterior mandible. Pre-operative visual inspection revealed an atrophic ridge with significant bone loss.



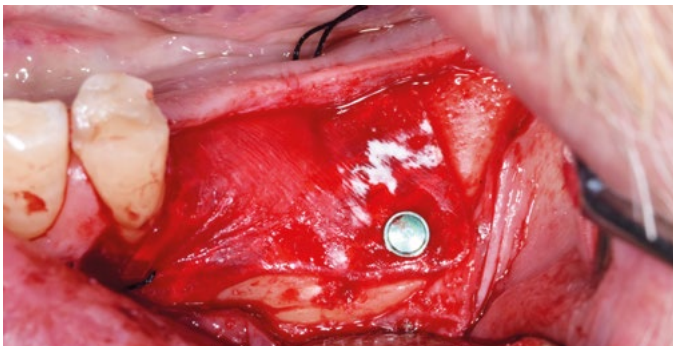
2 X-ray imaging confirmed the presence of an atrophic ridge with significant bone loss.



3 Full mucoperiosteal flap with two vertical release incisions was elevated. Implant beds were prepared in regio 35 and 36 according to the manufacturer's protocol and two CAMLOG® SCREW-LINE implants were placed.

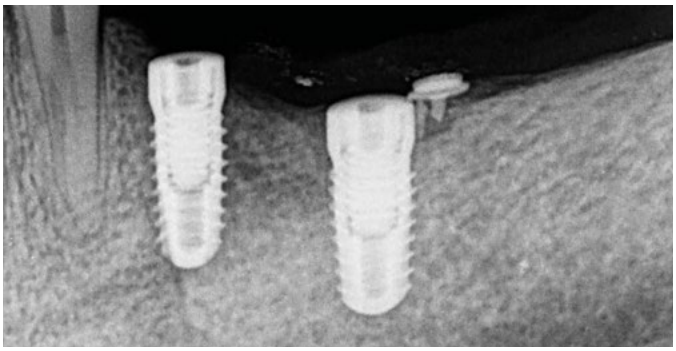


4 Dry Striate+ was cut to desired shape and size then fixed on the buccal side using titanium tacks. A mixture of autologous graft and deproteinized bovine bone mineral was used to regenerate bone tissues around the implants.

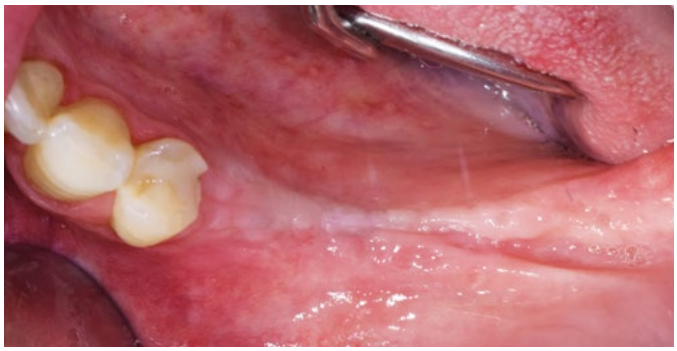


5 Striate+ was folded lingually and further stabilized by sutures (visible black filament in the lingual side).

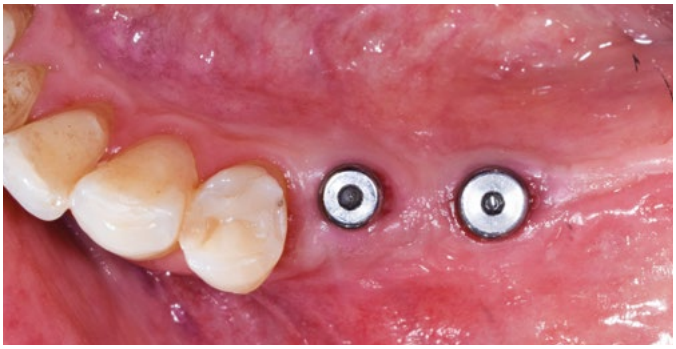
6 Tension-free primary closure was achieved by releasing the periosteum and suturing.



7 Post-operative X-ray imaging confirmed the appropriate placement of implants.



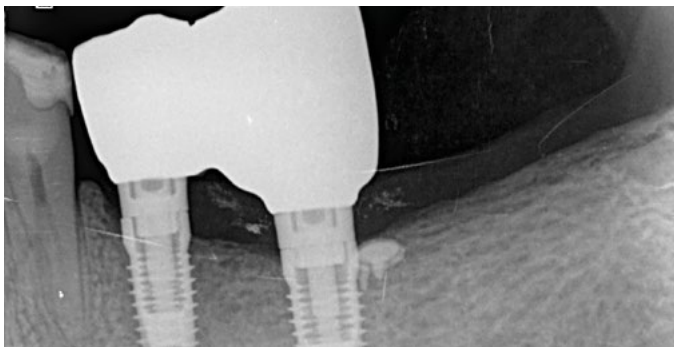
8 Excellent soft tissue healing was observed four months post-surgery.



9 Re-entry was performed after four months to mount the healing abutments. Healthy peri-implant mucosa was observed after two months of transmucosal healing (occlusal view).

10 Buccal view after two months of transmucosal healing.

11 The final restoration consisting of a screw-retained zirconia crown was placed two months later.



12 X-ray radiography showing the final restoration of regio 35 and 36.

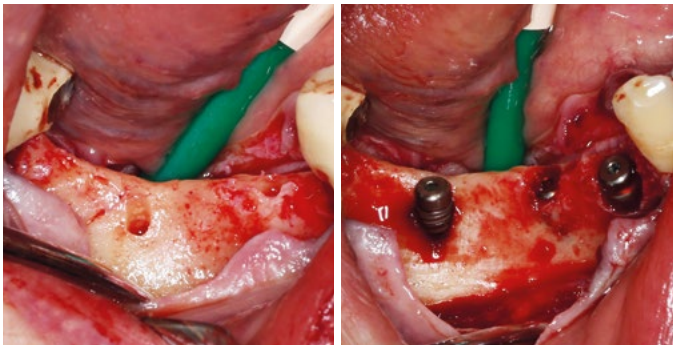
Immediate implant placement with simultaneous bone augmentation and soft tissue thickening

A 58-year patient presented with an endodontic complication and a poor prognosis for tooth 44, along with the absence of teeth 45–47. The treatment plan consisted of placing three implants and reconstructing the bony defect with a mixture of autologous chips and porcine cancellous bonel. The graft was covered with Striate+ and the soft tissue in the crestal area was further thickened using NovoMatrix.

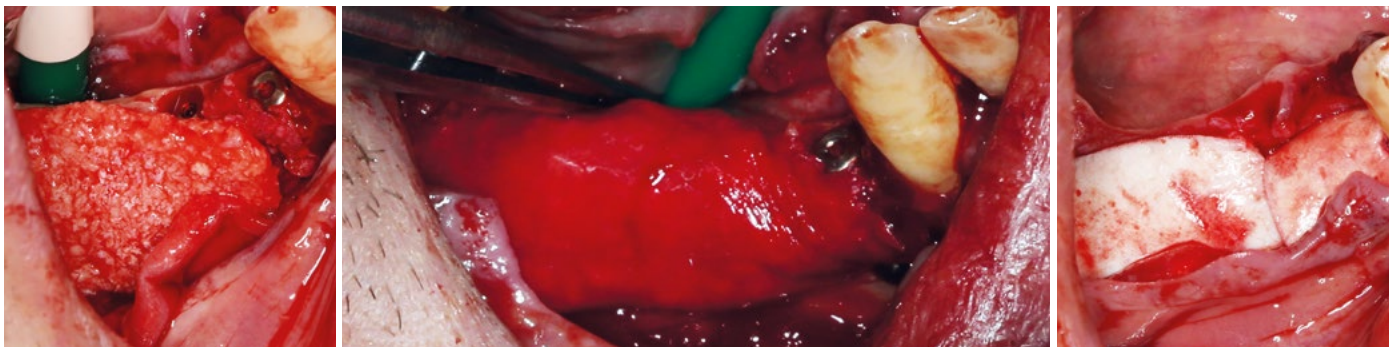
Andreas van Orten,
M.Sc., M.Sc. Dentist
Waltrop, Germany

- From 2025: Partner of the 4smile group
- Since 2024: Dental Site Manager at the 4smile group
- Since 2016: Management of Zahnärzte Do24, in collaboration with Dr. Dirk Krischik
- 2005: Founder of Zahnärzte Do24 in Waltrop
- 1998–2005: Assistant dentist and private practice owner in Castrop-Rauxel
- 1993–1998: Studied dentistry in Münster

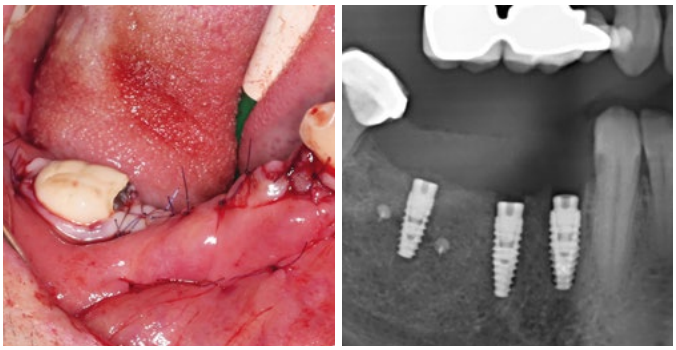
1 Pre-operative situation: Patient presented with bone atrophy in sites 44–46 as evidenced by the position of the mucosa. Occlusal (left) and buccal (right) views.



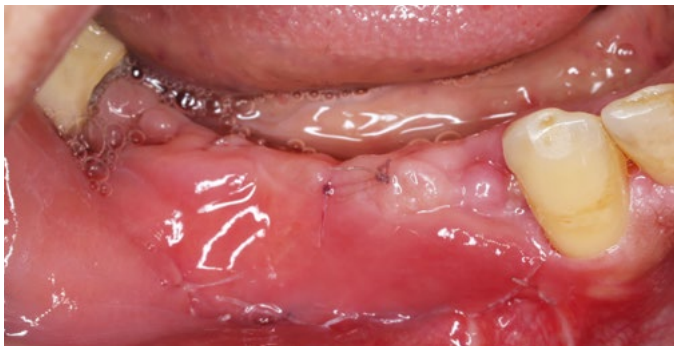
2 After Extraction of tooth 44, implant beds were prepared according to the manufacturer's protocol (left) and three CONELOG® implants were placed in regio 44–47 (right).



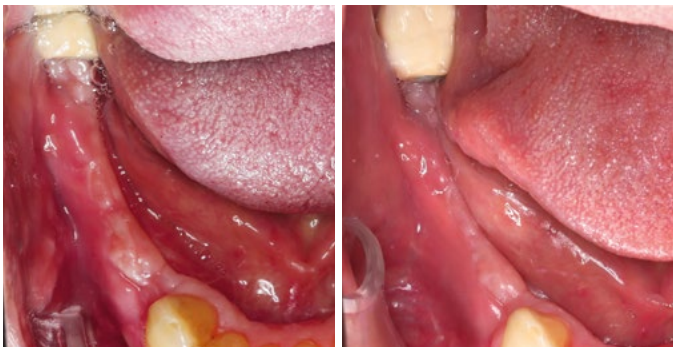
3 Autologous bone chips were placed on the implant shoulder and overlaid with volume stable porcine bone (MinerOss XP) mixed with PRF (left). Striate+, hydrated with blood and fixed with pins, stabilized the graft (middle), while NovoMatrix was used to thicken the peri-implant soft tissue (right).



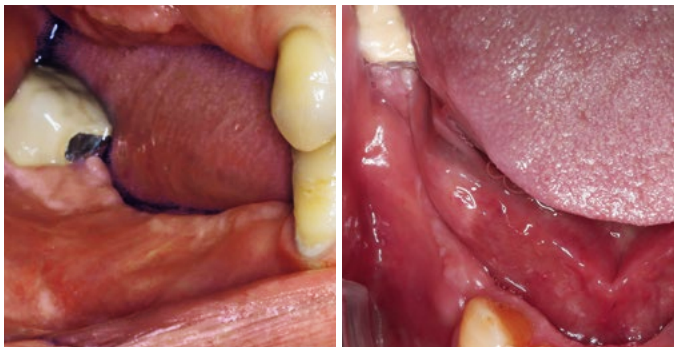
4 Left: Tension-free wound closure was achieved through periosteal releasing incisions and preparation of the M. mylohyoideus. Panoramic radiography confirmed the correct implant positioning.



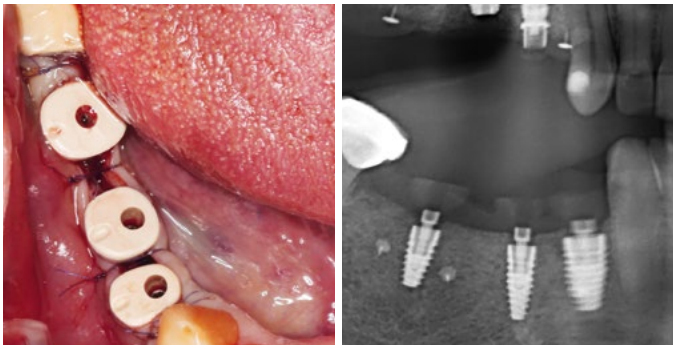
5 Advanced wound healing with irritation-free mucosa was observed 14 days post-operative.



6 The wound healing process progressed without complications as shown at 30 days (left) and 90 days (right) post-operative.

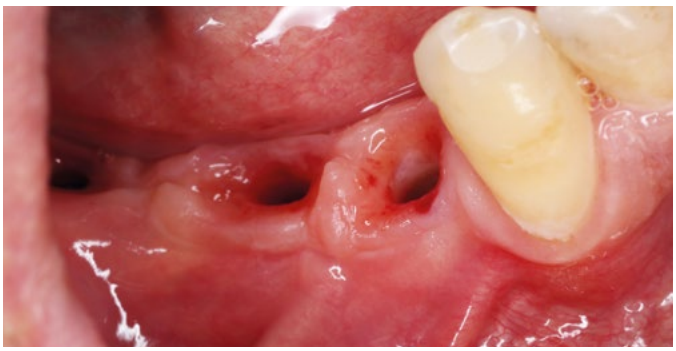


7 A significant gain in alveolar bone volume was observed six months post-operative.

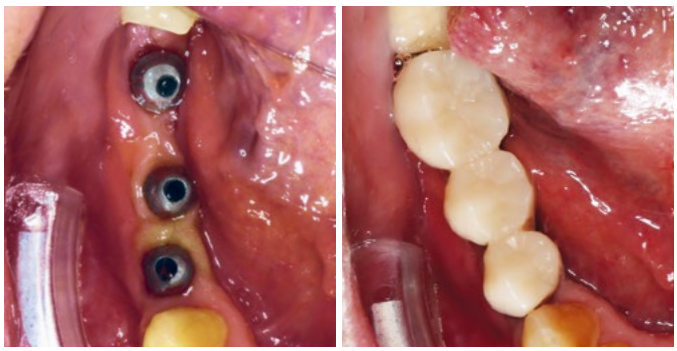


8 The exposure of implants and the insertion of customized gingiva formers (Gingividuals) was conducted six months post-operative. The control panoramic radiography showed excellent bone conditions around the implant shoulders.

9 Complete wound closure with healthy soft tissue conditions were achieved seven months post-operative.



10 The effectiveness of NovoMatrix in thickening peri-implant mucosa was demonstrated by the presence of healthy soft-tissues with aesthetic emergence profiles upon removal of the gingiva formers at nine months post-operative.



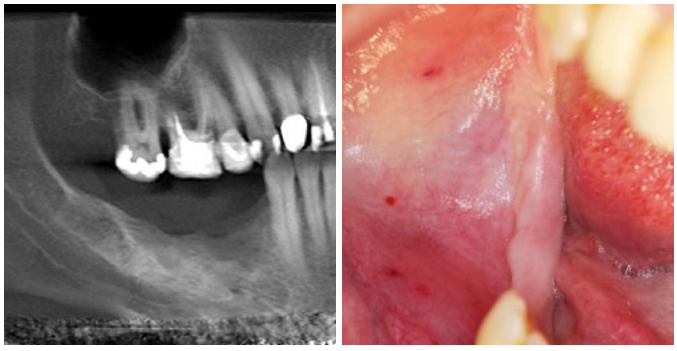
11 Left: When placing the customized abutments, a broad band of keratinized tissues in the crestal region was clearly visible. Right: The final prosthetics were inserted after 10 months.

Ridge reconstruction with autologous bone blocks

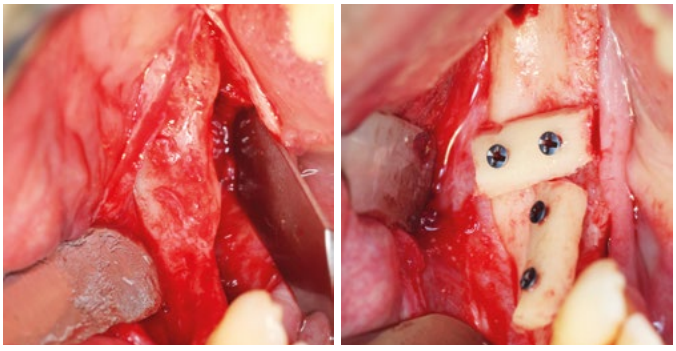
A 56-year patient presented with an atrophic lateral mandible resulting from the previous removal of implants from the regio 45–46 due to peri-implantitis and the extraction of tooth 44. The treatment plan consisted of augmenting the mandible using autologous bone blocks from the linea obliqua in combination with Striate+. After complete osseointegration, three Camlog implants were inserted in regio 44–46 with simultaneous GBR.

Prof. Dr. Dr. Andres Stricker
Konstanz, Germany

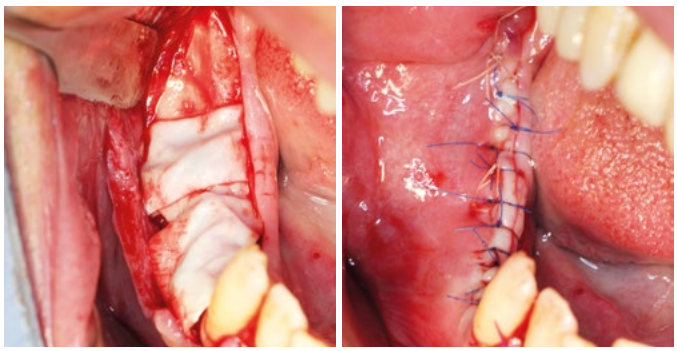
- 2021: Appointment as adjunct professor in the Department of Oral and Maxillofacial Surgery at the University of Freiburg
- 2017: Habilitation and Venia Legendi on the topic: "Minimally Invasive Augmentation Techniques in Oral Implantology"
- 2003: Center for Implantology, Periodontology and 3D Diagnostics in Konstanz
- 2002: Medical Doctorate
- 1997: Dental Doctorate
- 1997: Research assistant in the Department of Oral and Maxillofacial Surgery (Medical Director: Prof. Dr. Dr. R. Schmelzeisen) in Freiburg
- 1989: Studies in Medicine and Dentistry at the Albert-Ludwigs-University in Freiburg



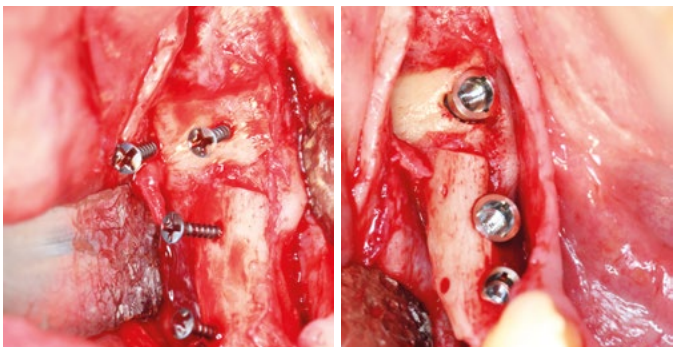
1 Pre-operative situation: Both panoramic radiography (left) and clinical inspection (right) revealed advanced atrophy on the right side of the mandible.



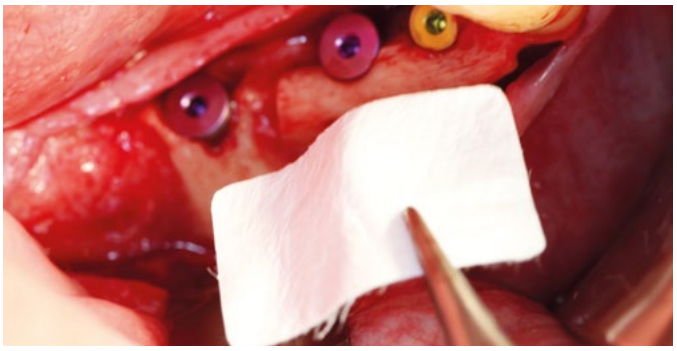
2 After flap preparation, a vertical and horizontal bone deficit became apparent (left). Autologous bone blocks were harvested and fixated with osteosynthesis screws to augment the bone defect (right).



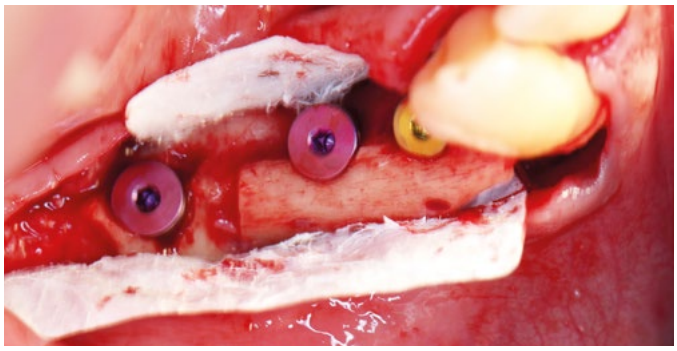
3 The bone blocks were covered with Striate+ (left). Subsequently, tension free closure was achieved through periosteal releasing incisions.



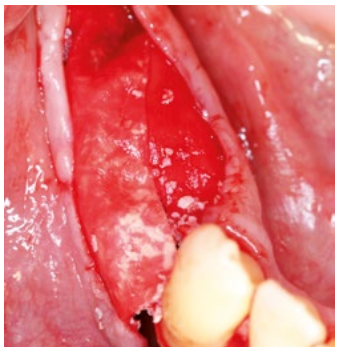
4 After 90 days of healing, the bone blocks were firmly integrated together with the mandibular bone, so that osteosynthesis screws could be removed (left) and three Camlog implants inserted (right).

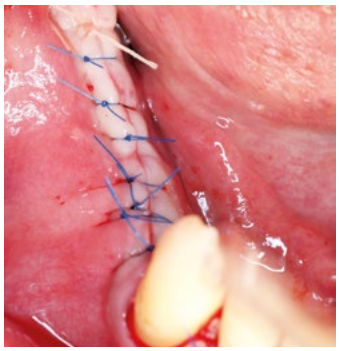


5 To compensate for the missing crestal bone at the implants shoulders, Striate+ was inserted beneath the buccal and lingual mucoperiosteal flaps. The smooth, cell occlusive upper side is visible, ...



6 ... and the fibrous underside of the membrane facing the bone is demonstrated.

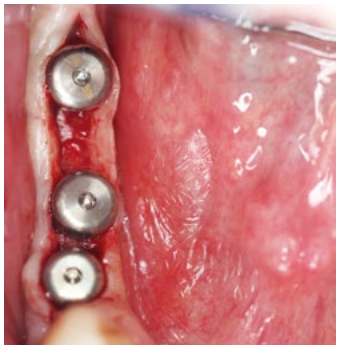


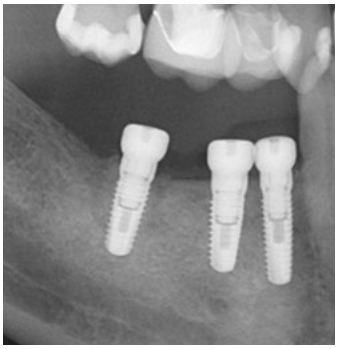


7 Left: A mixture of autologous chips and bovine bone granules was used to achieve bone augmentation and long term volume preservation. The graft was further covered with Striate+ (middle) and primary closure was achieved by suturing.

8 The control panoramic radiography confirmed the correct positioning of the implants.

9 Sutures were removed 14 days post-operative. Irritation free soft tissue with excellent wound healing was observed.





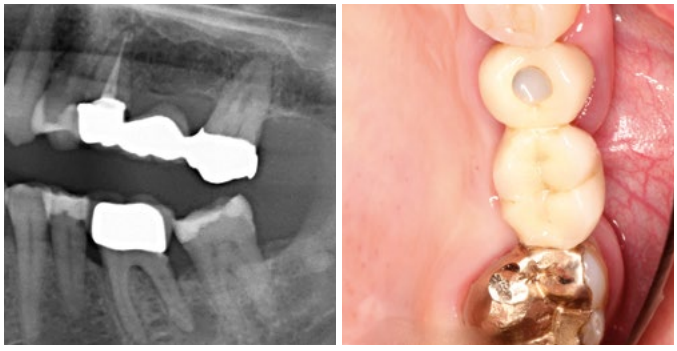
10 Both clinical observation (left) and panoramic radiography have shown stable tissue conditions, three months after implantation.

Immediate implantation and horizontal augmentation with tenting screws

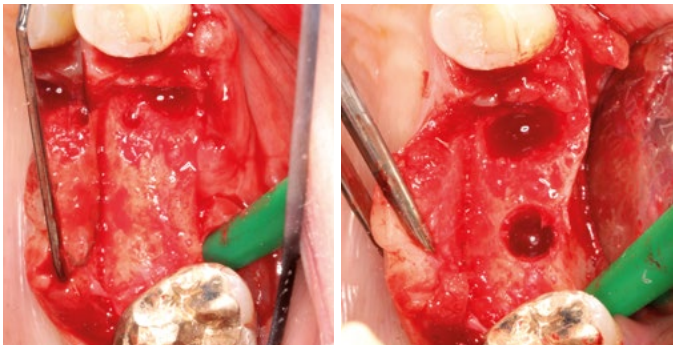
A 66-year patient presented with advanced periodontal bone loss around tooth 25, making it unable to support the existing bridge between 25 and 27. In consultation with the patient, the treatment plan consisted of extracting tooth 25 with immediate implant placement and restoring regio 26 with an additional implant. The horizontal bone augmentation was achieved using tenting screws, bovine bone granules, and Striate+.

Dr. Florian Lechner, MSc
Lindenberg, Germany

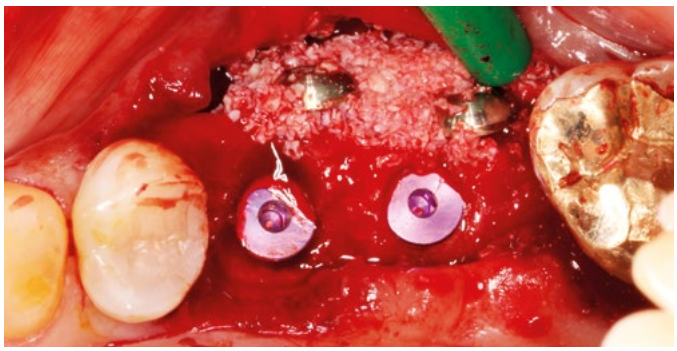
- Specialist in Pediatric Dentistry
- Since 2024 in the dental office ZahnMundKiefer in Lindenberg im Allgäu, subsequential to establishing his own private practice in Lindau
- Master's program in Implantology (DGI)
- Studies and doctorate at the University of Ulm



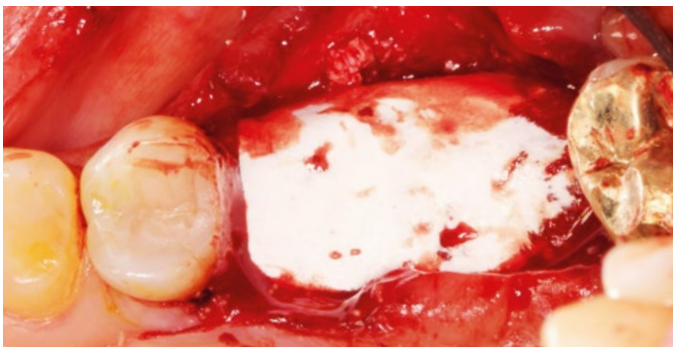
1 Left: Panoramic radiography showing bone loss in regio 26, which extended to the root of tooth 25. Bone resorption was also evidenced by clinical inspection (right).



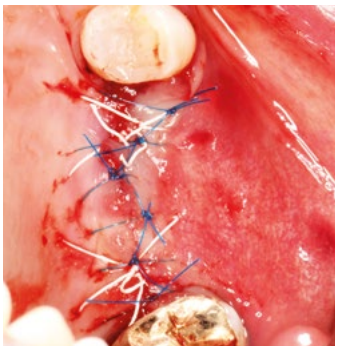
2 Full mucoperiosteal flap was elevated and the horizontal dimension of alveolar ridge was sufficient for implant placement (left). Implant beds were prepared according to the anufacturer's protocol (left).



3 After placing the implants, two tenting screws were used to hold the space and restore the horizontal bone level. The tented area was augmented with bovine bone particles.

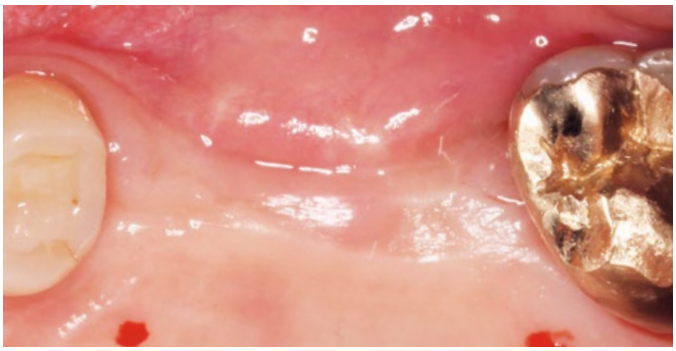


4 The defect site was subsequently covered by Striate+.

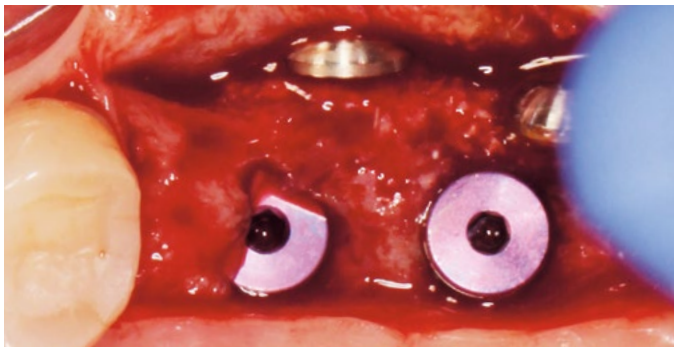



5 The flap was sutured without tension (left) and the correct implant position was confirmed by panoramic radiography (right).

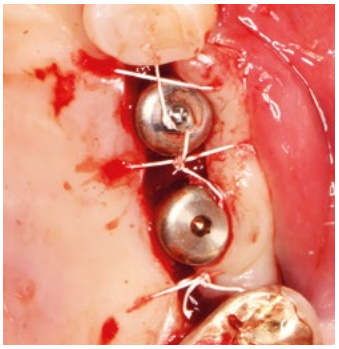
6 Suture were removed one week post-operative yielding healthy and irritation-free soft tissue.



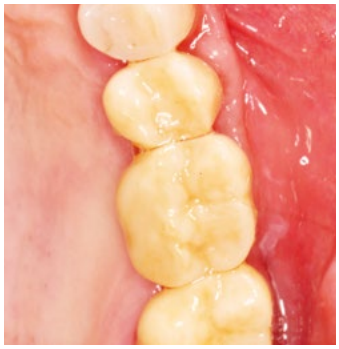
7 Prior to implant exposure five months post-operative, the tissue covering the augmentation site was completely healed.

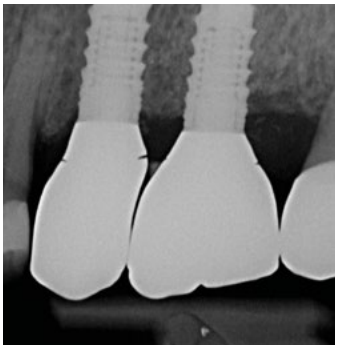


8 Good integration of the buccally positioned bovine particles was observed upon elevation of the mucoperiosteal flap. Additionally, the cover screw of the implant 25 was partially overgrown with bone.



9 Healing abutments were installed and the wound margins adapted.





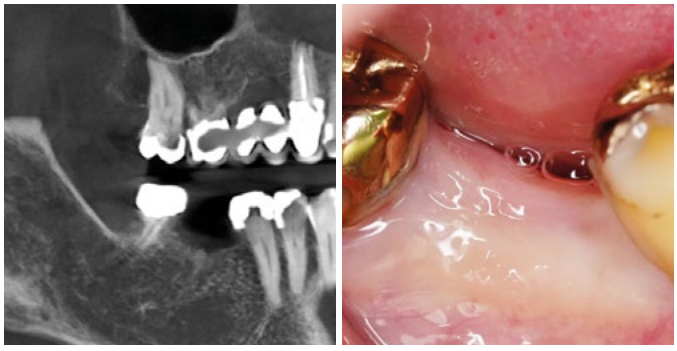
10 The final prosthetic restoration was installed six months post-operative, which integrates aesthetically into the dental arch (left and middle). The panoramic radiography showed stable bone conditions at both implants (right).

Implantation with guided bone regeneration in the mandibular posterior region

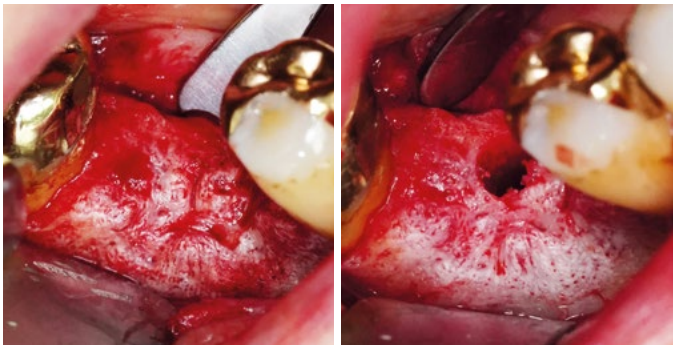
The 80-year patient presented with a missing tooth in regio 46 and the desire for a fixed dental restoration. Since the available bone in the area of the missing tooth was sufficient for the planned implant, the latter was placed immediately. The missing bone structures were restored using a bovine xenograft, which was covered with the Striate+ membrane.

Dr. Duc Pham, M.Sc.
Bayreuth, Germany

- 2023: Established private practice in Bayreuth
- 2020–2022: Employed oral surgeon (MKG Schwäbisch Hall Dr. Pescheck/ Dr. Dr. Romsdorfer) and master's program in Implantology and Periodontology (DGI)
- 2017–2020: Specialist training in oral surgery (MKG Schwäbisch Hall Dr. Pescheck/Dr. Dr. Romsdorfer)
- 2014–2017: Residency in general dental practice in Kirchzarten and Eichstetten am Kaiserstuhl
- 2008–2014: Studied dentistry in Freiburg i. Breisgau



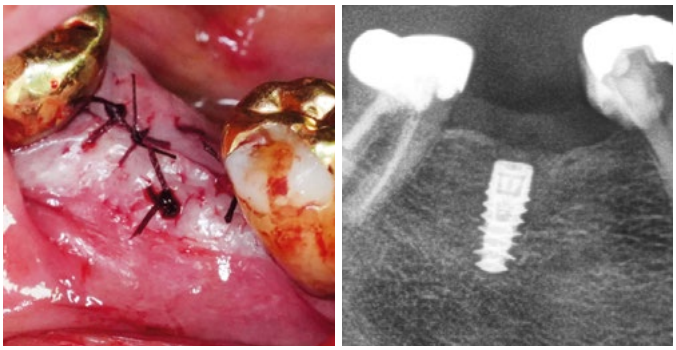
1 Pre-operative situation: Panoramic radiography showed sufficient bone levels in the area of the missing tooth (left). A wide band of keratinized tissue was visible in the crestal region (right).



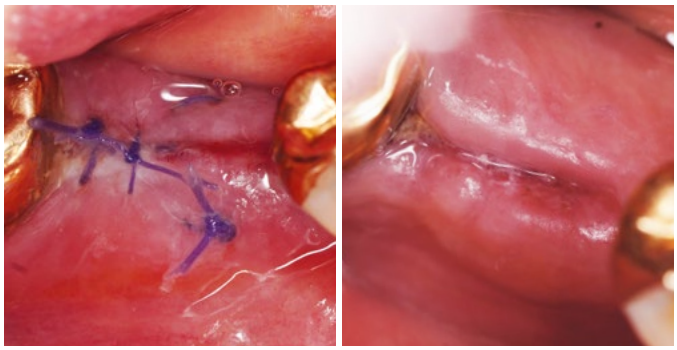
2 Full mucoperiosteal flap was elevated (left) and the implant bed was prepared according to the anufacturer's protocol (left).

3 To compensate for the crestal bone level at the implant site, bovine bone particles were used (left). The Striate+ membrane, with its smooth, striped upper side clearly visible, was cut dry to fit the defect (right), and positioned over the graft.

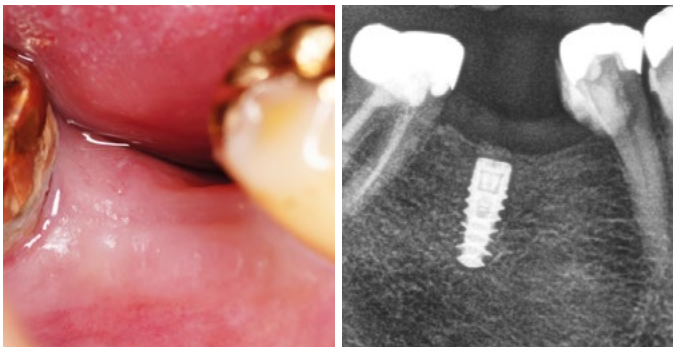
4 Thanks to its high wettability, Striate+ absorbs blood within seconds by capillary action and adapts to the defect shape.



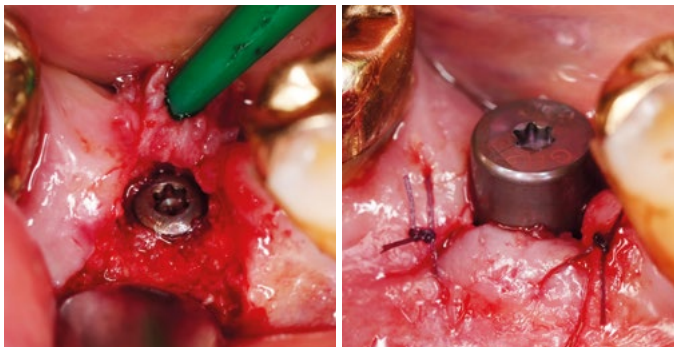
5 The flap was sutured without tension (left) and the correct implant position was confirmed by panoramic radiography (right).



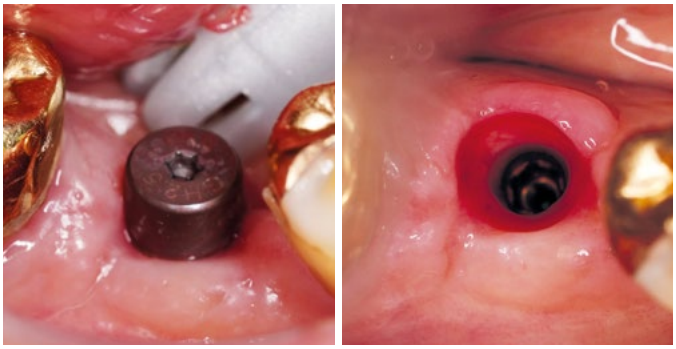
6 Good wound healing was observed one day post-operative (left) and after suture removal 11 days post-operative (right).



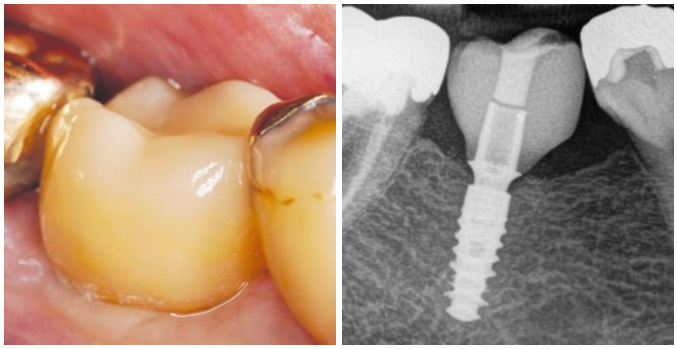
7 Fifteen weeks after surgery, at the implant exposure, the tissue was fully healed. The panoramic radiography showed stable bone conditions around the implant.



8 Re-entry was conducted at four months. Flap elevation revealed a vital and well-vascularized bone bed (left). Healing abutments were subsequently mounted (right).



9 Healthy soft tissue with optimal emergence profile was observed after removal of healing abutment.



10 Left: The final prosthetic restoration appears very natural and integrates seamlessly into the dental ridge. The panoramic radiography continues to show stable bone conditions at the implant shoulder (right).

Immediate implant placement with guided bone regeneration in the posterior mandibular region

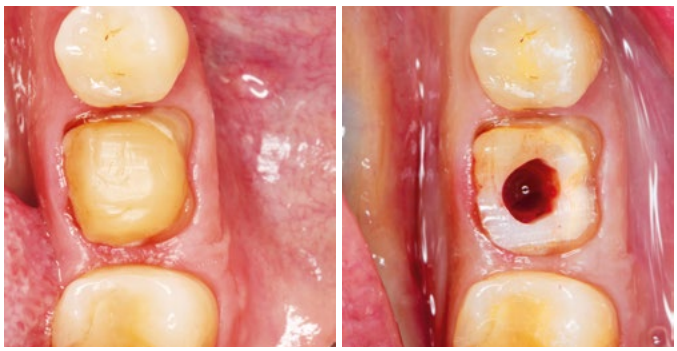
The 42-year patient was referred due to a non-restorable tooth 36 caused by a severe overfilling of the root canal. To enable a rapid prosthetic restoration, an atraumatic extraction followed by immediate implantation was planned. The gap between the implant and the alveolar socket was filled with bovine bone granules and covered with the Striate+ membrane. Three months later, healing abutments were mounted.

Priv.-Doz. Dr. Florian Rathe, MSc
Forchheim, Germany

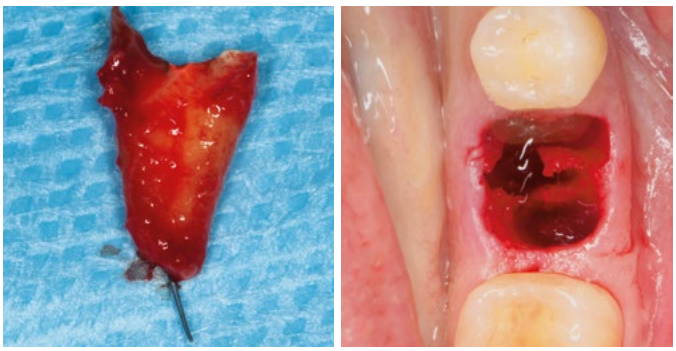
- Since 12/2011: Private practice Dr. Schlee & Rathe (Focus: Periodontology, Implantology), Forchheim
- 09/2008–12/2011: Private dental clinic "C1 Centre médico dentaire" (Focus: Periodontology, Implantology, and complex prosthetic rehabilitations), Geneva, Switzerland
- 11/2023: Habilitation, Topic: Prevention and Treatment of Peri-implantitis, DANUBE Private University, Krems an der Donau, Austria
- 04/2007: Doctorate at Justus Liebig University, Gießen
- 09/2005–07/2008: Postgraduate studies "Master of Science in Periodontology", Radboud University, Nijmegen, Netherlands
- 1997–2002: Dentistry studies at Justus Liebig University, Gießen
- Since 2015: Secretary General of the German Society for Aesthetic Dentistry
- Since 2017: Member of the guideline commission for non-surgical periodontal therapy
- Since 2017: Member of the guideline commission for complex prosthetic implant therapy

1 Pre-operative situation: A significant overfilling of the root canals in tooth 36 was evident.

2 Buccal view before tooth extraction.

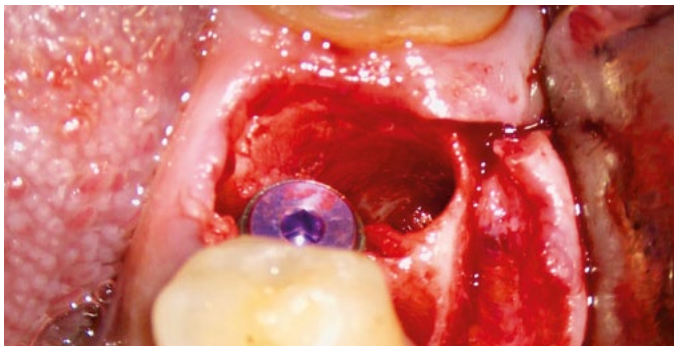


3 Occlusal view of tooth 36 (left) and the use of the tooth as a drilling template (right).

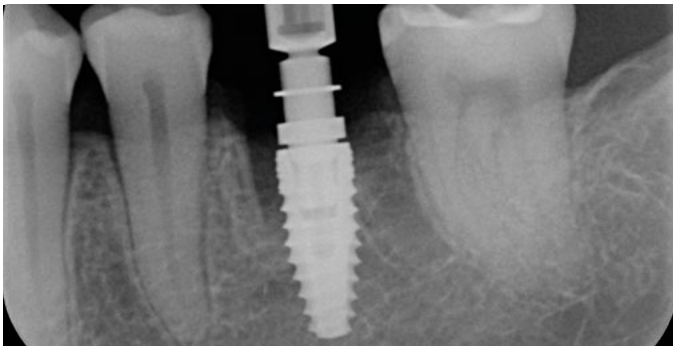


4 Root remnant (left) and occlusal view of the extraction socket (right).

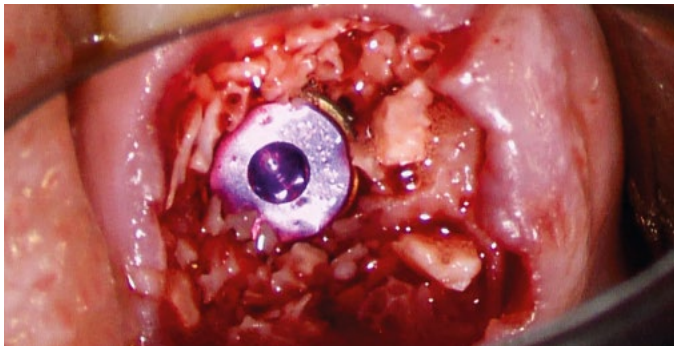
5 X-rays radiography confirmed the complete removal of tooth 36.



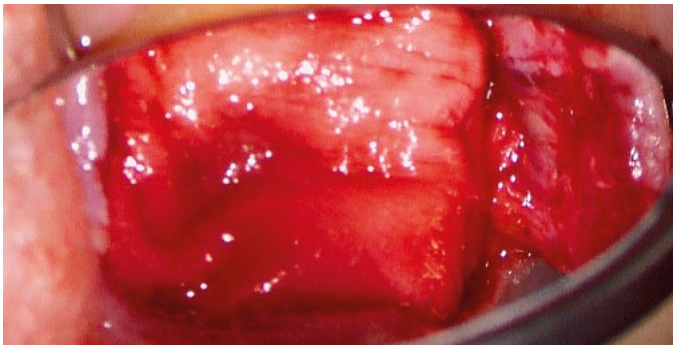
6 A CONELOG® PROGRESSIVE-LINE implant was inserted into the socket.



7 The correct implant position was verified radiographically.

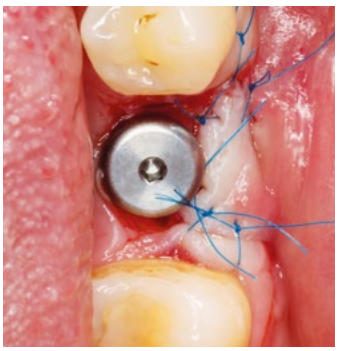


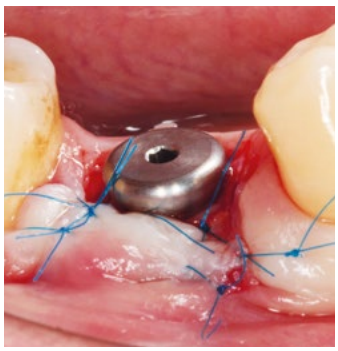
8 The gap between the implant and the alveolar socket was filled with bovine bone granules.



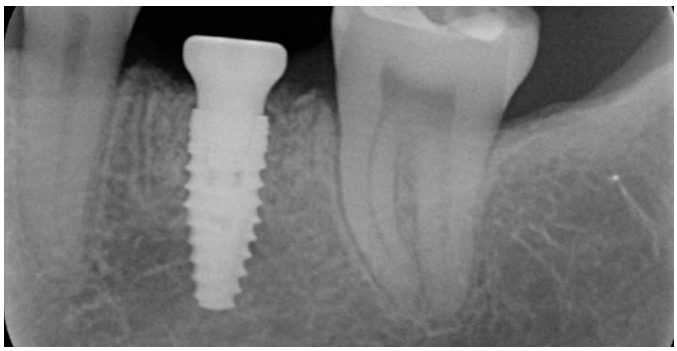
9 The alveolus was then covered with a Striate+ membrane.

10 Good soft tissue healing was observed three months post-operative, the tissue covering the alveolus was completely healed.





11 Healing abutments were mounted three months post-operative. Occlusal (left) and buccal (right) views after closure using an apically repositioned flap.



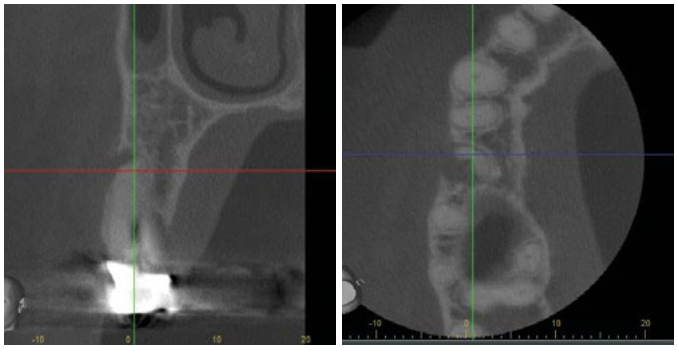
12 Radiographic follow-up has shown stable bone conditions three months post-operative.

Immediate implantation with guided bone regeneration and open healing in the maxilla

The 65-year patient presented with a unsalvageable tooth 15 and the desire for a fixed prosthesis. The tooth was atraumatically extracted, and immediate implantation was performed. The gap between the alveolus and the implant as well as the apical fenestration, were augmented with allogeneic bone granules and covered with a Striate+ membrane.

Dr. Margret Bäumer, M.S.D. (USA)
Cologne, Germany

- Since 2000, together with Prof. Dr. Thea Rott, MSc, in private practice for periodontology and implantology, Cologne
- Specialist in periodontology (DG Paro, EDA)
- Diplomate of the American Board of Periodontology (AAP)
- Master of Science in Dentistry (M.S.D.) Periodontology & Implantology
- Specialist training in periodontology, University of Washington, USA
- Studied dentistry in Frankfurt

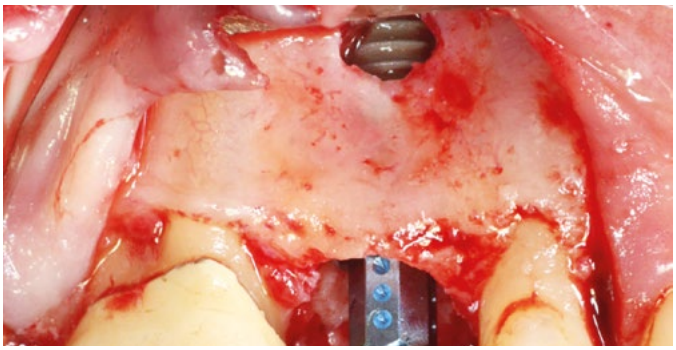


1 Cone beam computed tomography (left: sagittal; right: axial) showed an apical fenestration with intact buccal lamella in the non-restorable tooth 15.

2 Occlusal view before tooth extraction.

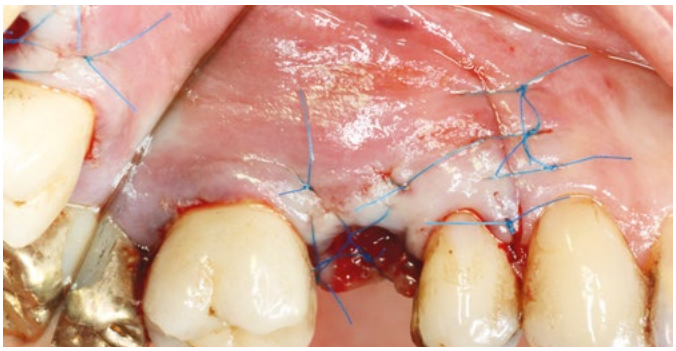
3 Situation after atraumatic extraction of tooth 15 and flap elevation.

4 Insertion of the dental implant was conducted immediately after extraction.

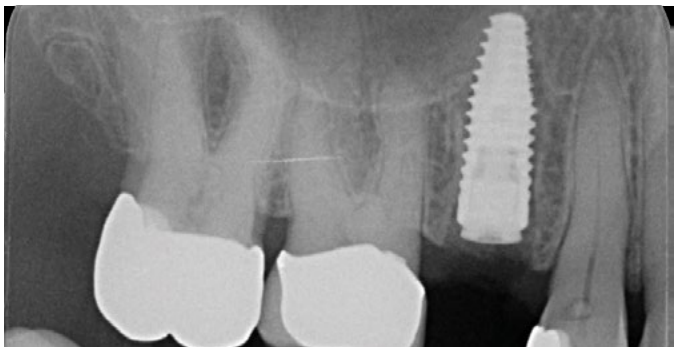


5 The apical fenestration was visible after insertion of the implant.

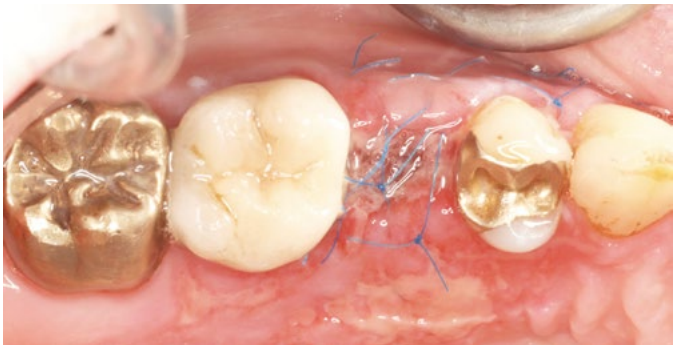
6 Both the fenestration and the alveolus were augmented with allogeneic bone granules then covered with Striate+.



7 The soft tissue flap was repositioned and fixed with sutures.



8 The postoperative radiograph confirmed the correct implant position.



9 Good wound healing was observed one week post-operative.

10 Re-entry was performed after four months to place the healing abutment.

11 The final prosthetic restoration was placed eight months post-operative. Stable bone conditions were visible on the X-ray imaging.

12 The final prosthetic restoration fits aesthetically into the dental arch.

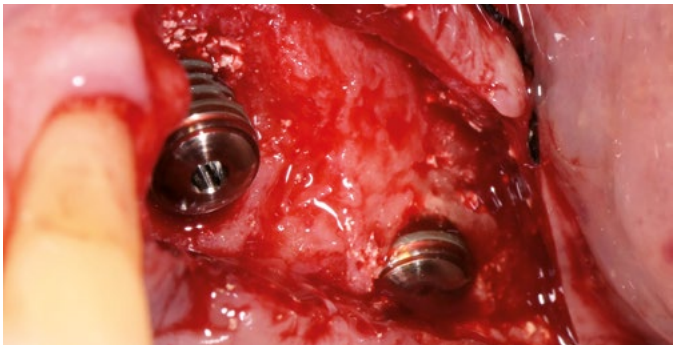
Crestal sinus lift with simultaneous bone augmentation and implant placement

61-year patient presented with atrophic edentulous posterior maxilla. The treatment plan consisted of a crestal sinus lift procedure with simultaneous implant placement and bone augmentation. Six months later, healing abutments were mounted and the flap was repositioned apically to increase the thickness of keratinized mucosa. The final restoration consisted of screwed zirconia crowns.

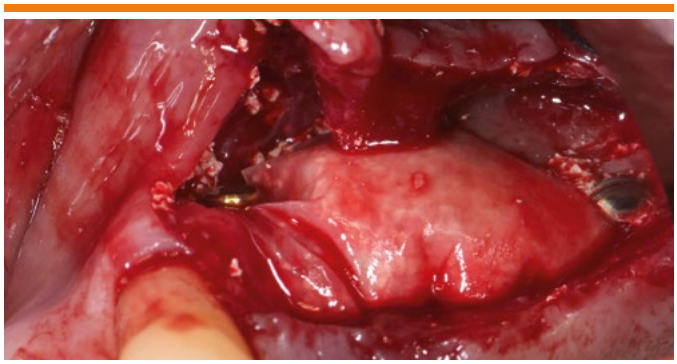
Dr. Giuliano Garlini
Milan, Italy

- Co-authored the book "Il rialzo del seno mascellare per via crestale" Ed Edra. Milano 2023
- Co-authored a book chapter in "The Sinus Bone Graft", edited by Dr. Jensen, Ole T. Quintessence Publishing, Hanover Park, Illinois, 2006 USA
- Post-graduate in Endodontics at the Dental School of the University of Verona (1998) and in Oral Surgery at the Dental School of the University of Florence (2001)
- DDS degree in 1994 at the School of Dentistry of the University of Milan, Italy (1994)
- Active member of the European Academy of Osseointegration (EAO),
- Member of the Italian Academy of Osseointegration (IAO), Italian Society of Periodontology (SIdP), European Federation of Periodontology (EFP) and Italian Society of Aesthetic Dentistry (IAED)

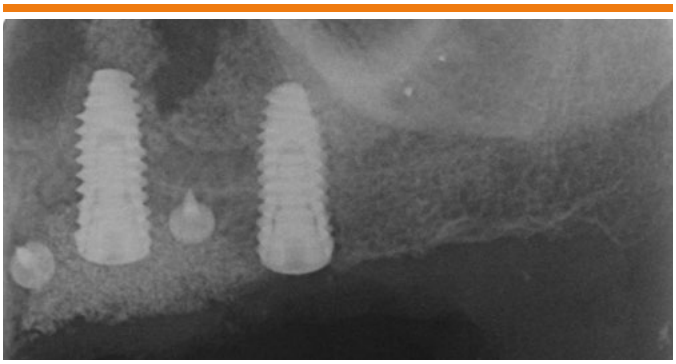
1 Pre-operative X-ray panoramic radiography showing a significant bone resorption in the second and third quadrant. Upon discussion with the patient, it was agreed that only the upper jaw will be treated at this stage.



2 A full mucoperiosteal flap with two vertical release incisions was elevated. Transcrestal sinus lift approach was conducted to allow the placement of two implants in positions 25 and 26 and the insertion of porcine cancellous bone chips (MinerOss XP) into the sinus cavity.



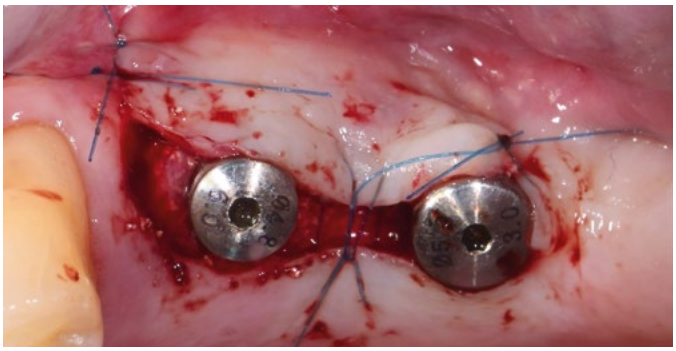
3 MinerOss XP was further used to fill the gap in the coronal area of the implants. Striate+ was positioned on the top of the defect site and stabilized with tacks.



4 Post-operative X-ray radiography confirmed the appropriate positioning of implants and the complete filling of the defect with bone chips.

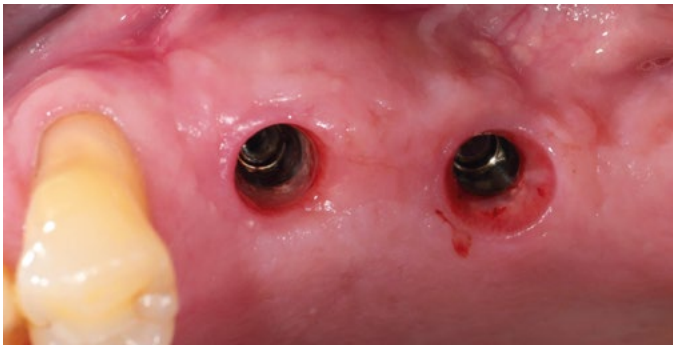
5 Visual observation after six months has shown excellent soft tissue healing.

6 Re-entry was performed at six months. Successful bone regeneration was manifested by the presence of large amounts of vascularized bone tissues around the implants.

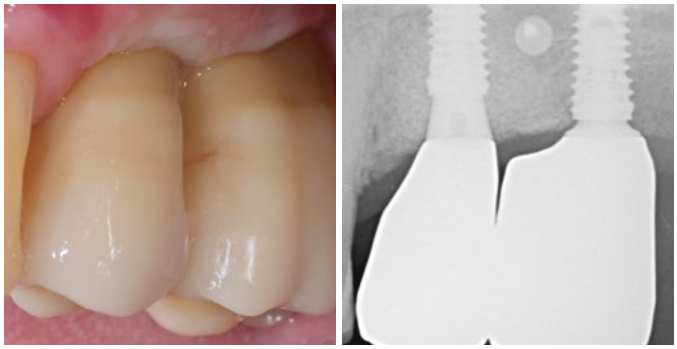


7 Healing abutments were placed and the flap was repositioned apically with the aim of increasing the amount of keratinized mucosa.

8 Healthy soft tissues were observed one month later.



9 Upon removal of the healing abutments, a thick peri-implant mucosa with adequate emergence profiles was obtained.



10 Left: Lateral view of the final restoration that consisted of screw-retained zirconia crowns. Right: X-ray imaging revealed satisfactory levels of bone around the implants.

11 Intra-oral scans were acquired six months later and confirmed the stable situation of soft tissues around the implants.

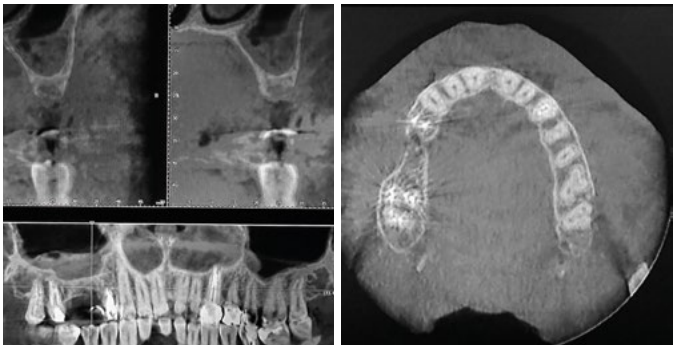
Lateral maxillary sinus elevation with staged implant placement

60-year patient, non-smoker, in good health conditions, and with appropriate oral hygiene presented with a provisional bridge in the area 14–17. X-ray radiography revealed a combined horizontal and vertical bone deficit in regio 15 and 16. The treatment plan consisted of a lateral approach sinus lift with simultaneous horizontal and vertical guided bone regeneration. The restoration of adequate bone volumes in the apical, coronal and buccal directions facilitated the insertion of implants and allowed the construction of prosthetic crowns for optimal aesthetic and biomechanical outcomes.

Dr. Maurizio Grande
Rome, Italy

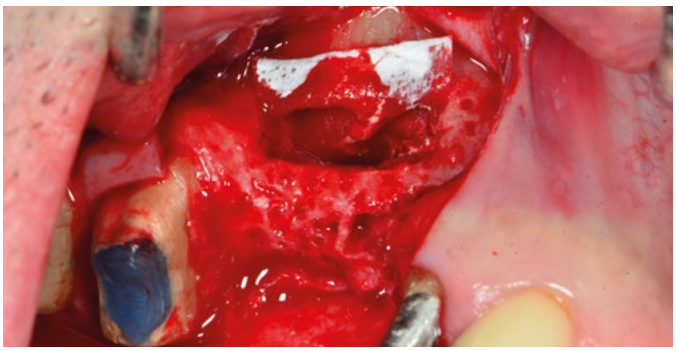
- Professor at the University of Camerino (2016 to 2018). In 2018, he founded and became the president of the scientific association AGISI
- Winner of the 1st Prize for the Esthetic Dental Care Award by an international jury (2008)
- Awarded the best original research in the dental materials section at the 11th National Congress of the College of Dentistry Teachers (2004)
- Postgraduate degree in prosthetics and prosthetic materials (University of Siena; 1995) and specialized in implant prosthetics
- Graduated in dentistry (University of Rome Tor Vergata; 1995) and expert in aesthetic prosthetics.
- Member of the Chicago Dental Society and serves on the Editorial Board of the International Journal of Experimental Dental Science since 2012
- Published extensively in peer-reviewed journals and lectured in national and international conferences

1 The visual examination upon removal of the bridge revealed a vestibular depression in regio 15 and 16 (occlusal view).

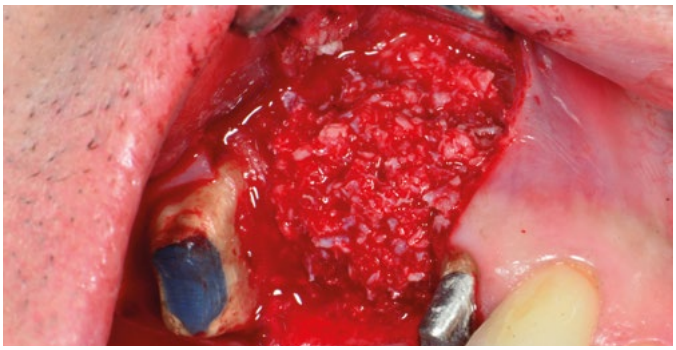


2 Pre-operative cone beam computed tomography (CBCT) of regio 15 revealed significant bone resorption in both vertical (left) and horizontal (right) dimensions. Similar clinical situation was observed in regio 16 (CBCT not shown).

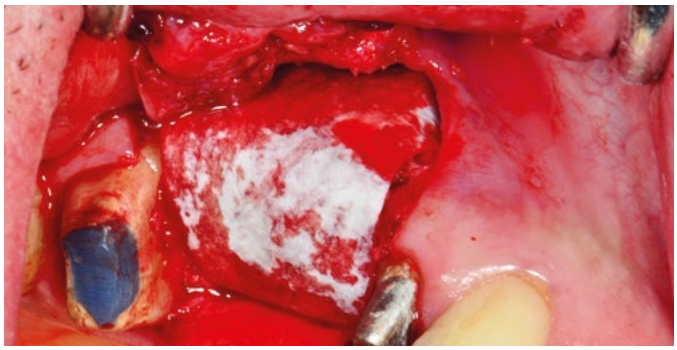
3 A full mucoperiosteal flap with two vertical release incisions was elevated. The sinus cavity was accessed through lateral window created by a piezoelectric device.



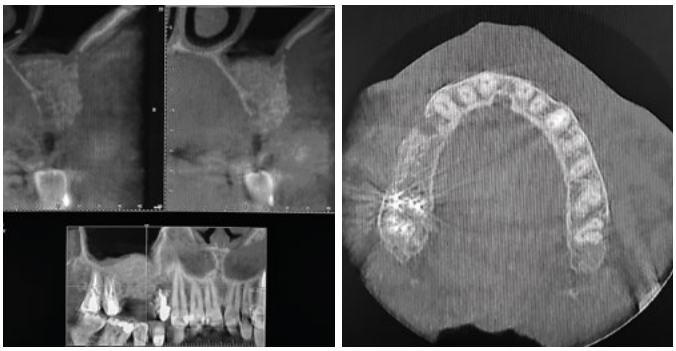
4 The Schneiderian membrane was detached and Striate+ was placed underneath it to prevent perforation.



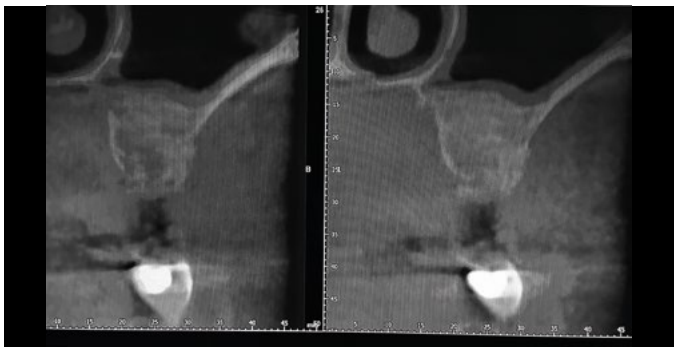
5 The sinus cavity was filled with a 50:50 mixture of deproteinized bovine bone minerals (MinerOss X) and human bone chips. The bone graft was extended occlusally and buccally to complete the horizontal and vertical GBR.



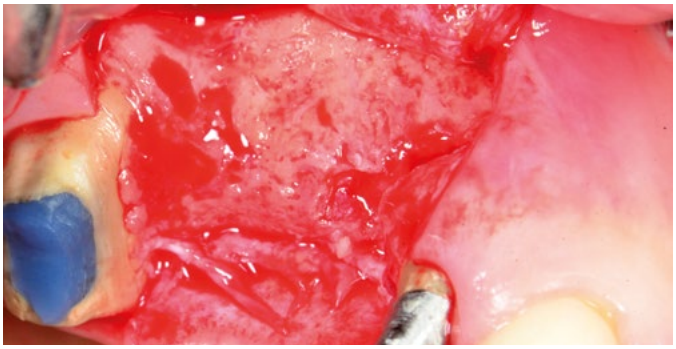
6 A second Striate+ membrane was placed on top of the defect site to stabilize the graft. Thanks to its high drapability, fixation was not needed. Tension-free sutures were further applied to achieve primary closure.



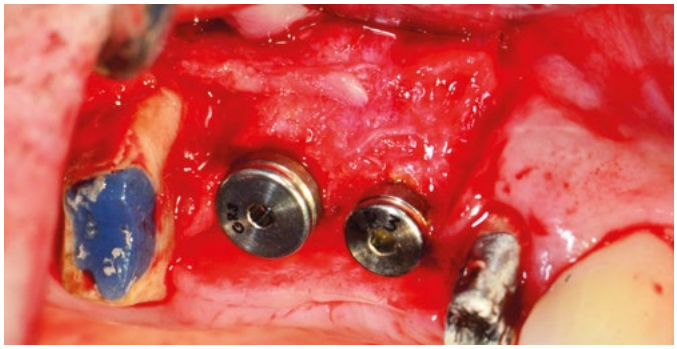
7 CBCT imaging of regio 15 at 6 months post-operative reveled a bone volume in the vertical (left) and horizontal (right) dimensions that is adequate for implant placement.



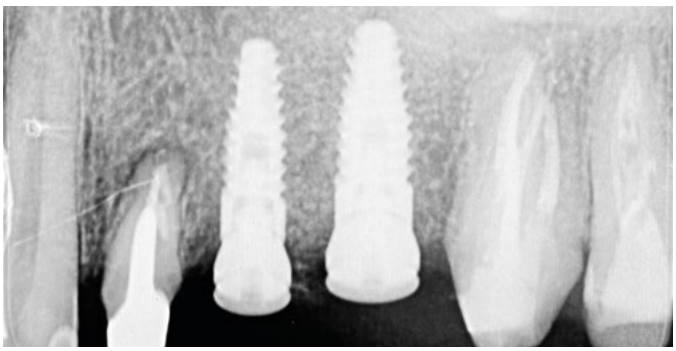
8 Similarly, CBCT imaging of regio 16 at 6 months post-operative reveled successful bone regeneration.



9 Re-entry at six months: An apically sliding half-thickness flap was performed.



10 Two BioHorizons Tapered Internal implants were inserted. Healing abutments were placed at the same time (one stage technique) and an apical sliding flap was sculpted to restore a correct width of the adherent gum.



11 X ray imaging showing the accurate position of the implants.

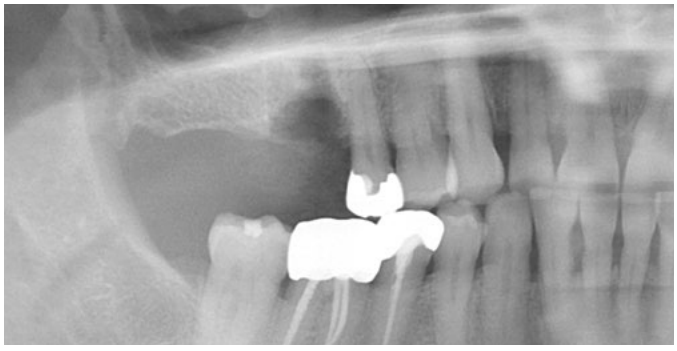
12 Left: The provisional prosthesis (individual crowns on 14 and 17 and screwed crowns on 15–16) were mounted after 15 weeks. Follow-up radiography was conducted 3 months from the prosthesis and revealed excellent bone maintenance around the implants.

External sinus lift with simultaneous implantation

62-year patient presented with an edentulous regio 16, for which an implant was planned. The vertical bone defect was augmented by external sinus lift using a mixture of autologous chips and bovine mineral as bone graft. Striate+ was used both to cover the lateral sinus window and the implant.

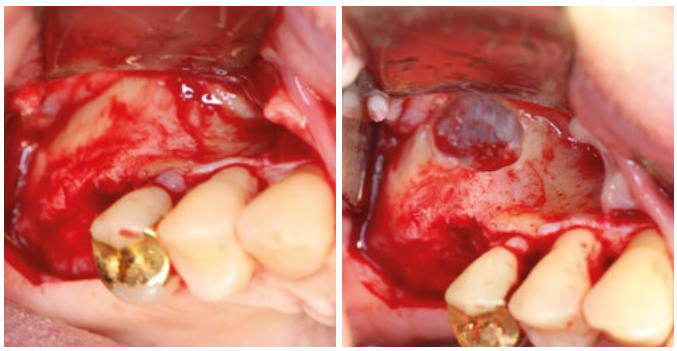
Prof. Dr. Dr. Andres Stricker
Konstanz, Germany

- 2021: Appointment as adjunct professor in the Department of Oral and Maxillofacial Surgery at the University of Freiburg
- 2017: Habilitation and Venia Legendi on the topic: "Minimally Invasive Augmentation Techniques in Oral Implantology"
- 2003: Center for Implantology, Periodontology and 3D Diagnostics in Konstanz
- 2002: Medical Doctorate
- 1997: Dental Doctorate
- 1997: Research assistant in the Department of Oral and Maxillofacial Surgery (Medical Director: Prof. Dr. Dr. R. Schmelzeisen) in Freiburg
- 1989: Studies in Medicine and Dentistry at the Albert-Ludwigs-University in Freiburg

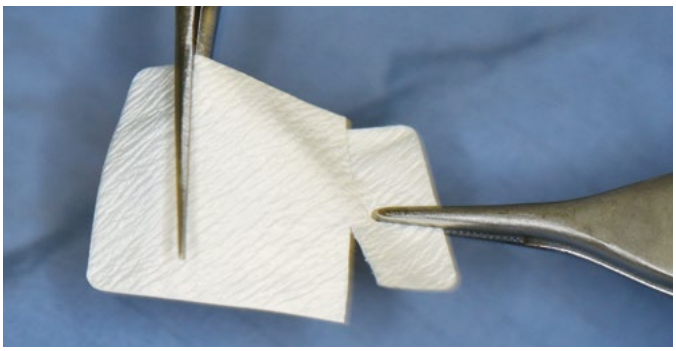


1 Pre-operative X-ray panoramic radiography showing a vertical bone defect in regio 16.

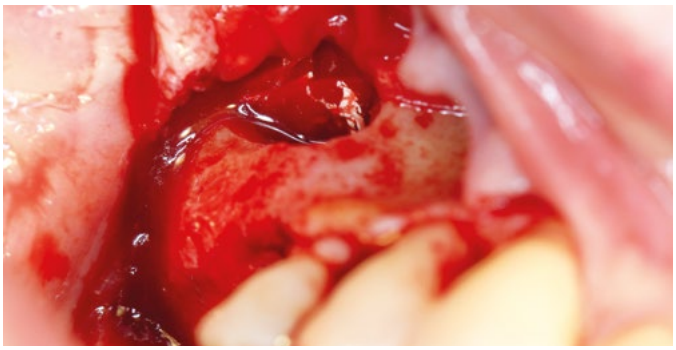
2 The clinical situation before preparation of the mucoperiosteal flap.



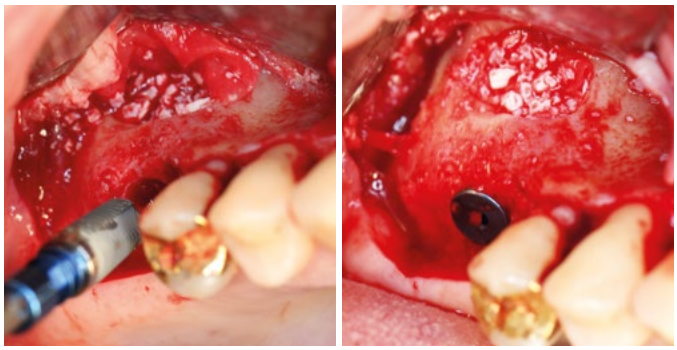
3 The lateral access to the maxillary sinus was exposed after flap elevation (left) followed by preparation of the bone window (right).



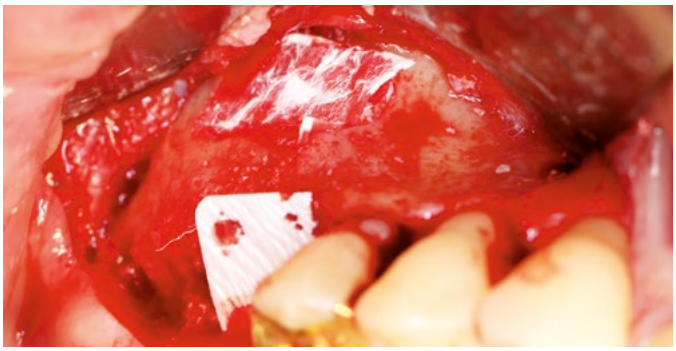
4 Adjustment of the Striate+ membrane: The smooth, striped upper side is visible.



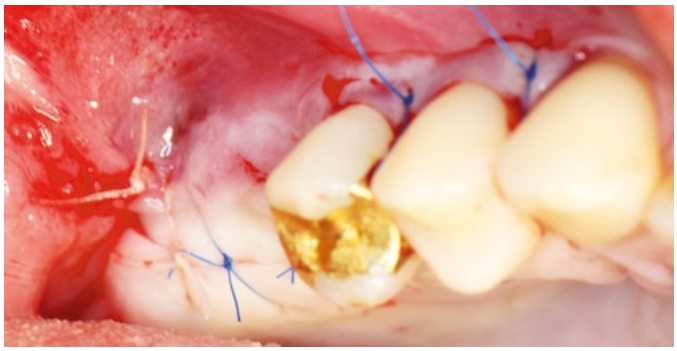
5 Striate+ was inserted into the maxillary sinus to protect the Schneiderian membrane.



6 The maxillary sinus was filled with a mixture of bovine and autologous bone particles (left). Subsequent, a Camlog implant was inserted.

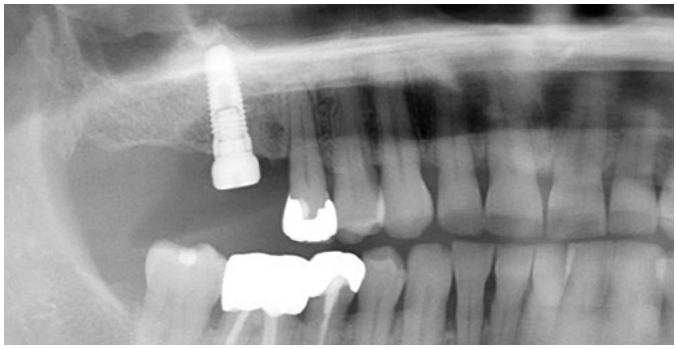


7 Two additional Striate+ membranes were used to cover both the bone window and the bone chips at the implant shoulder.



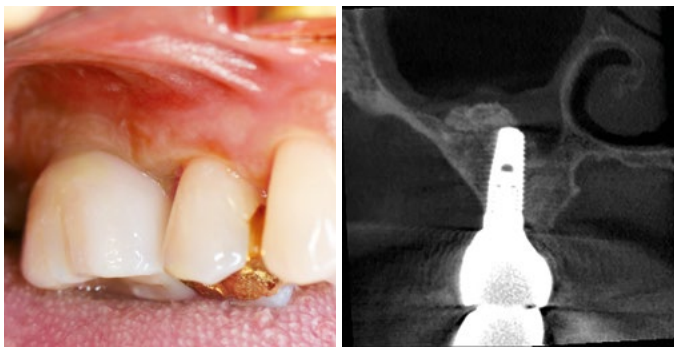
8 The flap was then sutured tension-free.

9 Healthy soft tissue was observed five months post-operative with almost no visible scarring.



10 The healing abutment was placed five months post-operative and the follow up panoramic radiography showed stable bone conditions.

11 After two months of transgingival healing (7 months after surgery), the final prosthetics were inserted.



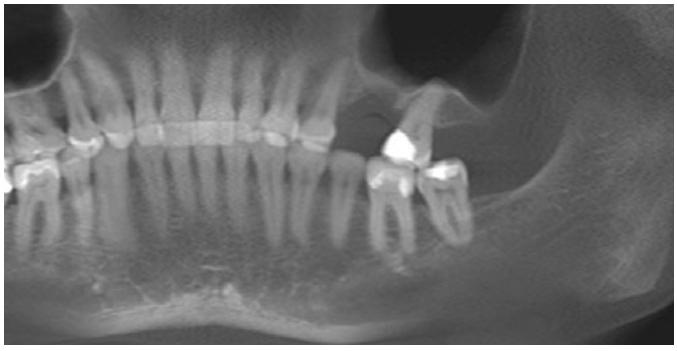
12 Left: Excellent soft tissue conditions were observed upon insertion of the final prosthetics. Right: X-ray radiography revealed satisfactory peri-implant bone volume.

Implantation with combined sinus lift and guided bone regeneration

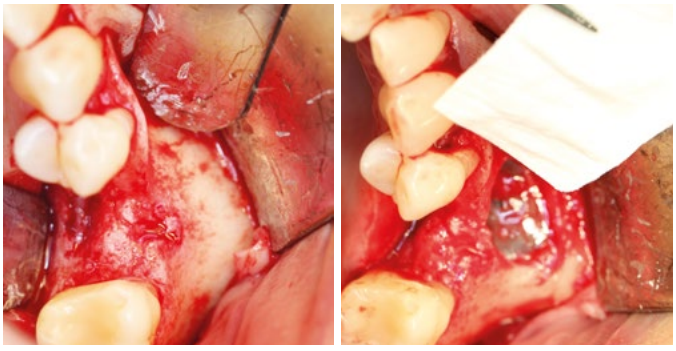
The 62-year patient presented with a unsalvageable tooth 25 due to a radicular cyst. After extraction and healing, the patient desired a fixed dental restoration, which could only be realized in combination with a sinus lift and simultaneous GBR in the crestal part of the implant due to the low remaining bone height and horizontal bone defect. Striate+ was used to cover both the lateral bone window and the implant.

Prof. Dr. Dr. Andres Stricker
Konstanz, Germany

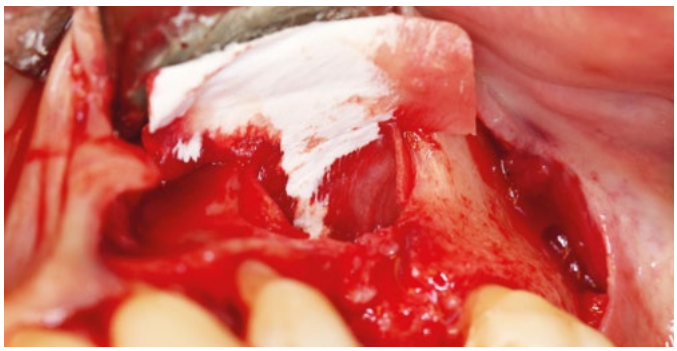
- 2021: Appointment as adjunct professor in the Department of Oral and Maxillofacial Surgery at the University of Freiburg
- 2017: Habilitation and Venia Legendi on the topic: "Minimally Invasive Augmentation Techniques in Oral Implantology"
- 2003: Center for Implantology, Periodontology and 3D Diagnostics in Konstanz
- 2002: Medical Doctorate
- 1997: Dental Doctorate
- 1997: Research assistant in the Department of Oral and Maxillofacial Surgery (Medical Director: Prof. Dr. Dr. R. Schmelzeisen) in Freiburg
- 1989: Studies in Medicine and Dentistry at the Albert-Ludwigs-University in Freiburg



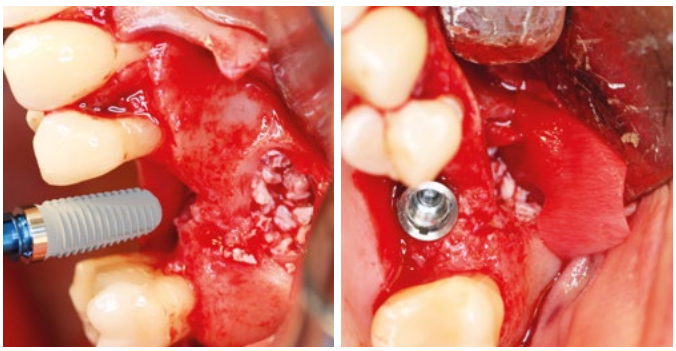
1 The pre-operative situation: The bone loss shown in the panoramic radiography with low remaining bone height ...



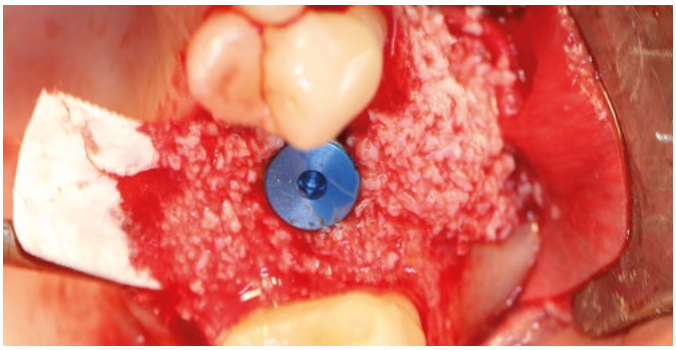
2 The bone loss was visible upon elevation of the mucoperiosteal flap (left). An external sinus lift was performed to restore the vertical bone level (right).



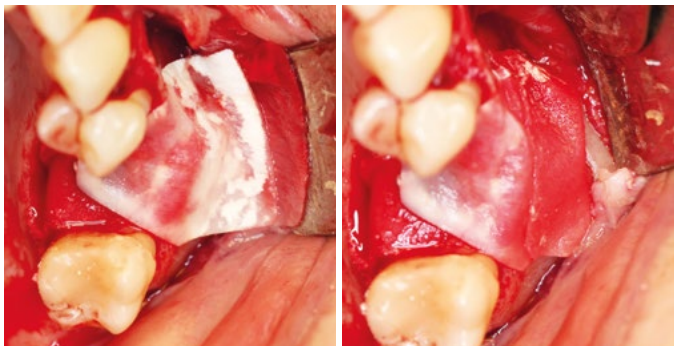
3 Striate+ was used to protect the Schneiderian membrane. The hygroscopic effect upon blood absorption is clearly observable.



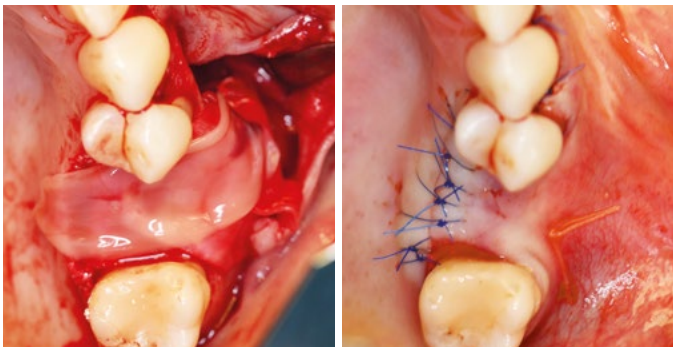
4 The sinus cavity was filled with bovine bone minerals (left), Camlog implant was inserted in regio 25, and the bone window was covered with Striate+.



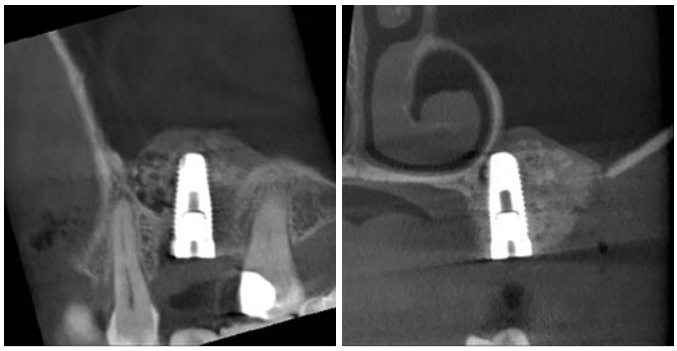
5 The horizontal bone level was restored using GBR with autologous and bovine bone granules mixed with L-PRF.



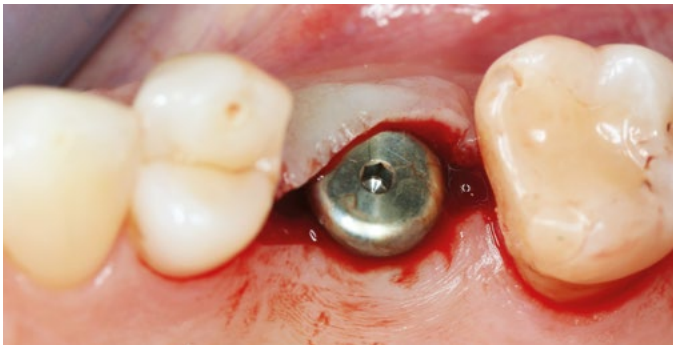
6 Striate+ used for defect coverage is moistened by blood within seconds, making it easy to position.



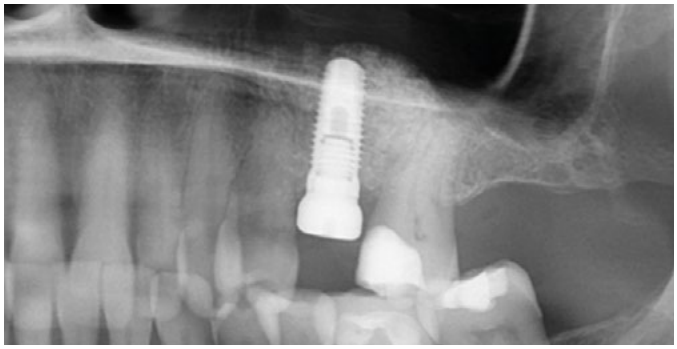
7 L-PRF clots were placed on top of the defect site to support the wound healing of the palatially displaced flap.



8 The bovine bone graft in the sinus cavity, in addition to the correct implant position, is clearly visible in the post-operative cone beam computed tomography.



9 A healthy, keratinized soft tissue collar surrounds the gingiva former placed seven months post-operative.



10 Cone beam computed tomography showed stable bone conditions around the implant area.

Sinus floor elevation with antral access and simultaneous implantation

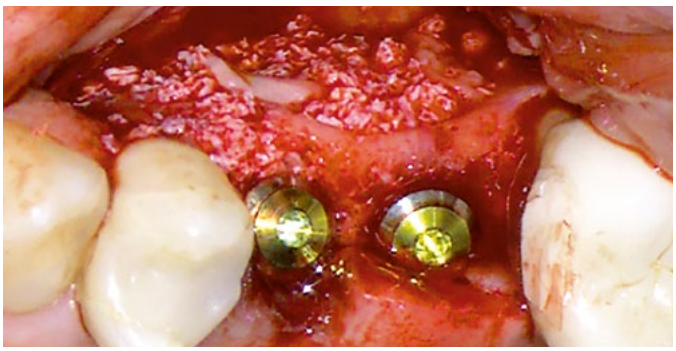
The 50-year patient presented with a significant peri-radicular bone resorption due to a longitudinal root fracture in tooth 25. The later was deemed unsalvageable and no longer available as a pillar for the bridge in the regio 25-27. The treatment plan consisted of extracting the tooth 25 with immediate implant placement and additional implant for replacing the missing tooth 26. The vertical bone level was restored following an external sinus lift with the use of porcine bone granules mixed with crushed L-PRF clots and the Striate+ membrane.

PD Dr. Gerhard Iglhaut
Memmingen, Germany

- Since 2017: Lecturer and research associate at the University Hospital Freiburg, Department of Dental, Oral and Maxillofacial Medicine, Clinic for Oral, Maxillofacial and Plastic Surgery (Head Prof. Dr. Dr. Schmelzeisen)
- 2009–2017: Lecturer and research associate at the University Hospital of the Georg-August-University in Göttingen, Department of Oral and Maxillofacial Surgery (Ordinarius Prof. Dr. Dr. Schliephake), habilitation in 2015
- 2004–2018: Member of the board of the German Society for Dental Implantology (DGI) with presidency from 2012–2015
- Since 2001: Member of the teaching staff of APW/DGI/DGÄZ/DGZ/DGZPW for Implantology, Aesthetic Dentistry, and Restorative Dentistry curricula
- Since 1987: Practitioner in Oral Surgery in Memmingen and continuously engaged in dental education
- 1977–1982: Studied dentistry at Justus-Liebig University in Gießen

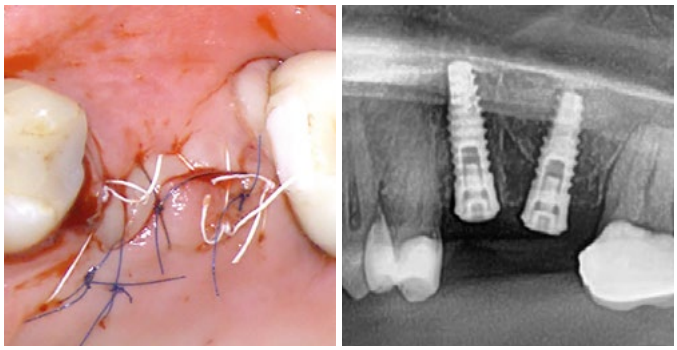
1 Left: Pre-opeartive situation: The panoramic radiography has shown significant bone resorption at tooth 25 and a loss of bone height in regio 26. Both the buccal (middle) and occlusal (right) views show tissue regression in the area of the tooth-supported bridge.

2 Tooth 25 was extracted, and a lateral access to the maxillary sinus was created with a piezotome.

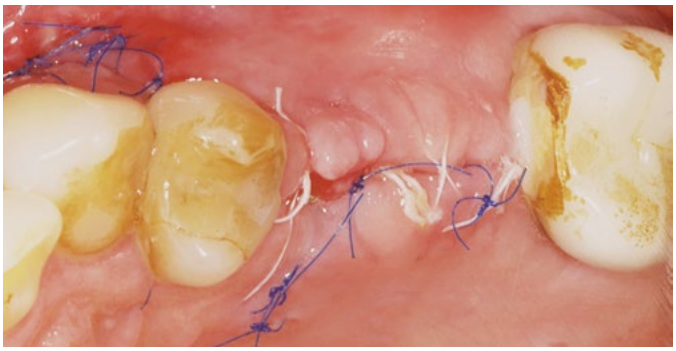


3 The implants were inserted, and the sinus floor was elevated with a mixture of porcine bone material (MinerOss XP) and L-PRF.

4 Striate+ membrane was used to cover the augmentation site.



5 Tension-free primary closure was achieved (left) and the correct implant position was confirmed with panoramic radiography (right).



6 Good wound healing was observed when sutures were removed after two weeks.

7 Two months after implant exposure, the implant necks were surrounded by healthy soft tissue.

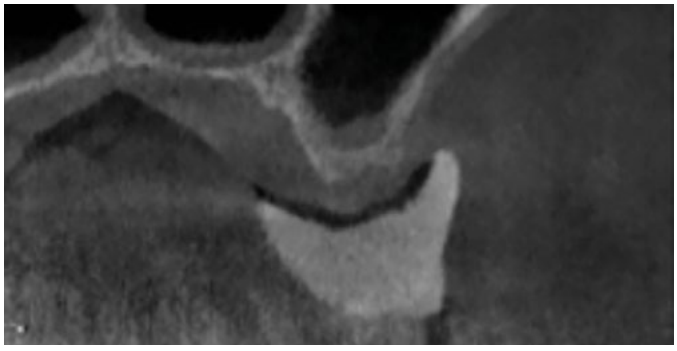
8 The occlusal (left) and buccal (middle) views of the crowns placed four months post-operative showed them harmoniously fitting into the patient's dentition. The panoramic radiography shows stable bone conditions at the implant shoulders.

Augmentation of atrophic maxilla with sinus lift and titanium mesh

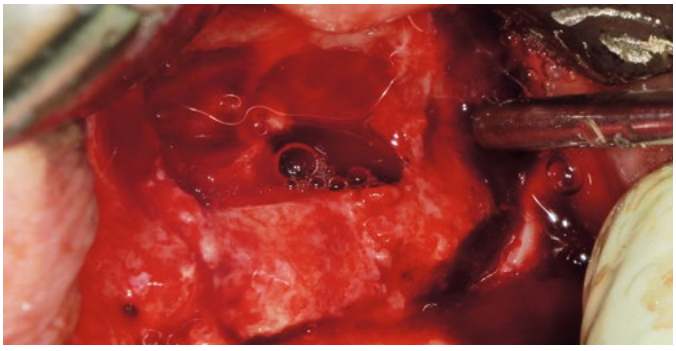
The 51-year patient presented with a missing dentition in the left maxilla, from tooth 21 to 28, following a tooth extraction due to severe periodontitis and significant bone atrophy. To enable the placement of dental implants, a horizontal and vertical bone augmentation with autologous and allogeneic bone granules was performed. For this purpose, an external sinus lift was combined with an augmentation using a titanium mesh.

Univ.-Prof. Dr. med. Dr. med. dent.
Peer Kämmerer, MA, FEBOMFS
Mainz, Germany

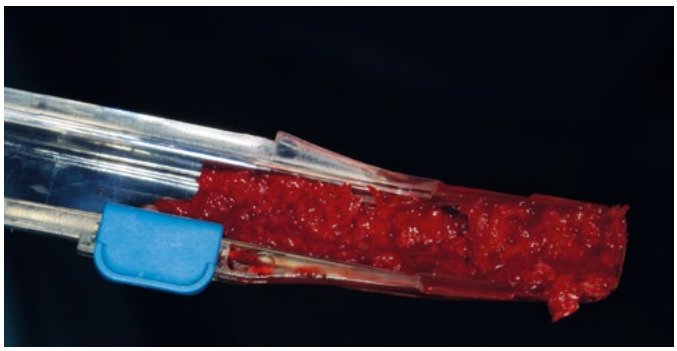
- 01/2021: Appointment to the W2 professorship in "Plastic-Reconstructive Oral and Maxillofacial Surgery" at the Johannes Gutenberg University Mainz
- 01/2018: Appointed Senior Consultant/ Deputy Director of the Department of Oral, Maxillofacial, and Plastic Facial Surgery at University Medical Center Mainz
- 2012/2013: Visiting Professor at Harvard Medical School, Boston, MA, USA
- 10/2015: Habilitation in the field of Oral and Maxillofacial Surgery (Dr. med. habil.)
- 02/2016: Master of Arts (MA), Management of Healthcare and Social Facilities
- 2004–2010: Studied dentistry at Johann Wolfgang Goethe University, Frankfurt, and Johannes Gutenberg University Mainz
- 2001–2007: Studied medicine at Johannes Gutenberg University Mainz and the University of Zurich, Switzerland



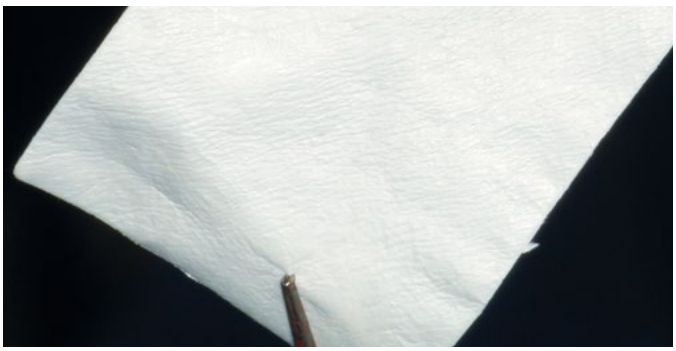
1 Cone beam computed tomography showed significant atrophy of the left maxilla.



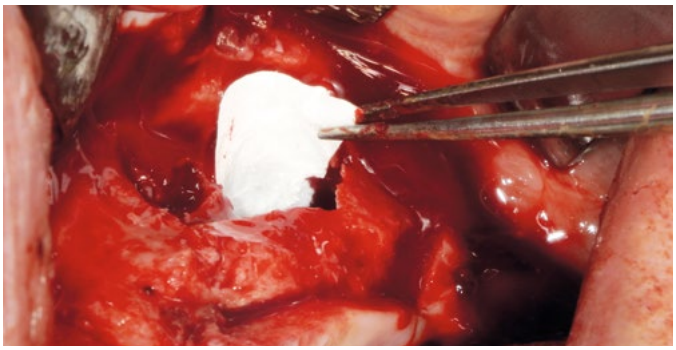
2 Exposure and opening of the bone window for the sinus lift.



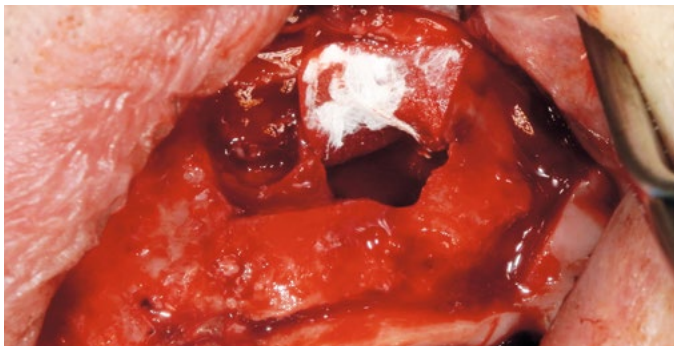
3 Autologous bone chips were collected with a bone scraper.



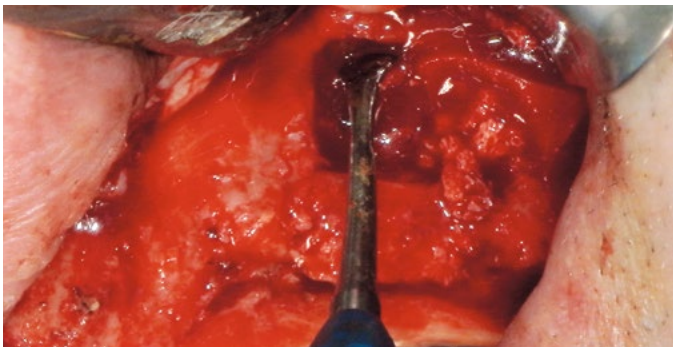
4 The smooth side of the Striate+, which was positioned towards the Schneiderian membrane is clearly depicted in the image.



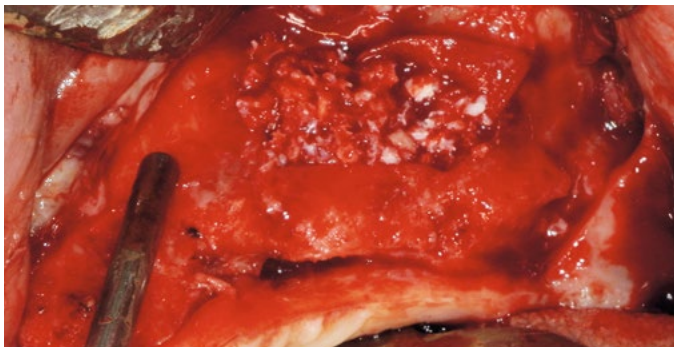
5 Striate+ was placed in the maxillary sinus, with the fibrous underside clearly visible.



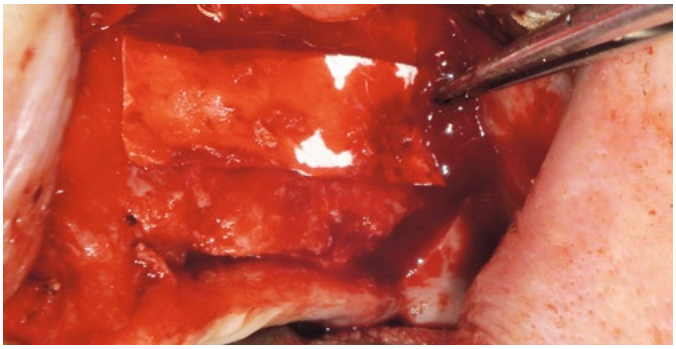
6 Due to the rapid absorption of defect blood, Striate+ becomes easily adaptable.



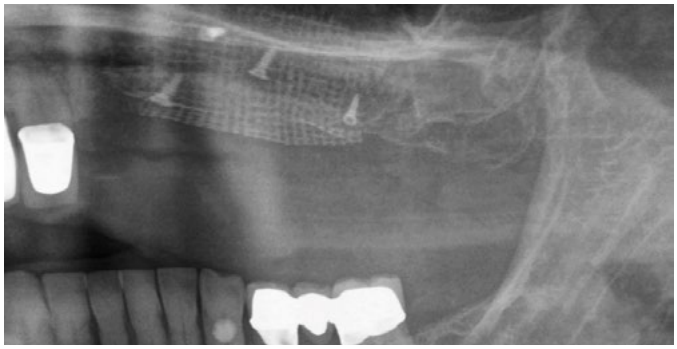
7 The maxillary sinus was filled with autologous bone chips and xenogenic bovine bone minerals mixed with hyaluronic acid (CeraOss HYA).



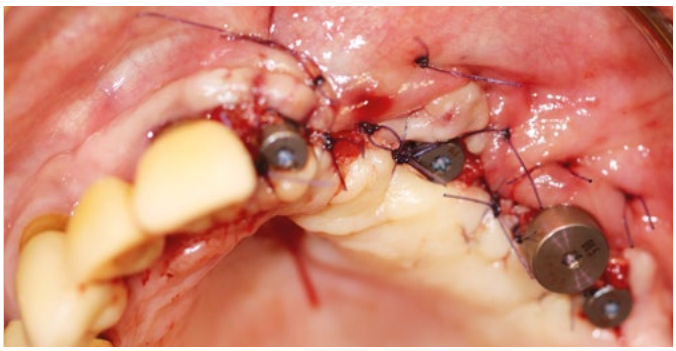
8 The bone graft was inserted in the sinus cavity to significantly gain in bone height.



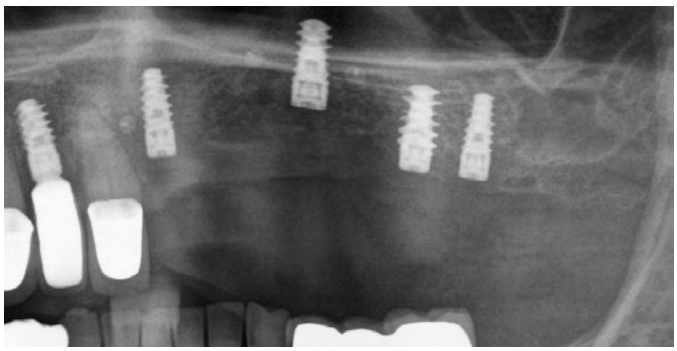
9 An additional Striate+ membrane was used to cover the bony window.



10 To increase the bone volume for the planned implantation, an augmentation with a titanium mesh (BioHorizons® Ti Micro Mesh) was additionally performed.



11 Insertion of four implants five months after augmentation.



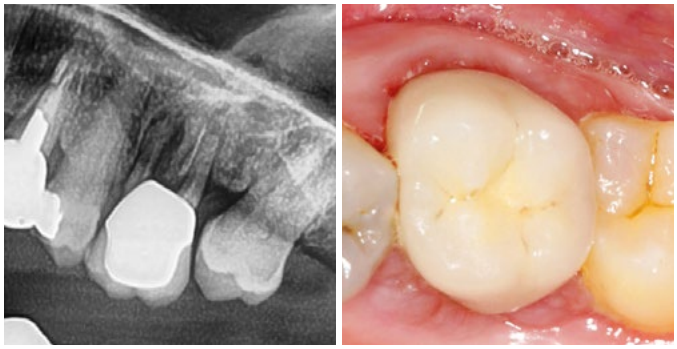
12 Radiological control after implantation.

Socket preservation with delayed implantation in the upper jaw

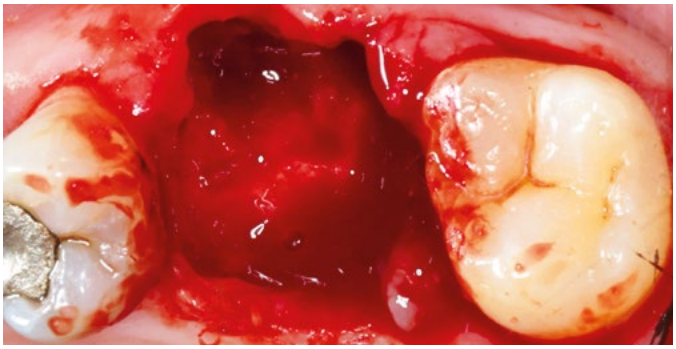
The 72-year female patient presented with unsalvageable tooth 26 due to an advanced apical periodontitis. The treatment plan consisted of atraumatic extraction and the filling of alveolus with porcine bone to preserve the bone structures during the three-month remodelling phase. Afterwards, a CAMLOG® PROGRESSIVE-LINE implant was inserted.

PD Dr. Gerhard Iglhaut
Memmingen, Germany

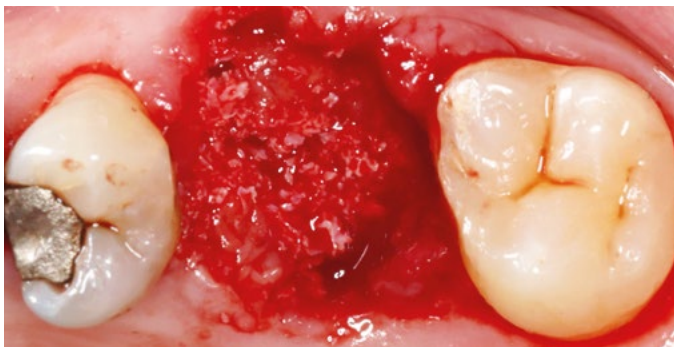
- Since 2017: Lecturer and research associate at the University Hospital Freiburg, Department of Dental, Oral and Maxillofacial Medicine, Clinic for Oral, Maxillofacial and Plastic Surgery (Head Prof. Dr. Dr. Schmelzeisen)
- 2009–2017: Lecturer and research associate at the University Hospital of the Georg-August-University in Göttingen, Department of Oral and Maxillofacial Surgery (Ordinarius Prof. Dr. Dr. Schliephake), habilitation in 2015
- 2004–2018: Member of the board of the German Society for Dental Implantology (DGI) with presidency from 2012–2015
- Since 2001: Member of the teaching staff of APW/DGI/DGÄZ/DGZ/DGZPW for Implantology, Aesthetic Dentistry, and Restorative Dentistry curricula
- Since 1987: Practitioner in Oral Surgery in Memmingen and continuously engaged in dental education
- 1977–1982: Studied dentistry at Justus-Liebig University in Gießen



1 Pre-operative situation: The panoramic radiography revealed significant apical periodontitis on tooth 26.

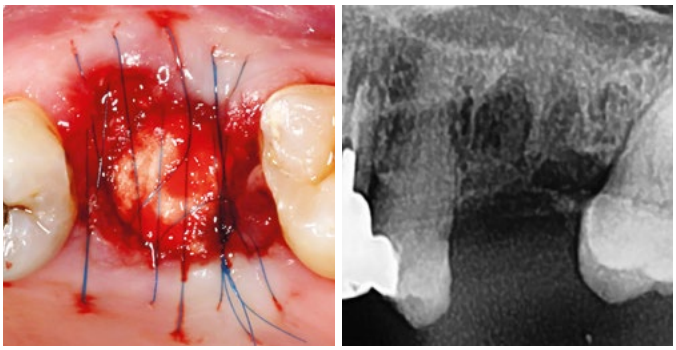


2 The tooth and root remnants were atraumatically removed.



3 The extraction socket was filled with porcine bone chips (MinerOss XP) and crushed L-PRF clots.

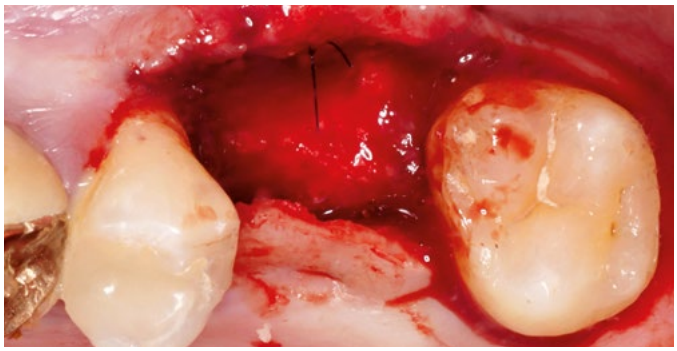
4 The augmentation site was covered with the Striate+ membrane.



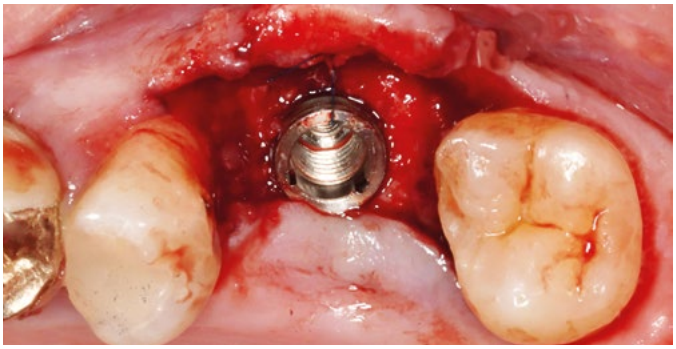
5 The wound margins were adapted with a continuous suture without primary wound closure (left), and a post-operative radiographic control was performed (right).

6 Fourteen days later, a good wound healing was observed with a fibrin coating on the exposed membrane over the socket.

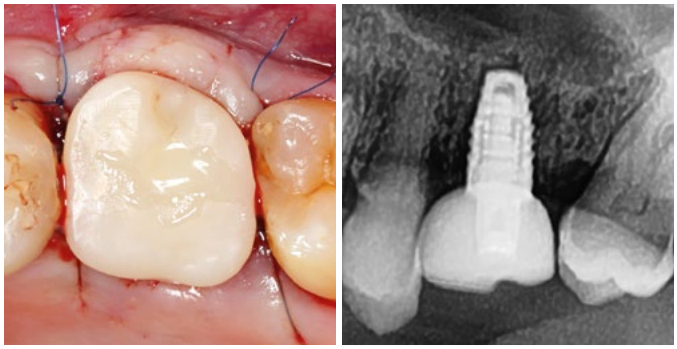
7 The crestal soft tissue had fully healed eight weeks post-operative.



8 At re-entry, three months after the socket preservation, healthy tissue structures and sufficient bone volume were present.



9 After preparing the implant site, a CAMLOG® PROGRESSIVE-LINE implant was inserted.



10 Immediately after implantation, the PMMA crown (left) was placed, and the implant position was checked on the panoramic radiography (right).

11 After removing the PMMA crown, an aesthetic emergence profile is achieved.

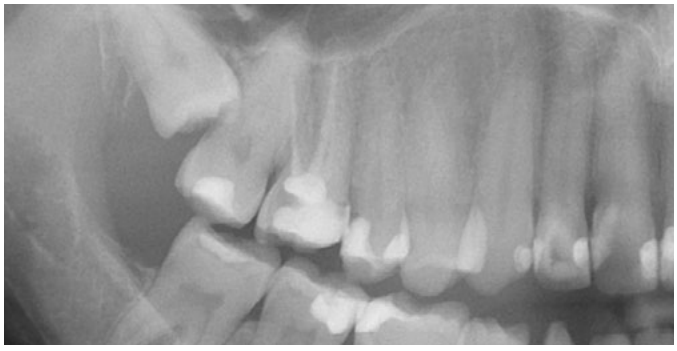
12 Occlusal (left) and buccal (right) view of the final prosthetic restoration showing a natural appearance.

Socket preservation with open healing

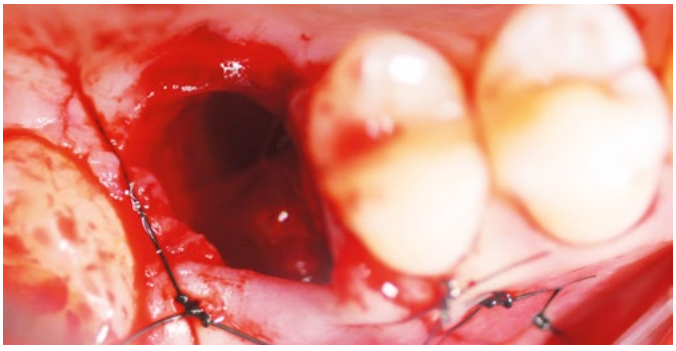
A 41-year female patient presented with unsalvageable tooth 16 following a longitudinal fracture. To achieve sufficient bone volume for the planned implant restoration, the tooth was atraumatically extracted, and socket preservation was performed using a bovine collagen/bone block and the Striate+ membrane. Additionally, the impacted wisdom teeth 18 and 28 were extracted as part of the treatment.

Dr. med. Dr. med. dent.
Helmut Hildebrandt
Bremen, Germany

- Ongoing scientific education at the University of California, Los Angeles (UCLA)
- Specialist training in Oral and Maxillofacial Surgery at the University Hospital Tübingen
- Studied Medicine and Dentistry at Johannes Gutenberg University Mainz
- Member of the German Society for Plastic and Reconstructive Surgery and the German Society for Laser Dentistry (DGL)

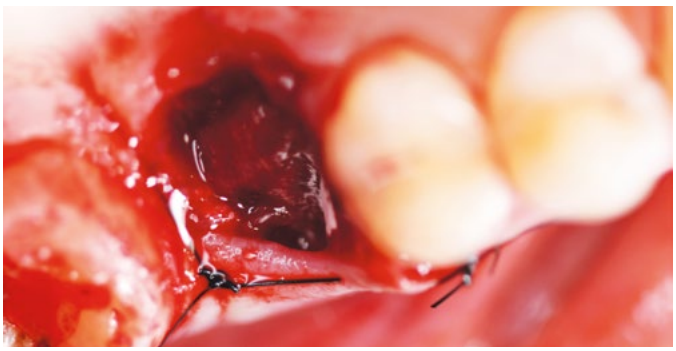


1 Pre-operative panoramic radiography: Tooth 16 is non-preservable, and tooth 18 is also removed.

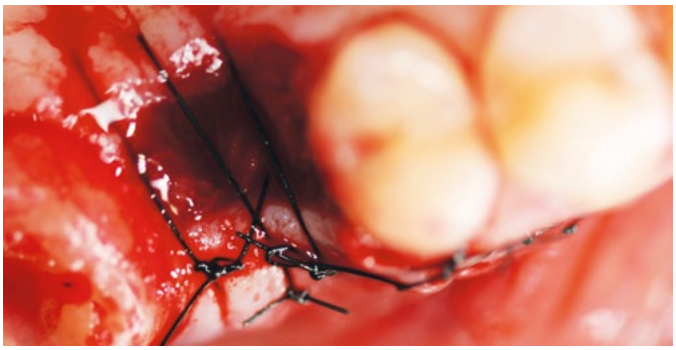


2 The clinical situation after the extraction of tooth 16.

3 Preparation of the Striate+ membrane: adaptation for socket preservation in its dry state.



4 The alveolar socket was filled with a bovine collagen/bone block and covered with the Striate+ membrane.



5 Striate+ was fixated by suturing with wound margin without primary closure.

6 The post-operative panoramic radiography showing the bovine bone particles within the alveolus.

7 One week post-operative, good wound healing is observed with fibrin coating on the Striate+ membrane.

8 One month after the procedure, the gingiva over the alveolus is completely healed.

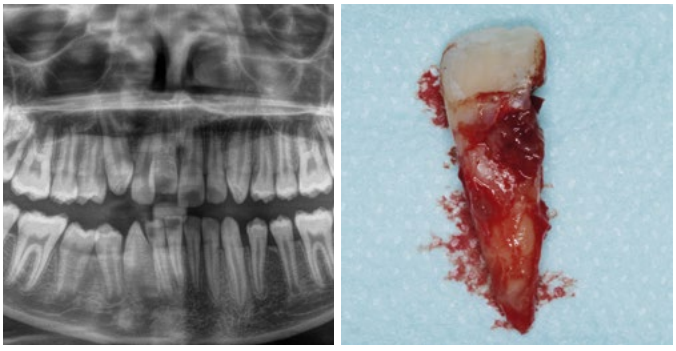
Socket preservation with delayed implantation and guided bone regeneration in the anterior area

A 19-year patient presented with external resorption and ankylosis of tooth 11 following trauma. The treatment plan included extraction combined with ridge preservation, as approximately 50% of the buccal bone lamella was missing. To improve the soft tissue conditions during extraction therapy, the augmentation was covered with a combination graft. Implant therapy was performed 16 weeks later. Porcine bone substitute material was used to compensate for the osseous deficit at the implant site, and Striate+ was used to cover the augmentation. To further thicken the soft tissues, a connective tissue graft was simultaneously placed during the implantation.

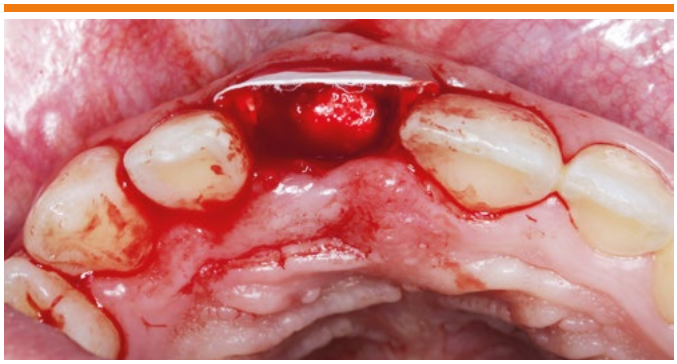
Dr. med. dent. Roman Beniashvili
Schorndorf, Germany

- 2005: Diplomate of ICOI. Member of the German Society of Oral Surgeons, German Society for Implantology, German Society for Oral Implantology, and more.
- 2002: Established private practice for oral surgery and implantology in Schorndorf/Baden-Württemberg.
- 1997: PhD in Implantology under Prof. Dr. Willi Schulte and Prof. German Gomez.
- 1990–1995: Studied dentistry at the University of Tübingen.
- National and international publications and lecture activities.

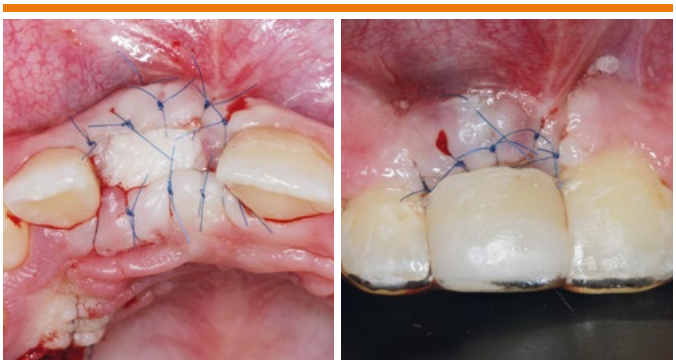
1 Buccal view of the non-preservable and ankylosed tooth 11.



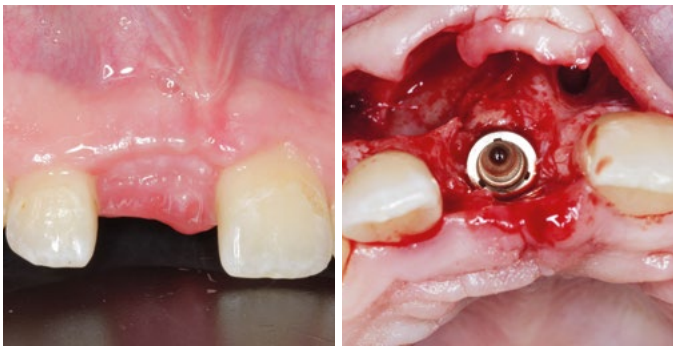
2 Panoramic radiography showed the displacement of the tooth (left). The tooth was extracted without complications (right).



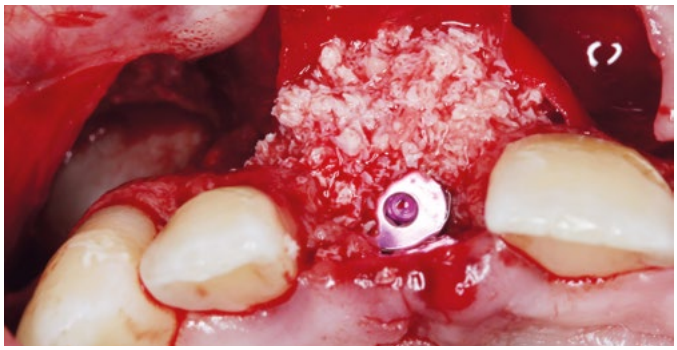
3 Striate+ was placed buccally into the alveolus in its dry state, and a slowly resorbable bone substitute material was added for augmentation.



4 To preserve more keratinized tissue around the implant, a free combination graft was harvested from the palate and secured in the defect area (Left: Occlusal view; right: Buccal view).



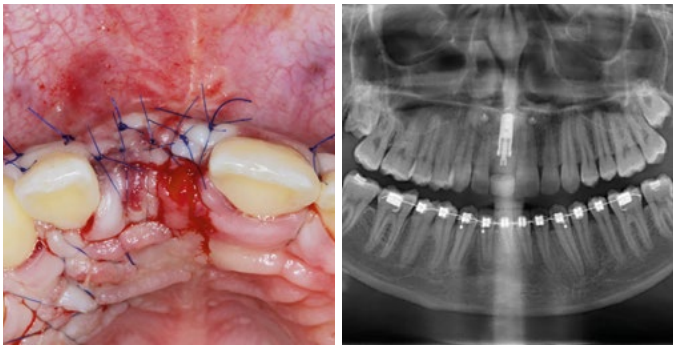
5 16 weeks after ridge preservation, good conditions of both bone (right) and soft tissue (left) were observed.



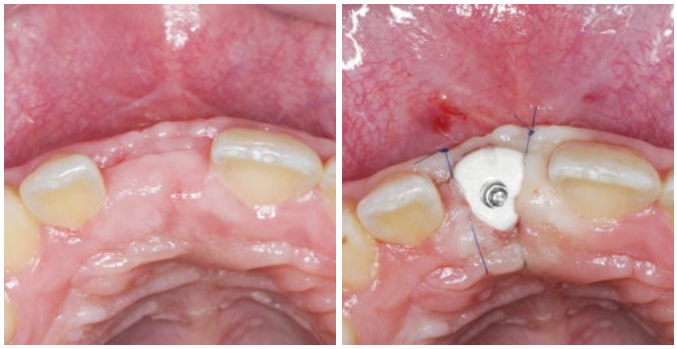
6 GBR was performed using Striate+ and porcine bone substitute material (MinerOss XP) to reconstruct adequate buccal bone volumes.

7 Striate+ was flipped palatially to fully cover the augmentation site.

8 A pedicled connective tissue graft was used to optimize the peri-implant soft tissue conditions.

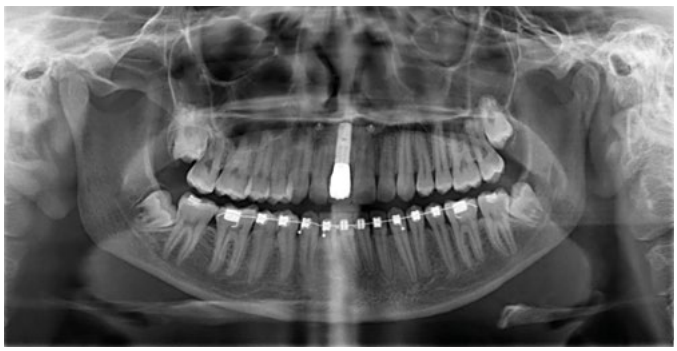


9 The implant site was closed without tension, with the overlying tissue flap in place (left). Postoperative panoramic radiography is shown (right).



10 The clinical situation at implant exposure after 16 weeks. Right: Individual PEEK healing abutment in place.

11 Six weeks later, the final prosthetic restoration with an optimal emergence profile was placed.



12 The final panoramic radiography shows stable bone conditions at the implant site in regio 11.

Ridge preservation with open healing after cystectomy

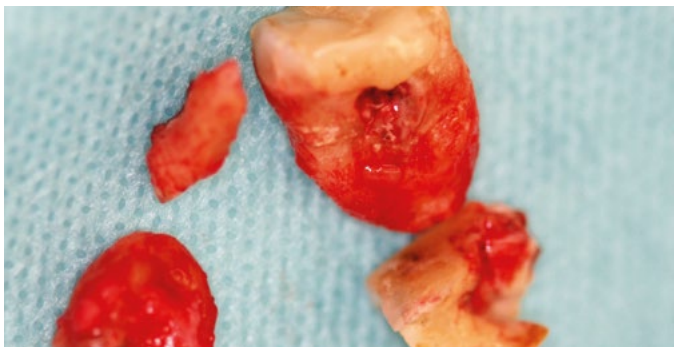
A 73-year female patient presented with two unsalvageable teeth (16 and 17) due to a radicular cyst. To preserve the bone structures, ridge preservation was performed following tooth extraction using bovine collagen/bone blocks and the Striate+ membrane, which was left exposed over the alveolus.

Dr. med. dent. Silke Stuff MSc
Pforzheim, Germany

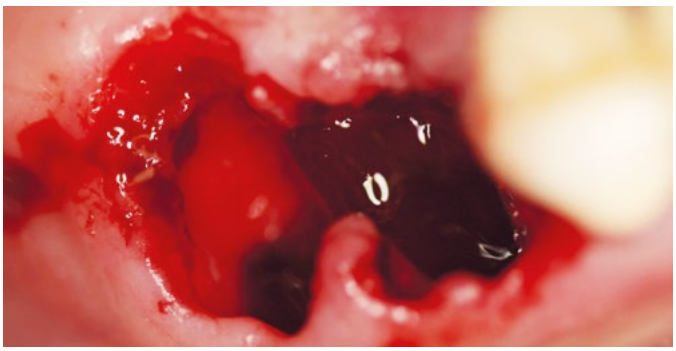
- 2020: Master of Science in Periodontology and Implantology (DPU)
- 2010: Focus in Implantology (DGI)
- 2002–present: Practicing in Pforzheim
- 2000–2002: Preparation period in Dr. Dieter Schreiber's practice in Pforzheim
- 2001: PhD
- 1995–2000: Studied Dentistry at Johannes Gutenberg University in Mainz

1 Initial situation before extraction: Radicular cyst at tooth 16.

2 The exposed tooth roots at teeth 16 and 17 indicate significant bone loss.

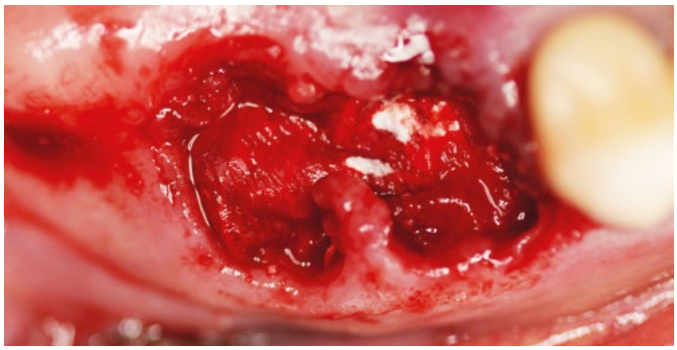


3 Situation after extraction of teeth 16 and 17, the root and tooth fragments are visible.



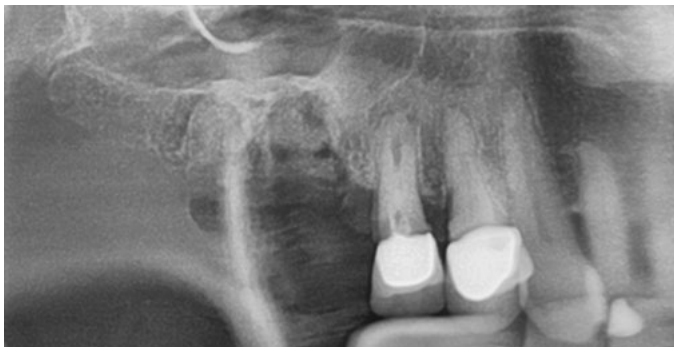
4 After tooth removal and cystectomy, a large bony defect was visible.

5 Removal of the Striate+ membrane from the sterile blister: the striped top is visible.



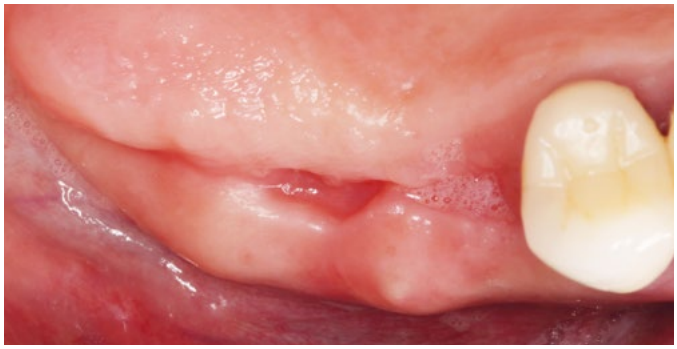
6 The extraction sockets were filled with a collagen/bone block and covered with the Striate+ membrane.

7 Wound edges were adapted, and the membrane was fixed without primary closure.



8 Post-operative panoramic radiography shows the alveoli filled with bone substitute material.

9 Despite the exposed membrane area, excellent wound healing was observed one week post-opeartive.



10 One month post-operative, healthy mucosa with complete wound closure was evident.

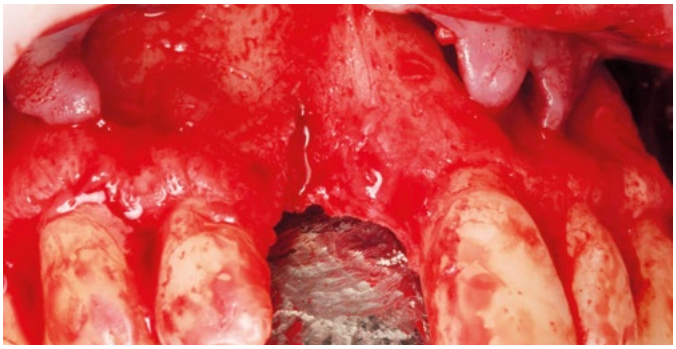
Three-dimensional bone reconstruction in the anterior maxilla with simultaneous soft tissue augmentation

25 years male patient in excellent health conditions, non-smoker, and with good oral hygiene. Two months earlier, the upper right tooth was extracted due to trauma and socket preservation was not possible. The treatment plan consisted of conducting the shell technique to achieve three-dimensional bone reconstruction. After a healing period of four months, the implant was placed simultaneously to a connective tissue graft to augment the crestal soft tissue.

Dr. Nikolaos Vourakis FICD MSc. DDS.
London, UK

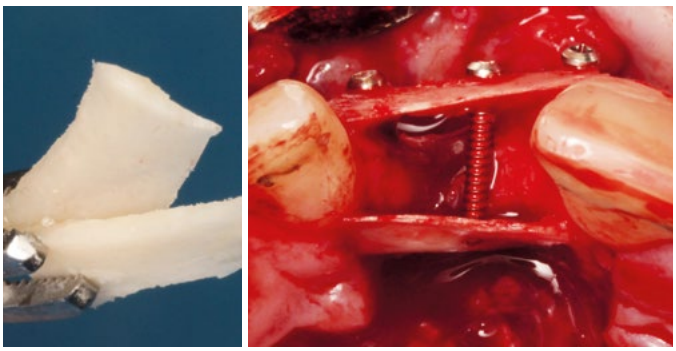
- Established in practice together with Dr Fazeela Khan -Osborne in London UK
- Master of Science in Oral surgery and Oral Implantology at Goethe University, Carolinum, Frankfurt Germany
- Internationally active lecturer in the field of Oral Implantology
- Lecturer in multiple Post Graduate diplomas in Oral Implantology in the UK

1 The fractured upper right tooth was extracted without socket preservation.

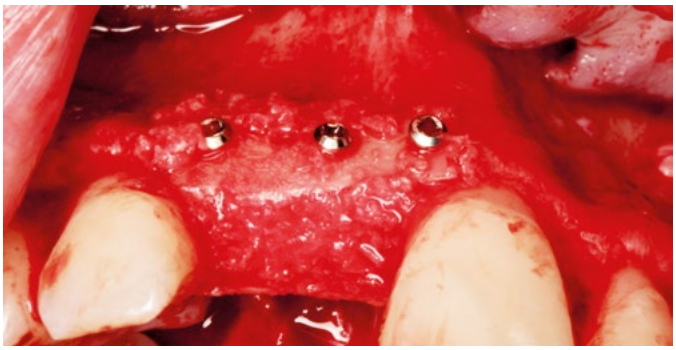


2 The patient presented two months later. The elevation of the mucoperiosteal flap revealed a significant vertical and horizontal bone loss.

3 4-mm thick bone block was harvested from the ramus. Bone particles were further collected from the area using a bone scraper.

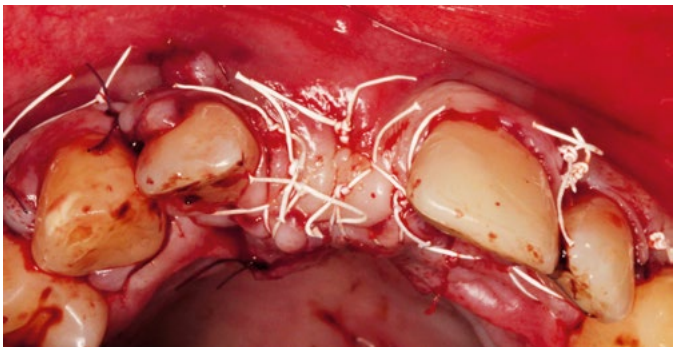


4 Left: The bone block was sectioned in two cortical plates of 1-mm thickness, which were fixed on the residual ridge buccally and palataly with osteosynthesis screws (right).

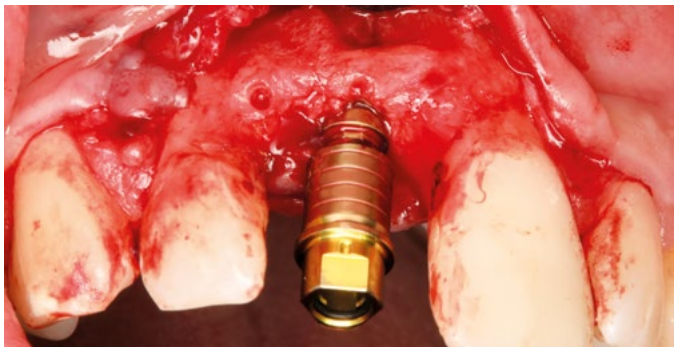


5 The volume between the two plates (i.e., the biological container) was filled with autogenous bone particles.

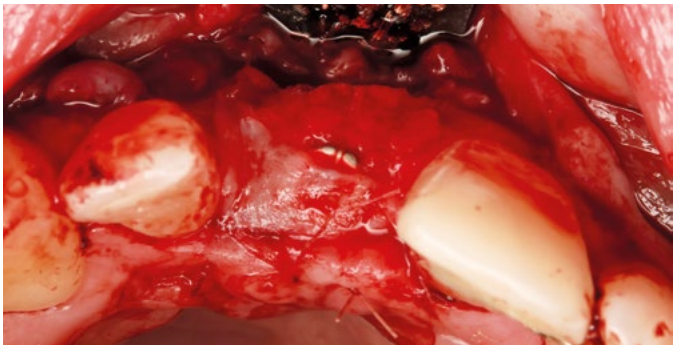
6 Occlusal view of a Striate+ covering the defect. The membrane was tacked deep in the palatal side and folded buccally without further fixation.



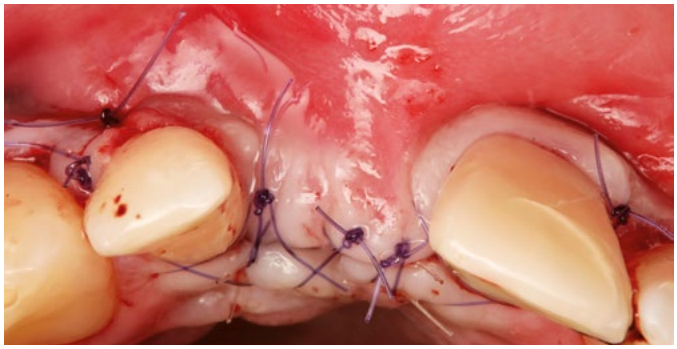
7 Tension-free primary closure was achieved by sutures.



8 After four months of uneventful healing, full thickness flap was raised and a CONELOG® PROGRESSIVE-LINE implant was placed within the bony envelope in the correct vertical depth.



9 To ensure adequate thickness of the crestal soft tissue, a connective tissue graft was harvested from the palate, placed on top of the 2-mm high cover screw, and further attached on the palatal flap and the buccal periosteum with 6/0 Glycolon monofilament sutures.



10 A combination of full thickness and split thickness flap with superficial relieving incisions to separate the mucosa from the underlying muscle was performed to increase the mobility of the flap without disturbing the vestibular depth. The flap was coronally advanced and secured with 4/0 PTFE sutures to achieve primary closure.

11 Three months later, a 4-mm healing abutment was placed.

12 After 4 months of tissue conditioning, the provisional restoration was mounted.

Three-dimensional bone reconstruction in the anterior maxilla with simultaneous implant placement

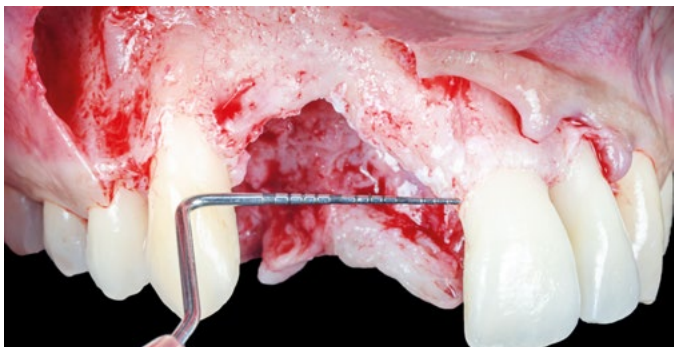
32-year female patient in excellent health conditions, non-smoker, and with good oral hygiene. The patient presented with a partial denture and a significant bone defect in the horizontal and vertical dimensions. The treatment plan consisted of replacing the current denture with implant-supported single crowns. The shell technique was conducted to achieve three-dimensional bone reconstruction simultaneous to guided implant placement.

Dr. Ramon Gomez Meda
Ponferrada, Spain

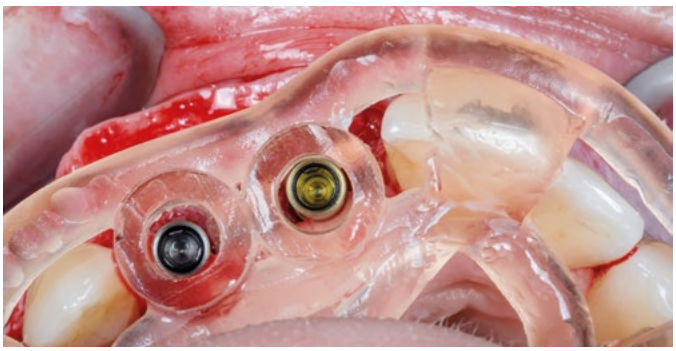
- Founder of MEDA Training Center, La Coruña, Spain
- Adjunct Assistant Professor of the Department of Prosthodontics at LSUHSC School of Dentistry (New Orleans, Louisiana, USA)
- Director of Master program in Implants and Implant Prosthesis. UAX University (Madrid, Spain)
- International speaker on Periodontics, Esthetic Dentistry and Multidisciplinary Treatments
- Postgraduate training in Periodontics and Implantology (Madrid); Occlusion and Temporo-mandibular Dysfunction (Valencia) and Orthodontics (University of Santiago de Compostela).
- Thesis Award of the Autonomous Community of Galicia for Academic Excellence
- PhD In Oral Pathology and Health by the University of Sevilla
- Degree in Dentistry from the University of Santiago de Compostela

1 Frontal view depicting the baseline situation with a removable prosthesis substituting the anterior teeth 12 and 13.

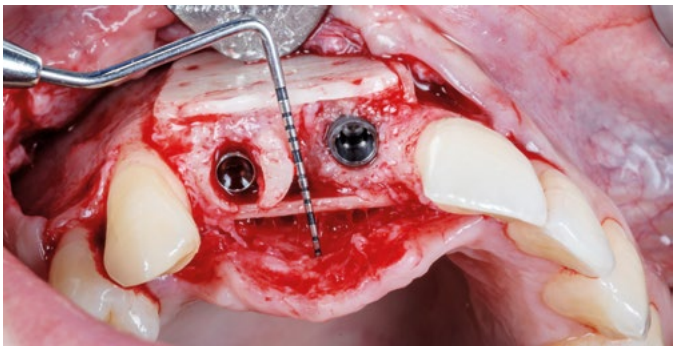
2 Pre-operative X-ray panoramic radiography showing a significant bone resorption resulting from teeth loss.



3 Two release incisions were performed to reflect a full mucoperiosteal flap: one vertical located two teeth distal to the lesion and one intrasulcular that was extended two teeth mesial to the defect.

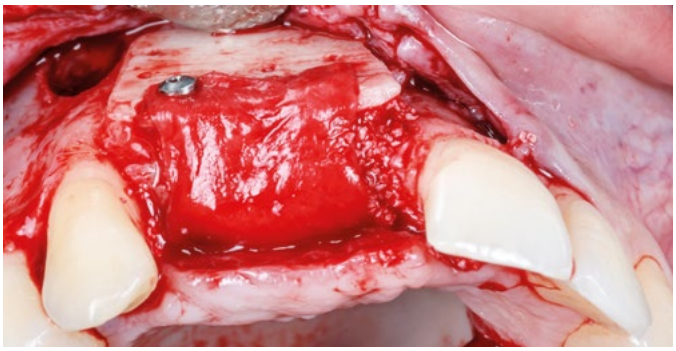


4 Prosthodontically driven planning was conducted by digital wax-up. The surgical guide was used to accurately place the implants in regio 12 and 13.



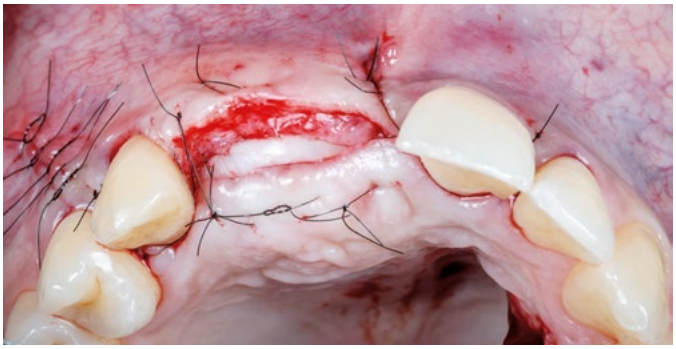
5 Bone augmentation was attempted using the shell technique. Cortical plates were secured by osteosynthesis screws to create the biological container, which was filled with autogenous bone chips and blocks.

6 To stabilize the bone graft, Striate+ was first fixed in the palatal side by tacks.



7 Striate+ was rolled over the biological container and fixed buccally on the cortical plate using osteosynthesis screws.

8 Leukocyte and Platelet rich Fibrin (L-PRF) membranes were produced and placed over the defect site.



9 The flap was slid coronally, and tension-free closure was achieved by sutures.

10 Visual observation after two weeks showing good soft tissue healing.

11 Satisfactory vertical and horizontal bone reconstruction including the proximal tissue defect on the canine was achieved six months post-operative.

12 Provisional restoration consisting of a removable vacuum stent with resin veneers was mounted.

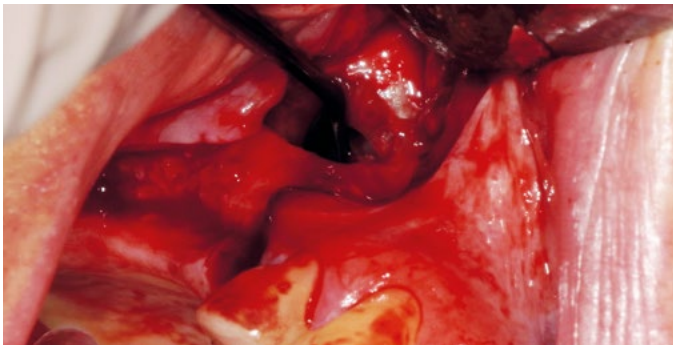
Alveolar ridge regeneration with allogeneic cortical plates and sinus lift

A 68-year patient presented with an incomplete dental arch from regio 15 to 18. As significant bone resorption had already occurred in the posterior maxilla, a sinus lift was performed to restore the vertical bone level. Additionally, an allogeneic cortical plate was used to widen the alveolar ridge. To protect the augmentation site from resorption during healing, the graft was covered with a Striate+ membrane.

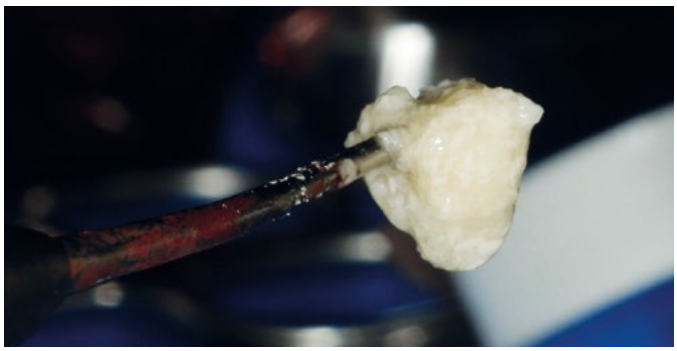
Univ.-Prof. Dr. med. Dr. med. dent.
Peer Kämmerer, MA, FEBOMFS
Mainz, Germany

- 01/2021: Appointment to the W2 professorship in "Plastic-Reconstructive Oral and Maxillofacial Surgery" at the Johannes Gutenberg University Mainz
- 01/2018: Appointed Senior Consultant/ Deputy Director of the Department of Oral, Maxillofacial, and Plastic Facial Surgery at University Medical Center Mainz
- 2012/2013: Visiting Professor at Harvard Medical School, Boston, MA, USA
- 10/2015: Habilitation in the field of Oral and Maxillofacial Surgery (Dr. med. habil.)
- 02/2016: Master of Arts (MA), Management of Healthcare and Social Facilities
- 2004–2010: Studied dentistry at Johann Wolfgang Goethe University, Frankfurt, and Johannes Gutenberg University Mainz
- 2001–2007: Studied medicine at Johannes Gutenberg University Mainz and the University of Zurich, Switzerland

1 Preparation of the external sinus window with an intact Schneiderian membrane.

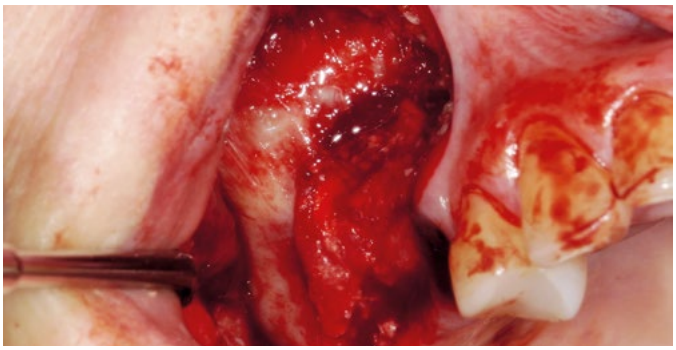


2 Elevation of the Schneiderian membrane.

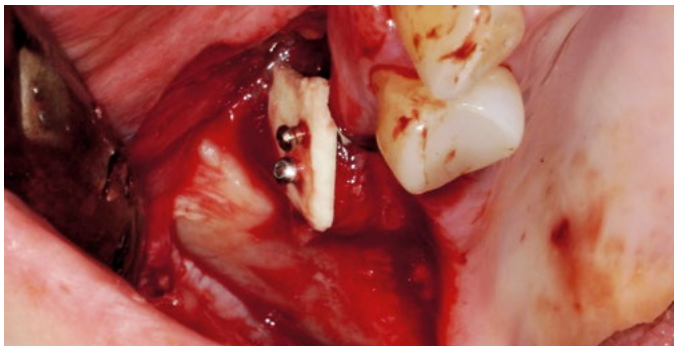


3 Allogeneic bone material (MinerOss A) was mixed with iPRF for the sinus lift.

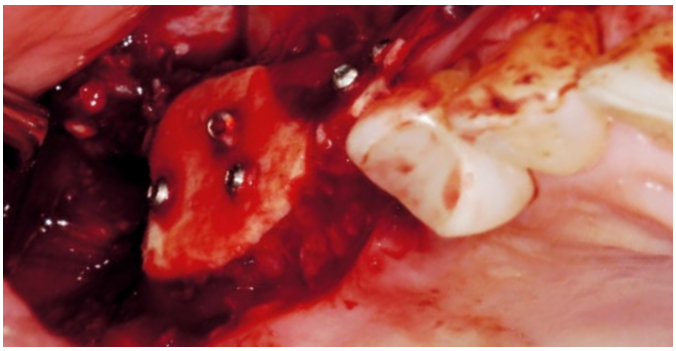
4 View of the fibrous network on the underside of the Striate+ membrane.



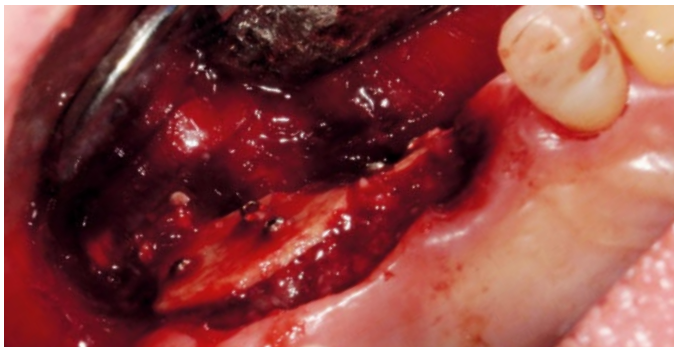
5 The sinus cavity was filled with bone material and covered with Striate+.



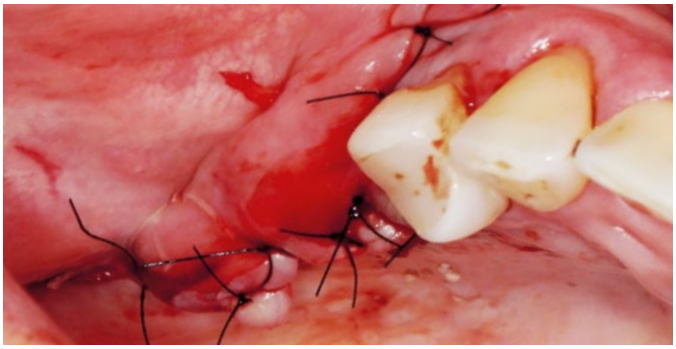
6 To regenerate additional lateral bone volume, an allogeneic cortical plate (MinerOss A Cortical Plate) was placed.



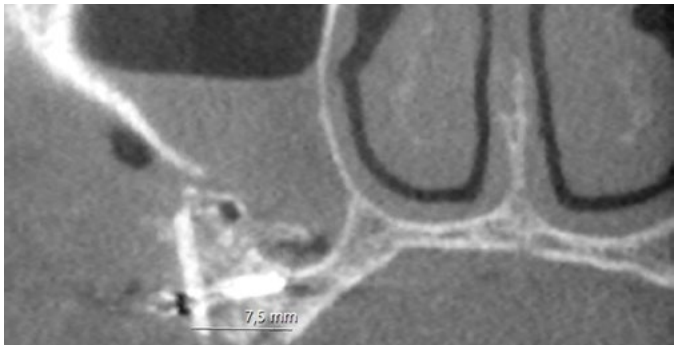
7 Lateral view of the allogeneic bone shell filled with allogeneic bone granules.



8 Occlusal view of the allogeneic bone shell.

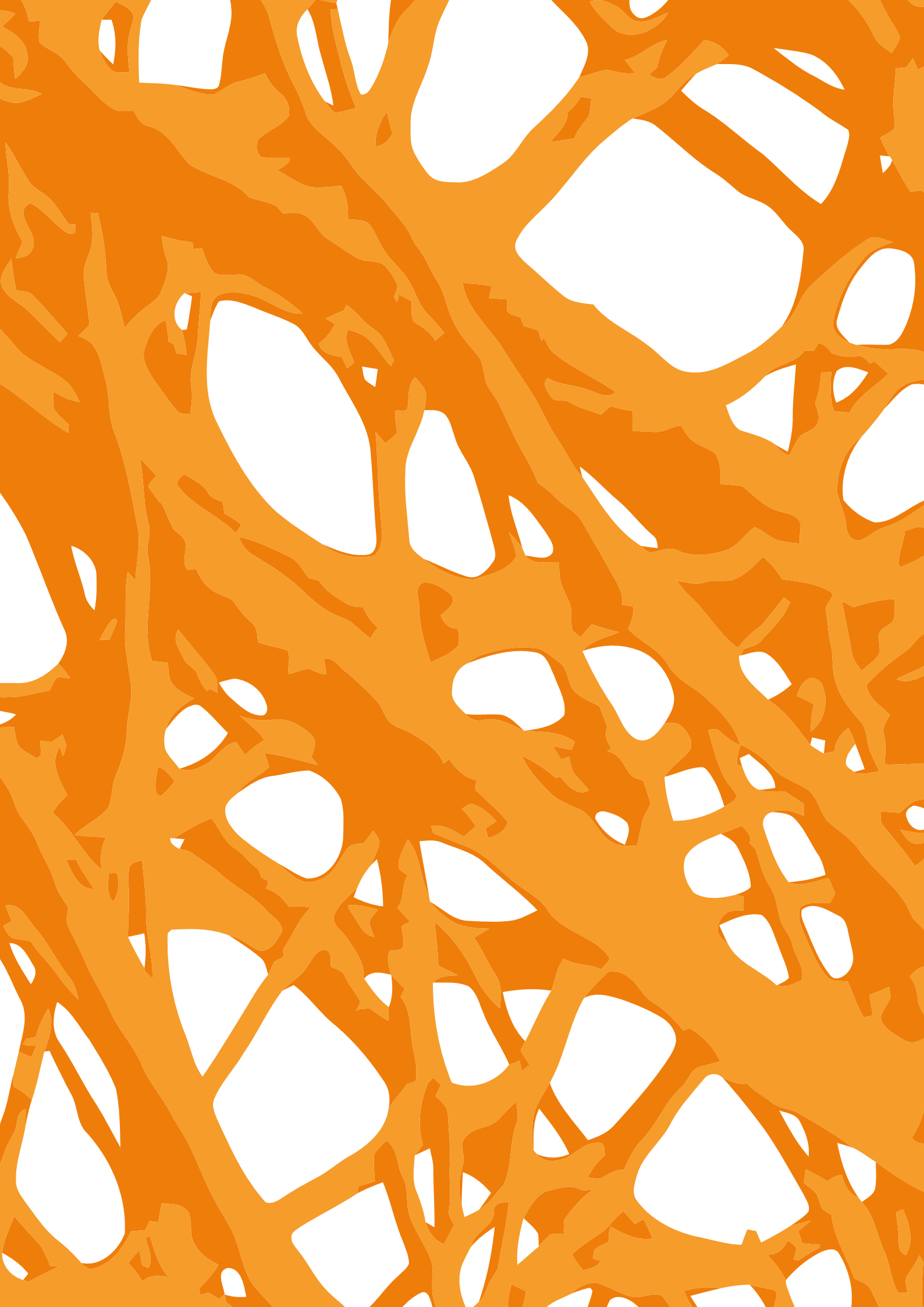


9 Primary closure of the augmentation site with tension-free sutures.



10 Radiological postoperative control.

Notes



Headquarters
CAMLOG Biotechnologies GmbH | Margarethenstr. 38 | 4053 Basel | Switzerland
Phone +41 61 565 41 00 | Fax +41 61 565 41 01 | info@camlog.com | www.biohorizonscamlog.com

Inspiring excellence in oral reconstruction

biohorizons camlog